



RESEARCH ARTICLE

Micro-loans, macro-impacts: Examining the reverberating gains for Habru Woreda's small-scale agrarian households.

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Abstract

Background

Most people in third-world countries are impoverished and rely on small-holder farming as a source of income. Due to a lack of working capital to diversify their sources of income and acquire new sources, farmers are highly dependent on financial institutions to access microcredit.

Method

This study utilized logistic regression and propensity score matching methods to analyze the primary data collected from a sample of 385 household heads.

Results

The Estimation results of the study shows that Gender, age, family size, and education, access to irrigation, extension services, dependency ratio, and distance to credit sources were among the significant determinants of access to microcredit service.

Conclusion

Although microcredit led to an increase in household spending, real asset holdings did not improve. In addition to the need for supplementary interventions like financial literacy training and asset-building programs to encourage asset accumulation among these small-scale agrarian households, high interest rates and repayment burdens are blamed for this uneven result.

Keywords

Microcredit utilization, Household assets, Small-scale agrarian households, Propensity score matching, Habru woreda



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Abbreviations

ACSI: Amhara Credit and Saving Institution

ATE: Average treatment effect

MFIs: Microfinance institutions

PSM: Propensity score matching

Introduction

Most people in third-world countries are impoverished and rely on small-holder farming as a source of income (Magezi & Nakano, 2020). However, there is a severe lack of funding available to buy profitable agricultural inputs (Dong et al., 2010). Due to a lack of working capital to diversify their sources of income and acquire new sources, farmers are highly dependent on financial institutions to access microcredit (Bhusare & Chanda, 2017) and are unable to engage in non-farm economic activities. The absence of a credit market for low-income households led to the creation of microfinance. In developing nations, for example, governments are now including microfinance into their plans to cut extreme poverty in half (Feleke, 2011).

In Ethiopia, the official microfinance industry was founded in 1994–1995. The Microfinance Institution Licensing and Supervision Proclamation No. 40/1996 was crucial in enabling the nation's microfinance institutions (MFIs) to expand and flourish. By virtue of this legislation, MFIs are now able to lawfully take deposits from members of the public, issue and accept drafts, and handle money for their microfinance operations. In order to boost economic activity and give the impoverished more chances to escape poverty, the Ethiopian government has also been actively improving the microfinance regulatory framework. This has meant providing the vast majority of people with access to a greater range of suitable financial services (Balcha & Tamare, 2017; Chirkos, 2014; Ramanaiah & Gowri, 2011).

Increasing the poor's ability to manage risk, start or grow businesses, diversify household income, and smooth consumption is one way that expanding access to financial services could help reduce poverty and improve development outcomes. Given that rural farmers are typically considered to be low-income and impoverished individuals, granting the poor access to funds from these farmers will enable them to participate in worthwhile income-generating endeavors. As a result, the availability of microcredit will gradually strengthen the rural economy, enhance socioeconomic circumstances, and encourage agriculture's sustainability. Furthermore, Microcredit can help those in need who don't have the necessary assets, stable work, a verified credit history, or other prerequisites to be eligible for formal credit (Bauchet et al., 2011; Okidim & Obe-Nwaka, 2021; Shafique & Khan, 2020).

Ethiopia's agriculture has not been able to produce enough food in the last 20 years to feed the nation's rapidly expanding population, of which 29.2% are rural residents who live below the poverty line (Damte, 2017). This can be attributed to the farming system's low productivity, limited access to markets and technology, and low agricultural income (Boere et al., 2016; Geffersa, 2023; Neglo et al., 2021).

It is estimated that small-scale farmers account for more than 90% of agricultural production. These farmers encounter several obstacles in their efforts to obtain the productive resources needed to implement advanced agricultural technologies, such as limited access to formal and informal credit and insufficient liquidity. As a result, smallholder farmers are forced to rely on microcredit loans in order to enhance household income, safeguard assets, and maintain consumption levels. Microcredit has emerged as a vital instrument for these farmers to surmount the obstacles they encounter in funding their farming endeavors and capital outlays, culminating in amplified output, profits, and more steady consumption patterns (Berhanu et al., 2021; Dhillon & Moncur, 2023; Obisesan, 2013).

Numerous studies have been carried out in this field, including those by Siyoum et al. (2012); which comes to the conclusion that borrowing money can be used to smooth out short-term consumption Lawin et al. (2018); having access to microcredit has a mixed effect, having a positive effect on investments and the adoption of agricultural technology on the one hand, and depending on the particular study cases, having a negative impact on farms' technical efficiency, income, and profit, and consumption on the other hand Geleta et al. (2018); findings that, in the Cheliya District of the Oromia region, microfinance institutions have a positive effect on beneficiary households' yearly income when their income is higher than that of their non-beneficiary counterparts; Boltana et al. (2023) demonstrates the important and beneficial role that credit intervention played in improving household food security, which resulted in a notable rise in households' average daily calorie intake per capita. In addition to the studies already mentioned, Mandy (2023) also brought attention to the fact that microfinance has a conflicting effect on the degree of household poverty. Although treated households—those with a history of entrepreneurship—saw increases in income, consumption, and investment, the overall rate of poverty reduction stayed relatively low.

In the Amhara region, specifically in Habru woreda, the Amhara Credit and Saving Institution (ACSI) is the provider of microcredit loans for rural farmers. Its major goal is to improve the financial situation of low-income, productive impoverished individuals in the Amhara region, primarily by expanding their access to credit and savings options (Beyene & Fentaw, 2023; Kassegn & Endris, 2021). There aren't many well-organized studies looking at the use of microcredit and how it affects smallholder farmers in the study area, aside from the institution's previously mentioned objectives. The principal aim of this research is to examine the precise influence of microcredit utilization on the annual asset and expenditure patterns of the households receiving the benefits. This evaluation is essential because it can shed light on the efficacy of microcredit interventions in this specific woreda and possibly educate policymakers, microfinance organizations, and other interested parties on best practices and areas for improvement in the creation and execution of such initiatives to support sustainable economic development and enhance the standard of living for Ethiopia's marginalized communities.

Methods

Description of the study area

Restricted to Ethiopia's North Wollo Zone, the research was conducted in the Habru District. There are 491 kilometers between it and Addis Ababa. Its total landmass coverage of 1239.79 square kilometers makes it one of the zone's largest districts. Habru's economy is based on an unstable rain-fed livelihood system, making it the district in the Amhara Region most vulnerable to drought and food crisis. The district is home to 202,009 people in total, with 99,442 women and 102,567 men, according to the Habru woreda Administration Office (office, 2023). Two urban and thirty-five rural kebeles make up the district. Afar Region borders the district on the east, Guba Lafto borders it on the west, the Alewuha River borders it on the north, and the South Wollo Zone (Ambasel district) borders it on the south as shown by the following Figure 1.

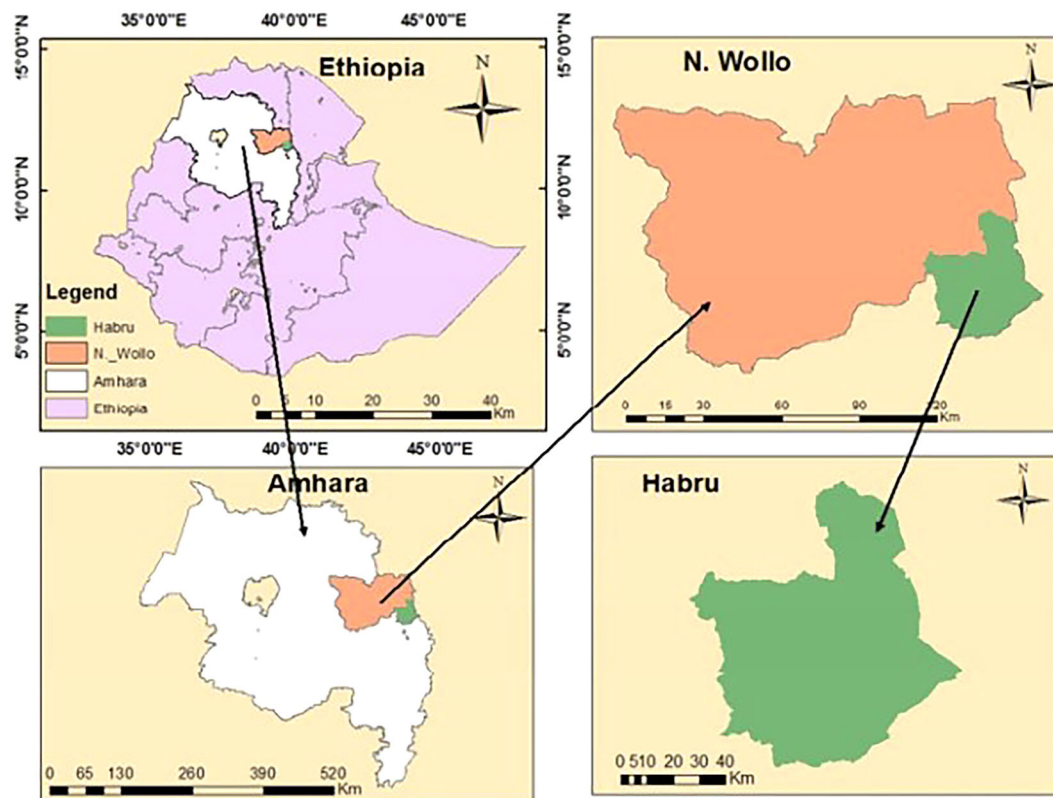


Figure 1. Map of the study area. Note: 'This figure/table has been reproduced from Kassegn, A., & Endris, E. (2022). Factors affecting loan repayment rate among smallholder farmers got loans from the Amhara Credit and Saving Institution: In the case of Habru District, Amhara Regional State, Ethiopia. *International Area Studies Review*, 25(1), 73-96. <https://doi.org/10.1177/22338659211040993>. The grant is obtained under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).

Type, source and method of data collection

This research used only primary data collected between 20 January and 24 February 2023. Structured questionnaires were used to gather the main data on assets, expenses, farm size, and socioeconomic factors that were thought to limit the use of microcredit.

Sampling method and sample size determination

In the study area, there were 49,880 small holder farm households. To select the representative sample of the target population (small-scale farm household heads), the [Cochran \(1963\)](#) formula of sample size determination for infinite population was used and which is seen as follows.

$$\begin{aligned} n_0 &= Z^2 pq / (e)^2 \\ n_0 &= (1.96)^2 (0.5)^2 / (0.05)^2 \\ &= 385 \end{aligned}$$

Where, n_0 = sample size, e = the level of precision at 95% of confidence interval.

To obtain the above representative sample, the study was applied three stage probability sampling method. In the first stage, systematic random sampling was used to select seven (6) out of 35 rural kebeles in the woreda. In this stage, the 5th kebele, was selected through lottery method and the rest was selected systematically via skipping factor. In the second stage, based on the evidence of clients from ACSI in the study area, rural farm households in the selected kebeles was stratified based on the microcredit program as users and non-users and finally, the sample was selected from each stratum in the selected kebeles through proportional allocation.

Model specification

Logistic regression model

Due to the dichotomous nature of the dependent variable-having or not having access to microcredit services-a univariate binary model called the logit model was chosen. The dependent variable was stated as follows:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{Otherwise} \end{cases}$$

Where y^* is a latent variable expressing the quantity of microcredit loans contracted by small holder farmer i from micro finance institutions, ACSI. This quantity was a function of the small farmers' household and his farm characteristics (X_i), as expressed in the form of

$$y_i^* = \beta_0 + \sum_{j=1}^n \beta_j X_{ij} + \mu_i \quad \text{eq 1}$$

The cumulative logistic probability function was specified as:

$$p_i = f(Z_i) = F\left(\beta_0 + \sum_{i=1}^n \beta_i X_i\right) = \frac{1}{1 + e^{-Z_i}} \quad \text{eq 2}$$

Where P_i is the probability that a farmer was using Microcredit given his household and farm characteristics X_i , and β_0 and β_i are the parameters to be estimated. After a simple mathematical manipulation of the above equation, equation 2, the odds ratio can be written as ([Wooldridge, 2004](#))

$$(1 - p_i) = \frac{1}{1 + e^{Z_i}} \text{ Or } \left(\frac{P_i}{1 - P_i} \right) = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i}.$$

By taking the natural logarithms of the odds ratio with the consideration of the expected errors made during the research process, the Logit model becomes

$$Z_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \sum_{j=1}^n \beta_j X_{ij} + \mu_i$$

Therefore, the coefficient of the logit model β_i , presents the change in the log of the odds associated with a change in the explanatory variables, X_i .

Propensity score matching

The program's features as well as the type and caliber of the data that are currently accessible determine which impact evaluation models should be used. There were no baseline socioeconomic data available in the study area, and it was challenging to locate a non-participant to produce a true counterfactual. Propensity score matching was found to be useful for generating a counterfactual group (comparison) in situations where random assignment is not feasible in order to solve this problem. It was used to calculate how microcredit affected the study area's small-scale farmers' revenue and expenses. One of the more useful techniques for estimating impacts with cross-sectional data is the PSM method. Additionally, it provides a useful method for analyzing how credit affects a variety of income indicators, and the outcomes rely less on the operational forms of econometric models. PSM's key strategy is to maintain as many of the variables as possible constant, ensuring that credit accounts for the difference in income and spending between households that use credit (treated) and those that do not (counterfactual or control group) (Heinrich et al., 2010).

The propensity score is a conditional probability estimator that can be applied to any discrete model, including logit and probit, since they produce comparable outcomes (Caliendo & Kopeinig, 2008). By assuming the logistic distribution of the sample mean and variances, the logit model was utilized in this study to estimate the propensity scores. The model of propensity scores is represented as follows:

$$p = \text{pr}(D = 1/X_i) = E(D/X_i)$$

Where $D = (1, 0)$, the indicators of improvement in income, it was the binary variable whether a small holder farmers were using credit or not using credit, (1= yes, 0 = otherwise) where X_i is a vector of pre-treatment covariate propensity score, to ensure that matching estimation is done on treatment and control clients that are as similar as possible for (i) effective comparison. As a result given a population of units denoted by (i), if the propensity score $p(X_i)$ is known as average treatment effect (ATE), it can be estimated as

$$\begin{aligned} \text{ATE} &= E\{Y_{1i} - Y_{0i}/D_i = 1\} \\ &= \{E\{Y_{1i} - Y_{0i}/D_i = 1, p(X_i)\}\} \\ &= \{E\{Y_{1i}/D_i = 1, p(X_i)\} - E\{Y_{0i}/D_i = 0, p(X_i)/D_i = 1\}\} \end{aligned}$$

Where ATE is the average treatment effect, Y_{1i} and Y_{0i} is the potential outcome for the two counterfactual situations of the treatment and control small farm households respectively. $P(X_i)$, is the propensity score, D is the small farm household's variable, where $D = 1$ if the household participated in microcredit program and 0 otherwise.

Description and expected sign of working variables

The descriptions and expected sign of the working variables were described in the following Table 1.

Table 1. Description and expected sign of working variables.

Variable	Types of variables	Description of variables	Expected sign
Micro-credit use	Dichotomous	1 = if they use credit, 0 = otherwise	
Annual expenditure	Continuous	Annual expenditure of the household in ETB	-
Household asset	Continuous	Total asset of the household in ETB	+
Gender	Dichotomous	1 = male, 0 = female	+
Age	Continuous	Age of the head in year	+
Marital status	Dichotomous	0 = single, 1 = married, 2 = divorced, 3 = widowed	+
Education	Dichotomous	0 = illiterate, 1 = read and write, 2 = primary education, 3 = secondary education, 4 = tertiary education and above	+
Family size	Continuous	Number of family member	+
Dependency ratio	Continuous	the dependency level of farm household	+

Table 1. *Continued*

Variable	Types of variables	Description of variables	Expected sign
Farm size	Continuous	Total land size owned in hectare	+
Irrigation	Dichotomous	1 = have access to irrigation; 0 = otherwise	+
Extension service	Continuous	Number of contacts with extension workers in a year	+
Membership of social organization	Dichotomous	1 = member, 0 = otherwise	+
Remittance	Dichotomous	1 = obtaining remittance income, 0 = otherwise	+
Economic shocks	Dichotomous	1 = if the household experience to shocks, 0 = otherwise	+
Perception for group lending	Dichotomous	1 = better perception, 0 = bad perception	+
Distance from the credit source	Continuous	Number of km from the credit source	–

Marginal effects after logit $y = \text{Pr}(\text{credit use}) (\text{predict}) = .23566957$.

Ethical considerations

This study, entitled “Micro-Loans, Macro-Impacts: Examining the Reverberating Gains for Habru Woreda’s Small-Scale Agrarian Households,” involved human participants and adhered to strict ethical guidelines. A formal written consent was obtained from all participants after providing them with detailed information about the study, ensuring their right to withdraw at any time. Participant confidentiality and anonymity were rigorously maintained, with personal identifiers anonymized and data securely stored.

The study received approval from the Institutional Review Board (IRB) committee of college of Business and Economics at Woldia University on January 12, 2023 (Ref: CBE/RCSTT/187/2023). Field research was conducted respectfully, considering the cultural and social context of Habru Woreda, and aimed to benefit the community by enhancing understanding of food security and asset-building strategies.

Discussion of results

Description of the respondents

The study was carried out using primary data gathered from 385 smallholder farmers in the north wollo zone’s Habru woreda, of which 126 had taken out microcredit loans from the Amhara Credit and Saving Institution and 259 had not. According to the descriptive statistics, microcredit loan users had greater mean family sizes and access to irrigation schemes, but non-users had higher mean household head ages. The dependency ratio was higher in non-user households than in user households, but a higher proportion of non-users were married. On the other hand, female-headed farm households were more common in the non-user group, whereas the mean number of male farm household heads was higher for users. Furthermore, social organization memberships accounted for 57% of the household heads. More over the full description of the respondent’s characteristic is given by the extended data at Zenodo: <https://doi.org/10.5281/zenodo.13829443>.

Determinants of microcredit loan utilization

The estimates of the marginal effects from the logit model, as shown by **Table 2** bellow indicates that, in comparison to their male counterparts, female household heads had greater limitations when it came to using microcredit loans. When all other variables are held constant, households headed by men are 24.5% more likely than households headed by women to use microcredit. This result is consistent with the research that **Chamboko and Guvuriro (2022)** conducted. The likelihood of using microcredit is negatively impacted by the age of the head of the household, and this effect is statistically significant at the 95% confidence level. More specifically, the likelihood of taking out microcredit loans falls by 0.9 percentage points for every year that the head of the household gets older. This outcome agrees with the conclusions of the research that **Domanban (2024)** conducted.

Family size was another significant factor that positively correlated with the use of microcredit. This implies that the likelihood of obtaining formal financial credit increases by 8 percent for every additional family member added, all other things being equal. This can be explained by the fact that, in comparison to smaller families, larger families are able to engage in more self-directed farming activities and provide more family labor for production, which results in higher income. This result is consistent with the earlier theory and the findings of **Kiros and Meshesha (2022)**. Education also had a beneficial impact because farmers’ access to formal credit institutions can be influenced by their level of literacy.

Table 2. Estimates of the marginal effects.

Variable	dy/dx	Std.Err.	Z	P > z
Gender*	.245	.057	4.28	0.000
Age	-.009	.004	-2.17	0.03
Marital status	0.041	0.048	0.85	0.394
Education	0.059	0.026	2.25	0.024
Family size	0.084	0.015	5.51	0.000
Dependency ratio	-0.315	0.128	-2.47	0.013
Farm size	0.054	0.111	0.49	0.624
Irrigation*	0.135	0.0574	2.36	0.018
Extension service	0.0245	0.008	3.10	0.002
Membership of social organization*	0.2	0.055	3.64	0.000
Remittance*	0.158	0.057	2.77	0.006
Economic shocks*	0.139	0.056	2.49	0.013
Perception for group lending*	0.128	0.058	2.21	0.027
Distance from the credit source	-0.006	0.002	-2.63	0.008

*dy/dx is for discrete change of dummy variable from 0 to 1.

It is believed that farmers with higher levels of literacy would know more about government facilities and the market (Alemayehu, 2020; Ameh & Lee, 2022). The last positive effect was that having access to irrigation schemes increased the likelihood that households would use microcredit by 13.5 percentage points.

At the one percent significance level, the frequency of extension services is another variable that has a significant impact on rural households' use of microcredit participation. The hypothesis posited that households receiving social work services more frequently would be more knowledgeable about emerging technologies, strategies for boosting output and efficiency, and the advantages and disadvantages of formal credit. This hypothesis is supported by the coefficient of this variable in the current investigation. The results of earlier research, including Alemayehu (2020) and Fonke (2021), which claim that providing better extension services encourages smallholder farmers to apply for microcredit, also corroborate this conclusion.

Participation in formal microcredit programs by rural households is negatively impacted by dependency ratio. *Ceteris paribus*, for every additional dependent member in the household, the probability of participation decreases by 31.5 percent. This study is also in line with research done by Ding and Abdulai (2020) & Ferede (2012).

The possibility of utilizing microcredit services was found to be positively and significantly correlated with households' experience of shocks, remittance income, and improved perception of group lending. Precisely speaking, these variables raised the likelihood of obtaining microcredit by 13.9%, 15.8%, and 12.8%, in that order. Additionally, at the ninety percent significance level, the data showed a positive and significant relationship between farm size and loan usage. A one-hectare increase in farm size is associated with a five percent increase in the use of microcredit loans, according to the positive coefficient. Larger farms are probably more capital-intensive and therefore have a higher demand for loan financing because they need more labor and inputs for production. This result is consistent with the study that Ameh and Lee (2022) recently conducted.

The participation of rural households in microfinance institutions (MFIs) was found to be significantly impacted, at the 5 percent significance level, by the distance from the credit source, as previously hypothesized. If all other variables remain unchanged, the marginal effect shows that the likelihood of participating in the microfinance program falls by 0.6 percent for every kilometer added to the distance traveled. The result of the study conducted by Alemayehu (2020) and the outcome of this study is consistent. In comparison to households in closer proximity, the results indicate that those residing further away from credit sources have lower participation rates in microfinance initiatives. To increase rural households' access to credit services, it is crucial that microfinance institutions (MFIs) have a broad network of branch offices or agents to reach out to them, even in remote areas.

The impact of microcredit use on household asset and expenditure

Propensity score matching (PSM) was used in the study to calculate how microcredit loans affected annual household expenses and assets. A logit model that found multiple significant explanatory variables and had a pseudo R-squared of 0.4011, indicating a good model fit, was used to estimate the propensity score. The propensity score overlap between the treatment (microloan recipients) and control (non-recipients) groups is represented by the common support region, which was found to be between 0.02596857 and 0.98411727. This indicates that six treated households were left out of the matching exercise because they had propensity scores that fell outside of this range.

A kernel density distribution of the propensity scores for the treatment and control groups was plotted in the study to further investigate the shared support. A significant region of overlap between the two groups was found in the kernel density plot, as illustrated in [Figure 1](#), suggesting the absence of a serious common support issue. Propensity score matching was employed by the researchers to compare the outcomes of loan recipients and non-recipients with similar observed characteristics, allowing them to estimate the impact of microcredit loans on household annual expenditure and asset. More accurate program impact estimates are produced with this method, which also helps to mitigate potential selection bias as shown by the following [Figure 2](#).

To make sure that there was no significant difference in the mean of the estimated propensity scores between the treated and control households within each block, the study separated the sample into a maximum of five blocks. This suggests that the matching procedure was effective in forming evenly distributed groups for the impact analysis that followed. [Figure 3](#) below shows the propensity scores' graphical distribution. The propensity score overlap between the treatment and control groups is displayed in this visualization, which supports the suitability of the matching strategy even more.

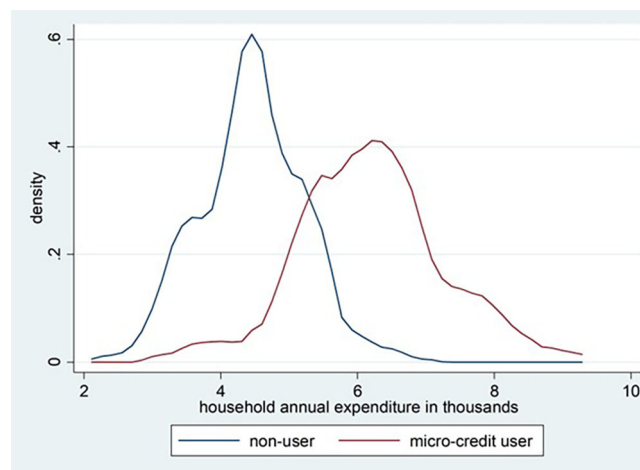


Figure 2. Kernel density plot of propensity scores.

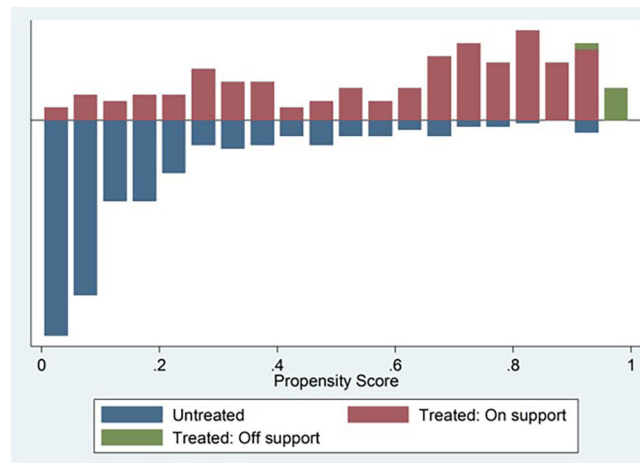


Figure 3. Graphical distribution of the propensity scores.

Table 3. Estimates of average treatment effects on the treated.

Outcome variable	Matching method	n. treated	n. control	ATT	t-value
Annual expenditure	Kernel matching (0.25)	126	220	1.712	11.561
Annual asset	Kernel matching (0.25)	126	220	-8.737	-4.024

Estimation of the average treatment effect on the treated

The intensity of the matching process is more important in propensity score analysis than the sheer amount of output. By evaluating the balancing property and conducting balance tests, this quality can be evaluated. The estimated propensity scores in this study satisfied the balancing property. All the covariates, or explanatory variables, across all the blocks used in the analysis had the same distributions in households with the same propensity scores. The researchers used a Mantel-Haenszel test statistic to explore the results' sensitivity in more detail. The absence of hidden bias is demonstrated when the Γ value of this test is 1, indicating that the test statistic's bounds match the base case. The process of estimating and interpreting the average treatment effect on the treated (ATT) is a crucial output in impact evaluation studies. For the households who actually received the loans, this metric captures the microcredit program's primary policy-relevant impact. The ATT estimates and their interpretation are shown in the following Table 3. This illustrates how policy makers' primary concern in impact evaluation studies is the estimation and interpretation of the average treatment effect on the treated.

Strong empirical evidence of a statistically significant impact of the microcredit program on household asset and expenditure status is provided by the kernel matching results. The program has improved participating households' expenditure levels, as indicated by the positive value of the average treatment effect on the treated (ATT). On the other hand, a negative ATT value indicates that the study area's microcredit utilization has resulted in the depletion of household assets.

Statistically, the analysis accounted for the variations in demographic and asset distribution traits between participant and non-participant households. The results show that the program has raised the spending of households involved by 1.712% and this outcome aligns with (Choudhury et al., 2017; Phan, 2020; Phan et al., 2023; Yu et al., 2020) while their yearly asset possession has decreased by 8.737%, which is comparable to the earlier research carried out by Ahamad et al. (2021). This result seems to contradict the main goal of microfinance institutions (MFIs), as the small loans have failed to safeguard the wealth of rural households. However, the findings are statistically significant at the 5% level, as demonstrated by the kernel matching estimators (ATT = 1.712, $t = 11.561$ for annual spending; ATT = -8.737, $t = 4.024$ for household yearly asset) with bootstrapped standard errors.

Conclusion and recommendations

The purpose of this extensive survey was to examine how household assets and spending patterns in the Habru woreda are affected by the use of microcredit. Larger family size and higher education levels were positively associated with microcredit use, increasing the probability by 8% and an unspecified amount, respectively. Access to irrigation and more frequent extension services also had positive impacts, while dependency ratio and distance from credit sources were negatively influential, decreasing the probability by 31.5% and 0.6% per kilometer, respectively. Households' experience of shocks, remittance income, positive perception of group lending, and larger farm size were all positively correlated with microcredit access, suggesting the multifaceted nature of factors influencing credit utilization among rural households.

The bootstrapped standard errors support the estimates obtained from the propensity score matching method, which show a mixed Average Treatment Effect on the Treated. Compared to the control group, respondents in the treatment category reported higher spending over the previous two years. The study did discover, however, that the households' annual asset holdings had not improved. There are various reasons for this polarized result. First of all, households may find it difficult to pay back microloans due to the fixed payback terms and exorbitant interest rates, which forces them to put loan repayment ahead of saving and asset creation.

Furthermore, the study raises the possibility that, in order to positively affect household assets, microcredit may need to be combined with complementary interventions like financial literacy training, asset-building initiatives, or access to other financial services. Microcredit alone may not be adequate to promote asset accumulation.

Ethics and consent

This study, entitled “Micro-Loans, Macro-Impacts: Examining the Reverberating Gains for Habru Woreda’s Small-Scale Agrarian Households,” involved human participants and adhered to strict ethical guidelines. A formal written consent was obtained from all participants after providing them with detailed information about the study, ensuring their right to withdraw at any time. Participant confidentiality and anonymity were rigorously maintained, with personal identifiers anonymized and data securely stored.

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Data availability statement

Underlying data

Zenodo: Underlying data for ‘Micro-Loans, Macro-Impacts: Examining the Reverberating Gains for Habru Woreda’s Small-Scale Agrarian Households, <https://doi.org/10.5281/zenodo.13787722> (Tefera, A. B., et al., 2024a)

This project contains the following underlying data:

- [changed data.dta](#)

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

Extended data

Zenodo: Micro-Loans, Macro-Impacts: Examining the Reverberating Gains for Habru Woreda’s Small-Scale Agrarian Households. The appendixes that give an additional clarification for the discussion of the results is available at Zenodo: <https://doi.org/10.5281/zenodo.13829443> (Tefera, A. B., et al., 2024b)

This project contains the following extended data:

- [Supplementary Materials.docx](#)

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Reporting guidelines

Zenodo: PRISMA Checklist for ‘Micro-Loans, Macro-Impacts: Examining the Reverberating Gains for Habru Woreda’s Small-Scale Agrarian Households, <https://zenodo.org/records/13833908>

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Software availability

Available from: <https://www.stata.com/stata14/>

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