

Cooperative Institutions as Pathways to Formal Banking: Evidence from Zambian Micro, Small, and Medium Enterprises

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METADATA

Keywords:

Micro, Small and Medium Enterprises

Financial access

Cooperative finance

Institutional economics

Zambia

JEL: G21

O17

O16

ISSN: 3136-2575 (Online)

ABSTRACT

This study investigates the relationship between cooperative registration and formal financial access among Micro, Small, and Medium Enterprises (MSMEs). It examines whether cooperative membership expands financial service breadth and assesses formalization as a potential institutional pathway. The research uses cross-sectional data from the 2022 Zambia MSME Finance Survey. The empirical strategy applies survey-weighted logistic regression to estimate average marginal effects. The study employs inverse-probability weighting (IPW) to adjust for a rare treatment group and uses multiple imputation by chained equations to address missing income data. The sample comprises 4,063 business owners. Baseline adjusted models rely on 2,542 observations with complete covariate information. Cooperative registration has a positive association with formal bank account ownership. Adjusted estimates suggest a 14.7 percentage point higher probability of bank access for registered cooperatives. IPW estimates remain positive and statistically significant. The positive association with financial-service breadth reaches statistical significance under count specifications but not under ordered-logit estimation. The inclusion of enterprise formality metrics reduces the magnitude of the cooperative coefficient. Conceptually, the paper distinguishes between general financial breadth and targeted formal banking access. Methodologically, it addresses rare treatment constraints and item non-response in observational survey data.

Article history: Received: 20 Aug 2026; Received in revised form: 4 Sep 2026; Published: 8 Sep 2026

1. Introduction

Micro, small, and medium enterprises (MSMEs) experience severe credit rationing and persistent barriers to formal financial services. Traditional financial institutions frequently reject informal sector applications because unrecorded micro-businesses present high perceived credit risks. While digital financial services continue to expand rapidly across developing economies, integration into traditional commercial banking remains difficult for businesses operating outside formal regulatory structures. Recent literature suggests that social capital and active membership in associations can bridge these gaps by improving enterprise productivity and expanding access to credit (Boudreaux et al., 2022). The specific capacity of formal cooperative registration to serve as a conduit to commercial banking lacks rigorous observational evaluation in Sub-Saharan Africa.

This study asks three primary research questions. First, is cooperative registration associated with a higher probability of formal bank account ownership among Zambian MSMEs? Second, do cooperative-registered MSMEs access a broader range of financial services than non-registered enterprises? Third, does enterprise formalization alter the relationship between cooperative registration and bank access?

The paper offers two distinct contributions to the literature. Conceptually, it shifts the focus from broad financial inclusion indices to specific institutional barriers. Rather than claiming cooperatives improve all financial outcomes universally, the study distinguishes between traditional banking and alternative financial products to determine where institutional friction occurs. The study tests formalization as an institutional pathway connecting cooperatives to financial access. Methodologically, the research design addresses common vulnerabilities in cross-sectional enterprise surveys. By deploying inverse-probability weighting (IPW) and multiple imputation, the empirical strategy actively manages the limitations of a rare treatment group and substantial item non-response.

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The remainder of the paper proceeds as follows. Section 2 reviews the theoretical and empirical literature to develop the core hypotheses. Section 3 outlines the data and econometric methodology. Section 4 presents the empirical results and robustness diagnostics. Section 5 discusses the findings and policy implications. Section 6 concludes.

2. Literature Review

2.1. Theoretical Review

This study grounds its analysis in Information Asymmetry Theory and Social Capital Theory. Information Asymmetry Theory explains the credit rationing those informal enterprises face. Traditional banks cannot reliably assess the risk of unrecorded micro-businesses, leading to systematic financial exclusion. Lenders face adverse selection when evaluating businesses that lack credit histories or formal documentation (Eniowo et al., 2022).

Social Capital Theory provides a complementary perspective to solve this friction. It posits that shared networks generate trust and reduce transaction costs. Bridging social capital allows marginalized entrepreneurs to access external resources (Shharma et al., 2026). Cooperative registration functions as a signaling mechanism. By joining a legally recognized cooperative, MSMEs signal a basic level of organizational stability and peer accountability. The collective identity of the cooperative substitutes for the traditional physical collateral and documented financial history that individual micro-enterprises lack.

2.2. Empirical Review and Hypotheses Development

MSMEs operate with significant financing constraints. Geographic isolation and weak financial infrastructure restrict financial inclusion among informal sector participants (Wanzala and Obokoh, 2025). Empirical evidence suggests that cooperative structures help overcome these exact barriers. Cooperative networks positively correlate with agricultural credit access in the Democratic Republic of Congo (Mulume et al., 2022). In Ghana, cooperative lending groups provide alternative, long-term credit channels for women entrepreneurs facing formal sector exclusion (Fieve and Chrysostome, 2024). Local financial institutions and self-help group linkage programs integrate marginalized groups into formal banking systems in Brazil and India (Al-Kubati and Selvaratnam, 2023; Arestis and Phelps, 2023; Panakaje et al., 2024). International evidence from Germany, Malaysia, and Egypt also supports the premise that cooperative financing extends financial services to populations ignored by traditional banks (El Badry et al., 2025).

In Zambia, entrepreneurial social capital mediates small business productivity through improved financing channels (Boudreaux et al., 2022). Cooperative registration provides a recognizable legal entity. Banks can interface with the cooperative through formal linkage programs rather than assessing individual micro-enterprises directly (Latumeten et al., 2022). This structural advantage leads to the first hypothesis.

H1: Cooperative-registered MSMEs are more likely to have access to a formal bank account than otherwise comparable non-cooperative-registered MSMEs.

The literature on financial inclusion increasingly measures the intensity and breadth of financial product usage. Data from living standards surveys in Ghana demonstrate that cooperative availability increases the intensity of financial product usage among households (Issahaku et al., 2023). Savings and credit cooperatives specifically tailor their operations to the microfinance market, creating social value where traditional systems fail (Segovia-Vargas et al., 2023). The ability of cooperatives to deliver financial literacy training alongside credit services suggests they may expand overall financial capability (Kyeyune and Ntayi, 2025). This generates the second hypothesis.

H2: Cooperative-registered MSMEs have greater access to a broader range of formal financial services than non-cooperative-registered MSMEs.

The literature on direct enterprise formalization presents mixed outcomes. Panel data from Vietnam suggests that formalization increases firm value-added, but this benefit primarily applies to larger businesses rather than precarious micro-units (Demenet et al., 2016). Experimental evidence from Benin indicates that inducing informal firms to formalize does not inherently improve sales or profits, and the administrative costs often exceed the expected tax revenue (Benhassine et al., 2018). Other studies report that formality may even decrease access to formal credit under certain conditions in emerging markets (Archer, 2021).

Regulatory friction actively discourages direct participation in the formal economy. Qualitative evidence from Indonesia suggests that flaws in micro-enterprise registration prevent units from extending licenses, entirely blocking their access to formal Islamic banking (Saifurrahman and Kassim, 2024). In Peru, formalized small-scale miners report feeling over-scrutinized by state apparatuses without receiving commensurate access to capital (Martinez et al., 2021). Because individual formalization carries high administrative costs and uncertain returns, cooperative

membership functions as an alternative institutional bridge. Merchant networks drive digital and financial adoption more effectively than physical infrastructure expansions (Motheram and Buteau, 2026). If cooperative registration successfully substitutes for individual formalization, the positive association with bank access will change once enterprise-level formality is held constant in the empirical model.

This reasoning generates the third hypothesis.

H3: The association between cooperative registration and formal bank-account ownership differs significantly between formal and informal MSMEs.

3. Data and Methodology

3.1. Data Source

The study uses data from the 2022 Zambia Micro, Small and Medium Enterprise Finance Survey, administered by the Zambia Statistics Agency and the Bank of Zambia. The survey employs a stratified two-stage sampling design to ensure national representation by rural and urban segmentation. The initial dataset contains 4,063 individuals aged 15 or older who own a micro, small, or medium business. The analytical sample for the fully adjusted baseline models comprises 2,542 observations due to item non-response in covariate data. All estimations apply the official individual business weights to adjust for the complex survey design.

3.2. Variable Measurement

The primary outcome variable is a binary indicator of formal bank account ownership. To test the breadth of financial access, the study constructs a count variable (0 to 4) summing the ownership of a bank account, mobile money account, savings account, and business insurance. The principal explanatory variable is cooperative registration, coded as a binary indicator for businesses registered with the Registrar of Cooperatives.

The analysis includes a comprehensive set of owner and enterprise covariates to reduce observable confounding. Owner characteristics include sex, age, and education level (primary or less, secondary, tertiary). Enterprise characteristics include business age, official MSME size classification (micro versus small/medium), industry sector (agriculture, trade/wholesale, manufacturing, services/other), and regional stratum (rural versus urban). The natural logarithm of average sales measures economic capacity. Extended specifications introduce a binary indicator for business training to assess capacity building, and a binary indicator for informal sector status to test institutional pathways.

3.3. Econometric Strategy

Because the primary outcome is binary, the study estimates a series of survey-weighted logistic regression models. The results report the average marginal effects (AME), representing the average percentage point difference in the probability of bank account ownership associated with cooperative registration. For the count outcome, the study estimates Poisson and negative binomial regressions, followed by an ordered logit specification for robustness.

The empirical strategy relies on cross-sectional observational data, which prevents strict causal identification. Unobserved confounding remains a possibility. To assess the stability of the estimates under a rare treatment ($N=99$), the study applies inverse-probability weighting (IPW). The IPW estimator reweights the control group to match the covariate distribution of the treated group, providing an adjusted treatment effect under the assumption of selection on observables. Because 1,027 observations lack income data, the study uses multiple imputation by chained equations (predictive mean matching) to verify that missing data does not drive the primary result.

4. Results

4.1. Missing Data and Selection Diagnostics

The diagnostic assessment of missing income suggests no significant relationship between cooperative registration and item non-response. The marginal effect of cooperative registration on the probability of missing income is 0.082 ($p = 0.374$). This result reduces concerns that differential income non-response explains the observed associations. The multiple imputation model yields a positive and significant log-odds coefficient, consistent with the complete-case analysis.

4.2. Primary Finding (Bank Account Access)

Table 1 reports the average marginal effects and robustness diagnostics for bank account ownership. Holding observed characteristics constant, cooperative registration is associated with a 14.7 percentage point higher probability

Table 1

Association between cooperative registration and bank account ownership

Estimator	Cooperative Estimate	Interpretation
Unadjusted	+31.7 pp***	Raw difference
Survey-weighted adjusted AME	+14.7 pp**	Conditional association
IPW ATE	+11.4 pp*	Propensity-weighted robustness
Missing Income Check	+8.2 pp (p=0.374)	Predicts income missingness

Note: *** p<0.001, ** p<0.01, * p<0.05. Source: Data analysis in Stata 17

Table 2

Financial Service Breadth and Extended Specifications

Specification	Cooperative Coefficient	Model Type
Financial Breadth	0.365*	Poisson
Financial Breadth	0.365*	Negative Binomial
Financial Breadth	0.631	Ordered Logit
Extended: + Training	1.634***	Logit
Extended: + Formality	1.054*	Logit

Note: *** p<0.001, ** p<0.01, * p<0.05. Source: Data analysis in Stata 17

of bank account ownership (p=0.005). The estimate remains stable across specifications. The model excluding income reports a highly significant logit coefficient (1.633), and the model including income reports a nearly identical coefficient (1.613).

The IPW estimator provides an adjusted difference of 11.4 percentage points (p=0.049). The direction and substantive magnitude of the association are consistent across regression adjustment and inverse-probability weighting. Visual inspection of propensity score densities indicates adequate common support between the treated and untreated enterprises within the restricted sample.

4.3. Secondary Finding (Financial Service Breadth)

Table 2 presents the results for the breadth of financial services. The Poisson model yields a positive association, suggesting cooperative registration correlates with 0.215 additional financial services (p=0.033). The negative binomial model produces identical coefficients. The ordered-logit specification does not reach conventional statistical significance (coefficient = 0.631, p>0.05). Descriptive statistics contextualize this finding: only 2.36% of the sample reports a savings account, and 1.11% reports business insurance.

4.4. Extended Specifications and Mechanisms

Table 2 also reports the results of the extended models testing institutional pathways. When adding capacity building to the bank access model, the cooperative coefficient remains stable at 1.634. Adjustment for capacity-building participation does not materially change the cooperative-registration association.

Introducing the informal sector indicator alters the model. The cooperative coefficient decreases in magnitude from 1.613 to 1.054. Operating in the informal sector has a strong negative relationship with bank access (-1.167, p<0.001).

5. Discussion

The results provide support for Hypothesis 1. Cooperative registration has a large, positive, and statistically significant association with formal bank account ownership among MSMEs in Zambia. The 14.7 percentage point adjusted difference is economically meaningful. This finding is consistent with the broader literature suggesting that collective networks assist entrepreneurs in overcoming financial exclusion (Boudreaux et al., 2022). It aligns with observations in Brazil and Ghana, where local credit cooperatives successfully reach underserved populations (Arestis and Phelps, 2023; Fieve and Chrysostome, 2024). These results contrast with contexts where formalization decreases formal credit access (Archer, 2021). Interpreted through Information Asymmetry Theory, the data suggest that cooperative membership supplies the institutional credibility necessary to satisfy commercial banking requirements.

The data provide partial support for Hypothesis 2. The positive association with financial-service breadth was significant under count specifications but did not reach statistical significance under ordered-logit estimation. This outcome contrasts with Issahaku et al. (2023), who found that cooperatives strongly dictate the intensity of financial inclusion in Ghana. Instead, the Zambian financial landscape is highly concentrated around mobile money and basic bank accounts. This supports the argument by Motheram and Buteau (2026) that structural and network constraints dictate digital adoption more heavily than theoretical demand. Cooperative registration correlates with formal banking access, but the relationship does not systematically translate into access to peripheral financial products like business insurance or separate savings accounts.

The findings are consistent with Hypothesis 3. The cooperative-registration coefficient decreased substantially after accounting for enterprise formality, while informal-sector status was negatively associated with bank-account ownership. Although this cross-sectional evidence cannot establish temporal ordering, the reduction in magnitude suggests that formalization forms part of the institutional pathway linking cooperative registration to formal financial access. Individual formalization carries high administrative costs and uncertain benefits for micro-enterprises, often resulting in increased state scrutiny rather than capital access (Benhassine et al., 2018; Martinez et al., 2021). Cooperatives appear to substitute for strict individual formalization, granting otherwise informal MSMEs the organizational legitimacy necessary to interact with formal lenders.

These findings yield specific policy implications. Inducing informal micro-enterprises to formalize directly through the tax system is often cost-ineffective and yields limited benefits for the firms. Policymakers could consider promoting cooperative registration as an alternative, intermediate step. By encouraging MSMEs to pool resources and formalize collectively, governments may help integrate vulnerable businesses into the commercial banking sector without immediately imposing regulatory burdens.

6. Conclusion

This study investigates whether cooperative registration correlates with formal financial access among Zambian MSMEs. The findings indicate that registered cooperatives have a 14.7 percentage point higher probability of maintaining a formal bank account compared to non-registered peers. This association remains stable across survey-weighted marginal effects, inverse-probability weighting, and multiple imputation models. The evidence suggests that cooperatives act as institutional bridges. They provide organizational formality to businesses that would otherwise remain excluded from traditional banking.

Governments and development agencies aiming to expand financial inclusion could consider integrating cooperative formation into their broader economic strategies. Supporting collective enterprise structures may offer a more viable path to financial access than demanding strict individual formalization. The primary limitation of this study is its reliance on cross-sectional observational data, which restricts causal claims. The small number of treated enterprises also requires cautious interpretation of the exact magnitude of the estimates. Future research using panel data or quasi-experimental designs is necessary to establish the temporal ordering of cooperative registration, formalization, and financial access.

Declarations

Acknowledgements: The authors would like to thank the Zambia Statistics Agency and the Bank of Zambia for providing the data for the Micro, Small and Medium Enterprise Finance Survey 2022, which was used in this study. The authors also thank all the respondents who took part in the initial survey.

Funding: No specific funding agency made a specific grant or other form of financial support for this research. The study involved the use of secondary survey data that were publicly available.

Data Availability Statement: The data presented in this study were secondary data from the Zambia Micro, Small and Medium Enterprise Finance Survey 2022 undertaken by the Zambia Statistics Agency in partnership with the Bank of Zambia. The data has been archived in the Zambia National Data Archive where access and use is free for the public.

Authors' Contributions: Sheila Masaku: Design of the study, data collection, data analysis, interpretation of the results and writing of the manuscript.

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7. Appendices

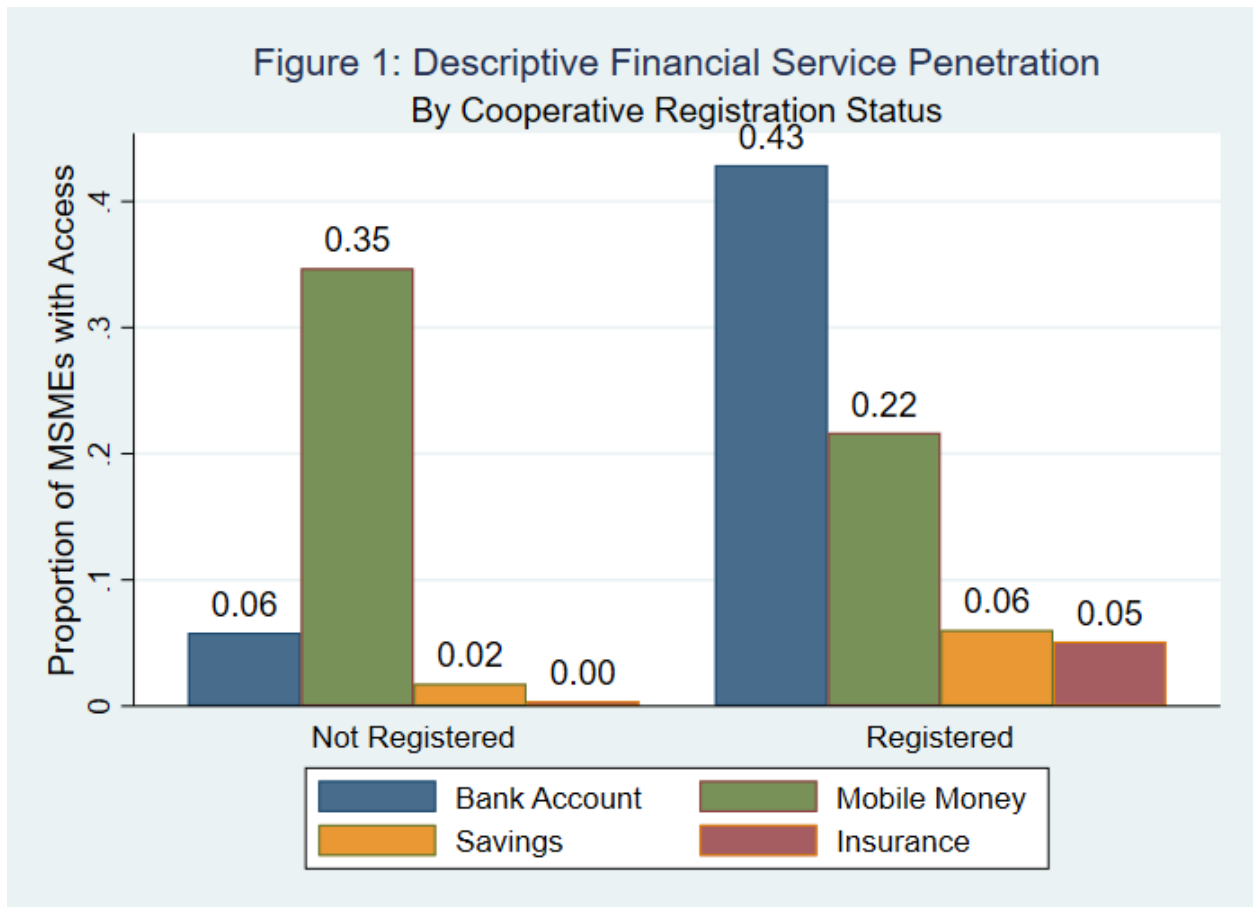


Figure 1: Descriptive Financial Service Penetration By Cooperative Registration Status

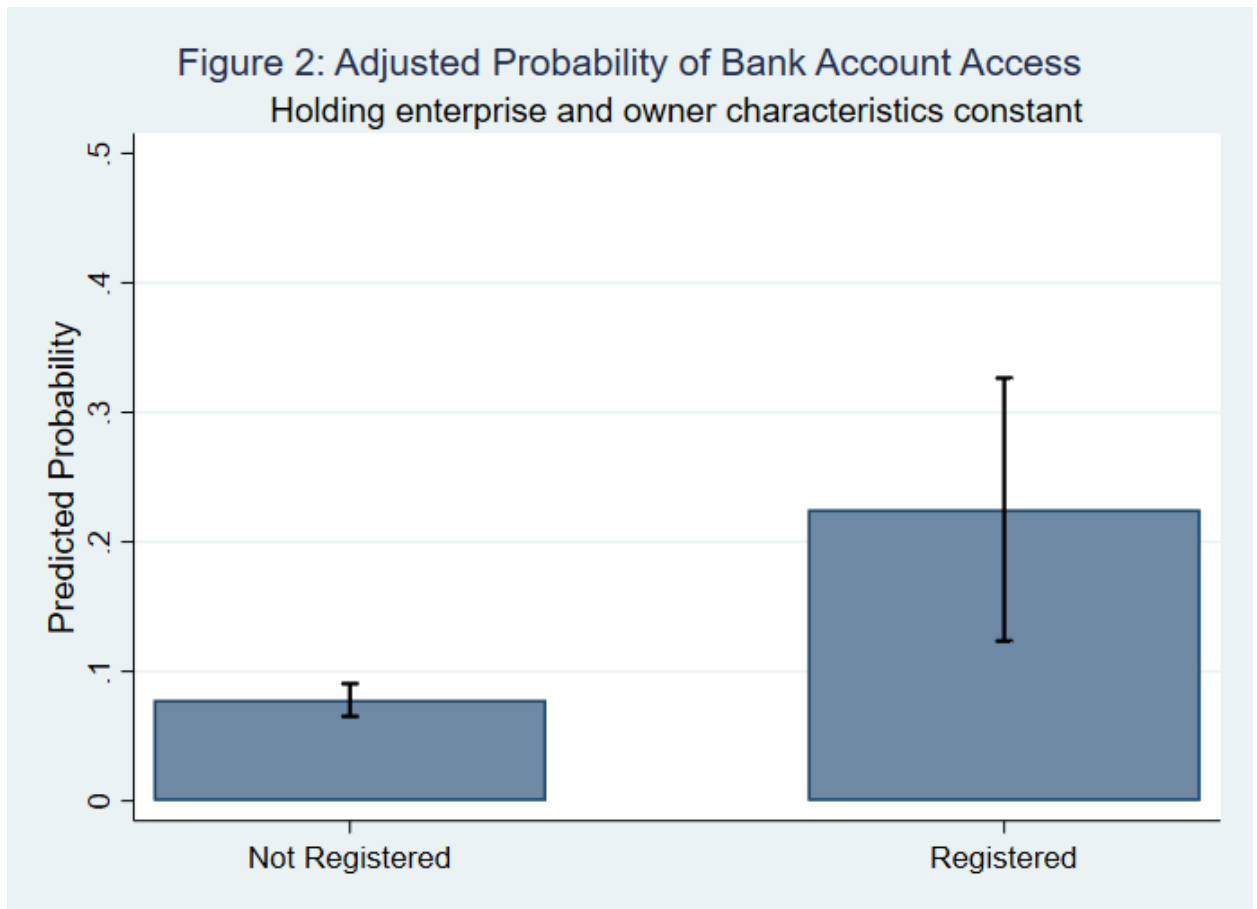


Figure 2: Adjusted Probability of Bank Account Access