Review of Socio-Economic Perspectives
ISSN: 2149-9276
e-ISSN: 2547-9385 Vol.10 No.1/2025

The impact of loan accessibility on household welfare: An empirical analysis in Lesotho

Mussa Deme*
Graduate School of Social Sciences and Humanities, International Economics Development Program, Hiroshima University, Japan
d223986@hiroshima-u.ac.jp
*Correspondence author

Paikene Mangani
Graduate School of Innovation and Practice for Smart Society, Hiroshima University, Japan
paikenemangani@gmail.com

DOI : 10.2478/rsep-2025-0001

Abstract

This paper examines the effects of credit access on household spending, using data from the 2021 Finaccess household survey in Lesotho. Data from 2,999 households was analyzed, 1,805 of which had access to credit and 1,194 did not. Using propensity score matching (PSM), the average treatment effect was estimated to understand the impact of access to credit on essential household expenditures, including food, transportation, health, clothing, education, income, and rent. Inverse probability weighting regression adjustment (IPWRA) and Mahalanobis distance matching (MDM) were also used to minimize biases and address confounding. The findings reveal that spending in all categories tends to significantly increase for households with access to credit. These findings emphasize that credit access promotes household welfare, thereby highlighting the importance of loan acquisitions and urging stakeholders and policymakers to improve financial literacy.

Keywords: Access to credit, Household expenditures, Propensity Score Matching, Lesotho
Jel codes: I31

Accepted by Editor: M. Veysel Kaya | Received: February 7, 2025, | Revised: March 27, 2025; | Accepted: March 28, 2025 | Published: June 30, 2025.

Cite as: Deme, M. & Mangani, P. (2025). The Impact of Loan Accessibility on Household Welfare: An Empirical Analysis in Lesotho. *Review of Socio-Economic Perspectives, 10(1)*: 1-14.

1. Introduction

Access to credit is a fundamental driver of economic development, enabling households to manage financial risks, invest in productive ventures, and improve overall welfare (Islam, 2016). In developing economies like Lesotho, financial exclusion remains a significant barrier to poverty reduction, as many households lack access to formal credit institutions and rely on informal lending mechanisms (FinScope Lesotho, 2021). The availability of credit has been linked to increased household consumption, improved health and education outcomes, and greater resilience to economic shocks (Kaboski & Townsend, 2012). However, despite these potential benefits, concerns persist about over-indebtedness, high borrowing costs, and the long-term sustainability of credit-driven welfare improvements (Khandker et al., 2010). Existing research in developing countries has shown that credit access can positively influence household expenditures, particularly in essential categories such as food, healthcare, and education (Quang et al., 2023). Additionall, access to loans is essential for alleviating poverty and boosting household income (Bukari et al. 2021; Manzilati et al. 2022). However, the impact of credit on household spending patterns in Lesotho remains underexplored. While microfinance institutions (MFIs) and commercial banks have expanded their reach in recent years, empirical studies on whether increased financial inclusion translates into meaningful improvements in household welfare are scarce. This study aims to bridge this gap by examining the effect of credit access on household expenditures in Lesotho, using data from the 2021 FinAccess Household Survey. To establish causality, this study employs propensity score matching (PSM) along with robustness checks using inverse probability weighting regression adjustment (IPWRA) and Mahalanobis distance matching (MDM). These methodologies allow for a more precise estimation of the effects of credit access by accounting for selection bias and confounding variables. By analyzing key expenditure categories including food, healthcare, education, and housing this research provides insights into how credit access influences household decision-making.

The findings will inform policymakers and financial institutions on the effectiveness of credit programs in improving household welfare and guide efforts to promote responsible financial inclusion in Lesotho. The remainder of this paper is structured as follows: Section 2 provides a contextual background, Section 3 summarizes the literature review, Section 4 highlights materials and methods, Section 5 discusses the findings and discussion, and Section 6 concludes.

2. Background

The role of credit in economic development has been widely recognized in economic theory. The permanent income hypothesis (Friedman, 1957) suggests that households borrow to smooth consumption over time, maintaining stable expenditure patterns even when income fluctuates. This theory posits that individuals make financial decisions based on their expected lifetime earnings rather than current income, meaning that access to credit allows them to maintain consistent consumption levels despite short-term income shocks. Similarly, the life-cycle hypothesis (Modigliani & Brumberg, 1954) posits that individuals make borrowing and saving decisions based on expected lifetime earnings, borrowing when income is low, saving when income is stable, and dis-saving during retirement. Implying that credit access enables households to invest in human capital, housing, and productive assets. Conversely, the credit rationing theory (Stiglitz & Weiss, 1981) provides another perspective, arguing that due to imperfect information, financial institutions may limit credit supply to certain borrowers, particularly low-income households. This theory highlights the structural barriers to credit access in developing economies like Lesotho, where formal financial institutions may be reluctant to lend due to high default risks. As a result, many households turn to informal credit sources, often at exorbitant interest rates, which can undermine the potential benefits of borrowing.

Empirical evidence from developing countries highlights the transformative effects of credit access on household welfare. Studies in Ghana (Ampah et al., 2017) and Nigeria (Ozoh et al., 2022) indicate that access to loans enables households to enhance food security, invest in children's education, and improve healthcare access. These findings suggest that financial inclusion enhances economic stability by reducing liquidity constraints and enabling investment in productive assets. However, research also warns of the risks associated with over-indebtedness, which can lead to financial distress and reduced

long-term welfare if credit is not managed responsibly (Islam, 2016). In the context of Lesotho, financial landscape is characterized by low levels of financial inclusion, with many rural households relying on informal lending mechanisms (FinScope Lesotho, 2021). Due to high poverty rates of approximately 27.3% coupled with vulnerability to external economic changes, it is essential to explore how credit can mitigate household challenges (Boko et al., 2023). This understanding is crucial for shaping policies addressing poverty alleviation and sustainable development in Lesotho. Microfinance institutions (MFIs) have consistently broadened their credit offerings, particularly emphasizing short-term loans that can be repaid within one year. The Finscope (2021) report highlighted an impressive 8.5% rise in loan access in Lesotho, amounting to a total of 1.1 billion Lesotho Loti (LSL). While the expansion of microfinance institutions has improved financial access, the extent to which this has translated into better economic outcomes for households remains unclear. By assessing the impact of credit access on household expenditures in Lesotho, this study seeks to contribute to the growing literature on financial inclusion and its role in poverty alleviation including whether credit access translates into meaningful improvements in household expenditure.

3. Literature review

The impact of credit access on household welfare has been widely studied across different economic contexts. Research from countries with similar socio-economic structures to Lesotho, such as Eswatini, Botswana, and South Africa, provides valuable insights into the cultural and structural factors influencing financial access in the region.

Studies in the West African Economic and Monetary Union (WAEMU) and the Southern African Development Community (SADC) reveal that traditional lending practices still play a dominant role in rural areas where formal financial institutions are scarce and costly (Shirono et al., 2024). The reliance on informal credit mechanisms, including loan sharks and community savings groups, often results in high borrowing costs and cyclical debt, limiting the potential benefits of financial access. Similar patterns have been observed in Lesotho, where financial exclusion is exacerbated by geographic isolation and limited banking infrastructure (FinScope Lesotho, 2021). These observed patterns are in the credit rationing theory that explains why disparities in credit access persist, particularly among low-income households.

In South Africa, where financial inclusion is more advanced, research shows that access to microfinance has led to increased household consumption and investment in small enterprises (Banerjee et al., 2015). These findings support the permanent income hypothesis and life-cycle hypothesis which suggest that access to credit enable consumption smoothing and strategic investment. However, concerns about over-indebtedness and high-interest rates remain prevalent, particularly among low-income borrowers (Karlan & Zinman, 2011). These findings highlight the importance of responsible lending practices and financial literacy programs to ensure that credit access translates into long-term welfare improvements. Cultural factors also play a critical role in shaping financial behaviours in Lesotho. The country's strong reliance on remittances from migrant workers in South Africa affects household borrowing patterns, as many families use credit to smooth consumption rather than for investment purposes (Crush et al., 2017). This differs from credit usage in countries like Kenya and Tanzania, where microfinance programs have been more successful in promoting entrepreneurial activities and income generation (Morduch, 1999). Similar results have been observed in Malawi, where access to credit has improved agricultural investments and food security, although repayment constraints remain a challenge (Makuluni & Dunga, 2022).

In Nigeria, Ozoh et al. (2022) found that access to credit significantly improves household welfare, yet financial exclusion remains high due to stringent lending requirements and high-interest rates from formal financial institutions. Likewise, research in Ethiopia by Bocher et al. (2017) demonstrated that access to microcredit boosts consumption expenditures and improves food security, aligning with findings from Ghana where credit access plays a crucial role in reducing poverty levels (Ampah et al., 2017). However, in some cases, financial constraints and lack of collateral continue to exclude vulnerable populations from formal lending opportunities.

In Vietnam, studies by Quach (2017) and Quang et al. (2023) found that access to credit significantly boosts household income, stimulates consumption, and enhances spending on education and healthcare.

Similarly, research in Indonesia by Santoso (2016) revealed that access to credit positively influences household spending behaviour, particularly in rural areas where formal banking structures remain underdeveloped. These findings suggest that credit programs tailored to rural populations can be effective in improving economic stability. Additionally, Moahid et al. (2023) examined the effects of agricultural credit in Bangladesh, showing that disaster-affected farming households with access to credit had higher expenditure on farm inputs and improved resilience. Their study underscores the importance of targeted credit programs, especially in vulnerable communities where financial shocks can severely impact livelihoods. Structural barriers such as high transaction costs, lack of collateral, and stringent lending requirements further restrict financial access in Lesotho (Chisasa, 2022). These constraints discourage low-income households from participating in the formal credit market, reinforcing dependence on informal lending mechanisms. Addressing these challenges requires targeted policy interventions, including the expansion of digital financial services, improved access to credit for rural communities, and enhanced consumer protection regulations.

Beyond Africa, studies from Asia, Europe, and the Americas provide additional perspectives on how financial systems influence household welfare. Research in Bangladesh and India highlights how microfinance institutions (MFIs) have played a crucial role in improving household welfare, particularly among women entrepreneurs (Khandker, 2005; Banerjee et al., 2019). In Bangladesh, access to small loans has been shown to boost income generating activities and expenditures, particularly in rural areas where traditional banking services are limited (Pomi, 2019). Similarly, in India, micro programs have helped reduce poverty and improve income stability, but challenges related to high interest rates and repayment burdens persist (Burgess & Pande, 2005). In Latin America, research in Mexico and Brazil indicates that expanding access to formal credit has led to improved consumption and investment in education and healthcare (Bruhn & Love, 2014; Café, 2023). In developed economies such as the United States and the United Kingdom, credit access is more widespread due to strong financial infrastructure and well-regulated lending markets. However, disparities persist, as lower-income households often face higher borrowing costs and discriminatory lending practices, limiting their ability to benefit from financial services (Bhutta & Hizmo, 2022). The findings further reinforce the credit rationing theory that imperfect information and income-level plays a role in accessing credit. These global perspectives highlight that while credit access generally leads to improved welfare, its effectiveness depends on broader economic conditions, financial literacy, and regulatory frameworks. This study contributes to the literature by providing an in-depth analysis of credit access and household expenditures in Lesotho, incorporating regional comparisons to contextualize its findings. Its importance is evident in four key areas: it offers insights for policymakers to improve formal credit access and financial literacy to combat Lesotho’s low levels of financial inclusion. Additionally, it builds upon economic theories regarding consumption smoothing and credit constraints by examining household expenditures in a credit-restricted environment. Using advanced econometric techniques (PSM, IPW, MDM), the study strengthens causal inference and lays the groundwork for future investigations. This study forms a solid base for future initiatives to boost financial inclusion and improve household welfare.

4. Materials and Methods

4.1. Objectives

This study aims to assess whether access to credit influences household spending in Lesotho.

Specific objectives:

1. To investigate how access to credit effects expenditure on food, transportation, health, clothing, education, and rent.

4.2. Sample size and Area

Lesotho was selected because of its low financial inclusion, significant dependence on informal lending, economic fragility, high unemployment, and reliance on remittances. The study analyzed cross-sectional data from 2,999 households. The data was sourced from Lesotho's nationwide 2021 Finaccess household survey. The survey revealed that 1,805 households had access to loans or credit, compared to 1,194 households without credit access. This distribution of credit access was not random, suggesting that self-selection biases could influence comparisons between the two groups.

4.3. Research Hypothesis

Based on economic theory and empirical findings on credit access and household spending, we propose the following hypothesis:

Hypothesis 1: Credit access increases household spending on essential goods and services. The Permanent Income Hypothesis (Friedman, 1957) and Life-Cycle Hypothesis (Modigliani & Brumberg, 1954) suggest that households use credit to smooth consumption over time, leading to increased expenditures on necessities. Empirical studies (Khandker & Samad, 2014; Beck et al., 2009) have shown that microcredit programs enhance spending on food, health, and education while reducing poverty.

Hypothesis 2: Credit access enables investment in productive activities, increasing household income. The Credit Rationing Theory (Stiglitz & Weiss, 1981) highlights how access to credit can enable households to invest in businesses and income-generating activities. Studies by Banerjee & Duflo (2014) and Dupas & Robinson (2013) show that access to financial services supports small business growth and financial stability.

Hypothesis 3: The impact of credit access on household spending varies based on income levels. Research suggests that middle-income households benefit more from credit due to financial literacy, risk tolerance, and borrowing constraints (Zeller & Sharma, 2000; Cole, Sampson, & Zia, 2011).

4.4. Identification strategy

This study employs a robust econometric approach to evaluate the impact of credit access on household welfare in Lesotho. The analysis relies on three key matching techniques: Propensity Score Matching (PSM), Inverse Probability Weighting Regression Adjustment (IPWRA), and Mahalanobis Distance Matching (MDM). These methods are chosen to address potential selection bias and ensure a more accurate estimation of the causal effects of credit access on household expenditures and income.

PSM computes the likelihood of receiving treatment (such as credit access) based on observed characteristics, pairing households with similar propensity scores. This method assumes the selection of observable characteristics. Matching methods aim to replicate randomization in treatment assignment by pairing treated individuals with untreated individuals who share similar characteristics before treatment. Allowing for the estimation of the unobserved counterfactual dependent variable. Inverse Probability Weighting (IPW) assigns weights to observations according to their treatment probability. Regression Adjustment (RA) applies regression techniques to address remaining covariate imbalances. MDM pairs treated and control units by calculating the multivariate distance (e.g., Mahalanobis distance) between their covariates. . The equation is as follows:

$$ATET(x) = E[Y_1|D = 1, X = x] - E[Y_0|D = 0, X = x] \dots\dots\dots\dots\dots\dots 1)$$

In the given scenario, Y denotes expenditures. Meanwhile, X represents the set of pre-treatment covariates, and D is the treatment dummy variable that characterizes a household's access to loans. D=1 means that a household has access to credit, and D=0 means it does not. $E[Y_1|D = 1, X = x]$ refers to the expenditure of the treated. $E[Y_0|D = 0, X = x]$ is the expected expenditure of the best match untreated.

In the PSM model, it is assumed that after matching based on pre-treatment covariates, there are no systematic differences between the treated and untreated groups. The model below is used to estimate average treatment Effects (ATET) under the propensity score P(x)P(x):

$$ATET = E[Y_1|D = 1,\ P(x)] - E[Y_0|D = 0,\ P(x)] \dots\dots\dots\dots\dots\dots (2)$$

Table 1 details the variables considered in this study. The dependent variables include expenditures on transport, food, health, clothing, education, rent, and household income, whereas access to credit is the independent variable. Furthermore, demographic and socioeconomic factors including age, education level, household size, gender marital status, and area of residence are included as covariates. A binary variable is utilized, where 1 indicates that the household has access to credit and 0 indicates no access. The respondent's age is measured in years, while household size refers to the total number of individuals. The variable Gender is represented by a dummy variable where 1 denotes female and 0 denotes male, reflecting the gender of the household head. Another dummy variable, Educated, indicates whether the

household head has completed primary school or higher (1 = educated) or is uneducated (0). Additionally, the Single variable indicates marital status, with 1 representing single and 0 for all other statuses. Lastly, the Rural variable classifies the household's location as rural (1 = rural) or urban (0 = urban**).**

4.4.1. Assumptions of Matching Methods

Matching methods rely on key assumptions to ensure unbiased estimates of the treatment effect:

Conditional Independence Assumption (CIA)

Access to credit is not random, which means that comparisons between individuals with access and those without access may be influenced by self-selection. To address this potential selection bias, we utilize the Propensity Score Matching (PSM) method, which pairs treated individuals (those with access to mobile money) with untreated individuals (those without access) who have similar pre-treatment characteristics (Bari et al., 2024; West et al., 2014). The PSM method assumes conditional independence (CIA), indicating that after controlling for pre-treatment covariates (i.e., X), the treatment assignment (credit access) is effectively random. This assumption enables us to estimate treatment effects by comparing outcomes between matched individuals who possess similar characteristics, regardless of their credit access.

Common Support (Overlap Condition)

There must be a sufficient number of similar households in both treatment and control groups. The matching process may fail if households with credit access differ significantly from those without.

No Hidden Bias

Matching assumes that all relevant factors influencing credit access and outcomes are observable in the data. The results may be biased if missing important variables (e.g., risk-taking behaviour).

Advantages

PSM reduces selection bias by balancing treatment and control groups. It is easy to implement and interpret and works well when there is a significant overlap between the treated and control groups. IPWRA estimates remain unbiased if the propensity score or outcome regression model is correctly specified. It is more efficient than PSM when covariates influence treatment selection and outcomes. MDM uses all covariates directly rather than summarizing them into a single score (like PSM). It works well when sample sizes are small.

Limitations

This only accounts for observed covariates; unobserved factors may bias the results. The choice of matching algorithm (nearest neighbor, kernel matching) affects the results. Dropping unmatched observations may reduce sample size and efficiency. IPWRA is sensitive to misspecification of the regression model and requires careful choice of functional form for regression. MDM becomes computationally expensive as the number of covariates increases. Assumes covariates have similar distributions in both groups, which may not always be accurate.

Table 1: Outcome Variables and Covariates

Variables	**Description**
Outcome variables	
Food expenditure	(Amount of food expenses)
Transport expenditure	(Amount of transport expenditure)
Household income	(Household income)
Health expenditure	(Amount of health expenditure)
Clothing expenditure	(Amount of closing expenditure)

Education expenditure	(Amount of education expenditure)
Rent Expenditure	(Amount of rent expenditure)
Independent variable	
Access to Credit	=1 if a household has access to credit and =0 if no access to credit
Covariates	
Hhage (years)	Age of the respondent
HHsize	Household size
Female	Dummy (1= female and 0 =male)
Educated	Dummy (1=primary school and above and 0 =not educated
Single	Dummy (1= single and 0 =otherwise)
Rural	Dummy for the area (1=Rural and 0 =Urban)

The choice of variables included in this study was informed by economic theory as well as existing literature related to household welfare and financial inclusion. The variables quantify household welfare and consumption trends, essential financial security indicators, and living standards. Food security significantly contributes to household well-being, for instance, heightened food spending points to enhanced nutrition and improved living conditions. Access to credit may enable households to invest in transportation for work, education, or business pursuits. Income serves as a crucial factor in household welfare. Access to credit can help households boost their income through investments in entrepreneurial ventures or productive resources. Financial access may enhance healthcare use, allowing households to allocate more towards medical expenses. This aspect of spending, deemed non-essential, can signify financial stability. Households with credit access may allocate more funds to education, fostering long-term human capital development. Better financial stability can improve housing conditions, as households with credit access tend to spend more on rent or renovations. Credit access is pivotal in financial inclusion, permitting households to stabilize consumption, invest in productive efforts, and navigate financial setbacks. This variable is crucial for evaluating the causal relationship between credit access and household spending. These considerations are included to control for confounding variables affecting the association between credit access and household expenditures. Older individuals may exhibit different spending habits, credit access, or financial behaviours than their younger counterparts. Households with more members generally have elevated expenditures, and controlling for this factor is essential to discern the impact of credit access. Women's spending priorities often vary, especially in areas like education and food security, with gender also influencing credit access. More educated individuals typically excel in credit management and investment decision-making. Additionally, single households may display distinct financial behaviours compared to married ones, while rural and urban households experience varied access to financial services and different spending patterns.

5. Results and discussion

5.1. Summary statistics

The treatment group has an average transport expenditure of 184.72 LSL (10.21$ $), compared to 113.98 LSL (6.30$) for the control group, indicating that the treatment group spends 70.74 LSL (3.91$) more on transport. The treatment group spent 644.12 LSL (35.61$) on food, compared to 470.19 LSL (26$) for the control group, reflecting a difference of 173.93 LSL (9.62$). The average income of the treatment group is 2324.87 LSL (128.53$), while the control group averages 1420.33 LSL (78.53$), resulting in the treatment group earning 904.54 LSL (50.01$) more. For health expenses, the treatment group spent 100.04 LSL (5.53$) versus 71.41 LSL (3.95$) for the control group, a difference of 28.63 LSL (1.58$). For clothing, the treatment group's expenditure of 54.47 LSL (3.01$) significantly exceeds the control group's 15.90 LSL (0.88$), an increase of 38.57 LSL (2.13$). The treatment group spent 86.71 LSL (4.79$) on education, whereas the control group spent 32.46 LSL (1.79$), indicating a difference of 54.25 LSL (3$). The average rent is 131.73 LSL (7.28$) for the treatment group and 64.54

LSL (3.57$) for the control group. Regarding rural residency, 59% of the treatment group lives in rural areas compared to 63% in the control group, indicating the treatment group is less rural. The average age of household heads in the treatment group is 49.68 and 51.21 in the control group, with the treatment group's heads being 1.53 years younger on average. Additionally, treatment group household size averages 4.07 members while the control group averages 3.86. The proportion of female household heads is 41% in the treatment group and 40% in the control group. 86% of the treatment group household heads are educated, while 87% in the control group suggests, indicating slightly higher education among the control group. Lastly, 15% of the household heads in the treatment group are single, while 22% of the control group are single. Notably, the treatment group, which had access to credit enjoyed a significantly higher household income. Specifically, 904.54 LSL more than the control group. Throughout all expenses (transport, food, health, clothing, education, and rent), the treatment group consistently spends more than the control group, suggesting that access to credit may enable households to enhance their spending on fundamental needs, thereby improving their living standards.

Table 2: Summary Statistics

Variables	**Treatment group**	**Control group**	**Difference**
Treatment variable			
Access to credit	1	0	
Outcomes variable			
Transport Expenditure	184.72	113.98	70.74
Food Expenditure	644.12	470.19	173.93
Household income	2324.87	1420.33	904.54
Health Expenditure	100.04	71.41	28.63
Closing Expenditure	54.47	15.90	38.57
Education Expenditure	86.71	32.46	54.25
Rent Expenditure	131.73	64.54	67.19
Covariates			
Rural	.59	.63	-0.04
Hhage	49.68	51.21	-1,53
Hhsize	4.07	3.86	0,21
Female	.41	.40	0.01
Educatwed	.86	.87	-0.01
Single	.15	.22	-0.07
Observations	1,805	1,194	2,999

5.2. Main results

The findings of table 3 show that obtaining credit significantly boosts spending and income in various household categories. Different matching techniques, including Nearest Neighbor Matching, Caliper Matching, and Kernel Matching, consistently reveal marked expense increases across all categories. This evidence indicates that access to credit improves household expenditures and income on essential needs, resulting in better living standards. The uniformity of results across these methods reinforces the reliability of these findings.

Table 3:Impact of access to credit on expenditures

Outcomes Variable	Nearest neighbor Matching	Caliper Matching	Kernel Matching
Transport Expenditure	63.75***	66.56***	66.59***
Food Expenditure	150.27***	157.02***	157.04***
Household income	816.52***	850.97***	851.26***
Health Expenditure	28.87***	28.56***	28.56***
Closing Expenditure	36.68***	37.68***	37.68***
Education Expenditure	50.88***	52.06***	52.06***
Rent Expenditure	57.35***	63.01***	63.03***

The findings from the IPWRA and MDM estimations reinforce the beneficial effects of credit access on household spending in multiple areas. Households with credit access demonstrate significantly higher transportation expenditures, increasing by 64.39 LSL (IPWRA) and 56.28 LSL (MDM). Both approaches indicate a substantial positive effect, likely enhancing mobility and service access. Spending on food rises by 157.33 LSL (IPWRA) and 157.98 LSL (MDM), indicating that credit access allows households to invest more in food, possibly alleviating food insecurity. Additionally, credit access boosts household income by 844.77 LSL (IPWRA) and 785.08 LSL (MDM), which supports the idea that credit facilitates income generation and financial security. Health-related spending grows by 27.21 LSL (IPWRA) and 25.37 LSL (MDM), suggesting that credit access enables households to manage healthcare costs better, potentially leading to improved health outcomes. Clothing expenditures also increase, by 38.09 LSL (IPWRA) and 38.40

LSL (MDM), indicating a heightened ability to satisfy basic needs. There is a notable disparity in education spending between methods, with IPWRA showing an increase of 51.78 LSL, while MDM reports an increase by 36.64 LSL. This discrepancy suggests that although both methods indicate a positive effect, the magnitude of their estimates differs, which could reflect methodological variations. Rent expenditures rise by 60.62 LSL (IPWRA) and 43.91 LSL (MDM), indicating that credit access may support housing stability or quality. Overall, both IPWRA and MDM results reaffirm that credit access significantly improves household spending on necessary categories. The minor differences between the two methods indicate variations in estimation sensitivity; however, the consistently positive impact highlights the critical role of credit in enhancing household welfare.

Table 4:Inverse Probability weighting regression adjustment estimation

Outcomes variable	IPWRA estimation	MDM estimation
Transport Expenditure	64.39***	56.28***
Food Expenditure	157.33***	157.98***
Household income	844.77***	785.08***
Health Expenditure	27.21***	25.37***
Closing Expenditure	38.09***	38.40***
Education Expenditure	51.78***	36.64***
Rent Expenditure	60.62***	43.91***

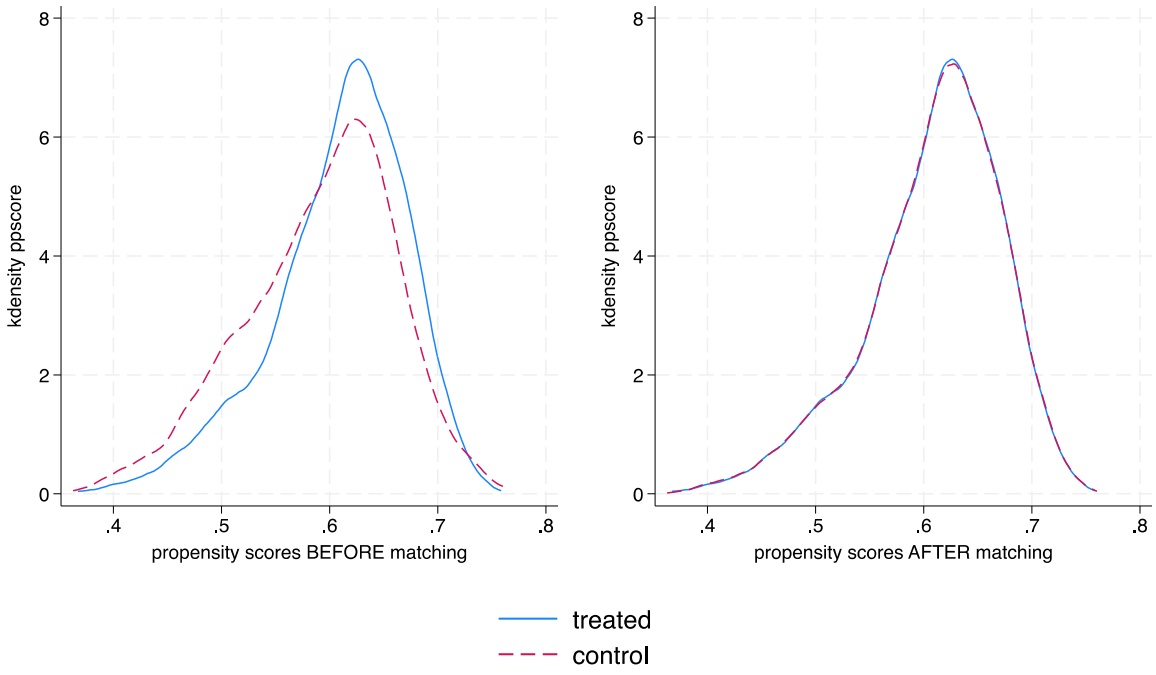

Figure 1:Distribution of Covariates before and after matching

Both estimation methods (IPWRA and MDM) are consistent with the PSM method. The two techniques indicate that access to credit significantly increases household expenditure and income.

5.3. Balance check

Balancing the covariates in propensity score matching (PSM) is essential for accurately estimating the impact. The matching process successfully equalized the covariates between the two groups. Any significant biases present before matching were significantly reduced, as evidenced by the substantial decrease in bias percentages and the non-significant p-values after matching. The results indicate that the treatment and control groups are now more comparable, improving the validity of the subsequent analyses.

Table 5: Covariates Balance Check

	Mean			
	Before matching	**Treated**	**Control**	Bias reduction (%)	**P-value**
Female		.41	.40		0.000
Educated		.86	.87		0.000
Single		.15	.22		0.000
HHsize		4.07	3.86		0.011
Rural		.59	.63		0.078
HHage		49.68	51.21		0.017
After matching					
Female		.41	.41	44.3	0.561
Educated		.86	.86	91.2	0.938
Single		.15	.14	84.1	0.340

HHsize	4.07	3.86	96.9	0.886
Rural	.59	.60	70.6	0.951
HHage	49.68	50.13	95.0	0.426

Before matching, Key characteristics like marital status, household size, and the age of the household head varied significantly between the treated and control groups. Unadjusted, these discrepancies could result in biased estimates of the intervention's impact. After matching: The matching procedure successfully balanced almost all characteristics among the treated and control groups. All p-values post-matching exceed 0.05, which reveals no significant differences between the groups. Additionally, the bias reduction percentages are notably high, particularly for household size (96.9%), household head age (95%), and education (91.2%).

5.4. Discussion

This study demonstrates the significant impact of credit accessibility on household welfare in Lesotho, leading to notable increases in household expenditures and income. Using econometric methods such as Propensity Score Matching (PSM), Inverse Probability Weighting Regression Adjustment (IPWRA), and Mahalanobis Distance Matching (MDM), the findings reveal that households benefiting from credit access allocate more resources to food and other essential needs, potentially enhancing food security. These results align with Bidisha et al. (2017), who found similar positive effects of credit on household expenditures in Bangladesh. Furthermore, our findings support the conclusions of Tonch (2020), where access to credit led to increased household income, reinforcing the role of financial inclusion in improving economic stability.

From a theoretical perspective, this study aligns with the permanent income hypothesis, which posits that access to credit facilitates resource allocation and investment, leading to economic growth and improved welfare. By enabling households to smooth consumption and invest in productive activities, credit access fosters long-term financial stability. Additionally, our findings confirm the life-cycle hypothesis which suggests that households optimize consumption over time, using credit as a means to manage temporary income fluctuations by demonstrating increased expenditures among credit users, reinforcing the notion that access to financial resources allows households to sustain a higher standard of living. Comparing these results with other literature, the study's findings partially align with those of Ikwuagwu et al. (2024), who explored foreign remittances' effects on economic growth in Nigeria. Although their study found a positive influence, it was not statistically significant, highlighting potential variations in financial interventions' effectiveness. Similarly, Oke and Adamson (2023) found that financial inclusion for MSMEs in Nigeria was hindered by high interest rates and inadequate infrastructure, which contrasts with our study, where increased access to credit correlated positively with household welfare. This divergence suggests that while financial inclusion is broadly beneficial, contextual factors such as interest rates, financial infrastructure, and borrower financial literacy play critical roles in determining its overall impact. Moreover, Benchenna and Korichi (2023) highlight the importance of credit risk management in maintaining bank profitability, suggesting that well-regulated financial institutions contribute to sustainable lending practices. The necessity of transparent and efficient credit allocation is further emphasized by Civelek et al. (2018), who found that SMEs face considerable financing barriers due to high collateral requirements and interest rate uncertainties. While our study focuses on household credit access rather than SME financing, both findings underscore the significance of structured credit systems in fostering economic resilience. Jankovic (2017) further supports this perspective, arguing that microfinance tends to emerge in regions with high poverty and low economic development, reinforcing the role of credit in alleviating financial constraints.

These insights contribute to a broader understanding of how financial inclusion initiatives can influence economic stability. While our study supports the notion that credit access enhances welfare by enabling households to meet essential needs, the potential risks of over-indebtedness necessitate complementary policies such as financial literacy programs and consumer protection regulations.

6. Conclusion

Drawing on data from the 2021 FinAccess Household Survey in Lesotho, this study explored how credit access affects household spending and income. The results indicate that households with access to credit allocate more resources to essential goods and services, leading to improved living standards. These findings underscore the role of financial inclusion in enhancing welfare, reducing poverty, and promoting economic resilience in developing countries.

To maximize the benefits of credit access while mitigating risks, policymakers should prioritize financial inclusion strategies that address existing barriers. Specifically, reducing collateral requirements and offering subsidized interest rates for low-income households could enhance accessibility. Furthermore, establishing transparent lending practices and monitoring informal credit markets would safeguard borrowers against predatory lending. Financial institutions must also play an active role in tailoring loan products to meet diverse household needs, such as emergency financing, agricultural loans, and small business credit. Expanding mobile banking and digital credit services could further improve accessibility, particularly in rural areas, while reducing operational costs for lenders. Promoting savings-linked loan programs may also help households build financial resilience and reduce dependence on high-interest credit. In addition, educational initiatives on financial management should be integrated into credit programs to ensure that borrowers use loans efficiently and sustainably. Training and mentorship can empower households to leverage credit for income-generating activities, thereby reinforcing economic stability. Collaboration between NGOs, international donors, and local governments can further facilitate microcredit initiatives that extend financial services to underserved regions.

Future research should focus on assessing the sustainability of credit access effects using more robust methodologies, such as randomized controlled trials (RCTs) and instrumental variable approaches. Understanding the long-term impact of financial inclusion policies will be critical in shaping effective economic development strategies. By incorporating these targeted policy measures, this study contributes to the ongoing discourse on financial inclusion, providing actionable insights that extend beyond academic discussions into practical financial sector reforms aimed at fostering household welfare and economic stability.

Declaration of generative AI and AI-assisted technologies in the writing process

While preparing this work, the authors used ChatGPT to improve the grammatical language and readability of the paper. After using this tool/service, the authors reviewed and edited the content as needed and took full responsibility for the publication's content.

Funding

This research received no external funding.

Data availability

The data used and analyzed during this study is available from the corresponding author upon request.

Acknowledgments

The authors thank the reviewers and the editorial team for their time, valuable feedback, and professionalism during the manuscript's review and processing. Their insights and suggestions will significantly improve our work.

Disclosure statement

The authors reported no potential conflict of interest.

References

Ampah, S. N., Ambrose, J. O., Omagwa, J. O., & Frimpong, S. (2017). Effect of access to credit and financial services on poverty reduction in the central region of Ghana. *International Journal of Business and Social Science*, *8*(8), 49-60.

Bari, M. A., Khan, G. D., Khuram, M. A., Islam, Md. J., & Yoshida, Y. (2024). Financial inclusion and expenditure patterns: Insights from slum households in Bangladesh. *Cogent Economics & Finance*, 12(1).

Bhutta, N., & Hizmo, A. (2022). Do minorities pay more for mortgages? *The Review of Financial Studies*, *35*(4), 1597-1641. https://doi.org/10.1093/rfs/hhab042

Bidisha, S. H., Khan, A., Imran, K., Khondker, B. H., & Suhrawardy, G. M. (2017). Role of credit in food security and dietary diversity in Bangladesh. *Economic Analysis and Policy*, *53*, 33-45.

Bocher, T. F., Alemu, B. A., & Kelbore, Z. G. (2017). Does access to credit improve household welfare? Evidence from Ethiopia using endogenous regime switching regression. *African Journal of Economic and Management Studies*, *8*(1), 51-65.

Boko, J., Raju, D., & Younger, S. D. (2023). Government social protection programme spending and household welfare in Lesotho. *South African Journal of Economics*, *91*(3), 375-393.

Bruhn, M., & Love, I. (2014). The Real Impact of Improved Access to Finance: Evidence from Mexico. *The Journal of Finance*, *69*(3), 1347–1376. http://www.jstor.org/stable/43611187

Bukari, C., Peprah, J. A., Ayifah, R. N. Y., & Annim, S. K. (2021). Effects of credit 'plus' on poverty reduction in Ghana. *The Journal of Development Studies*, *57*(2), 343-360.

Burgess, R. and Pande, R. (2005) Can Rural Banks Reduce Poverty? Evidence from the Indian Social Banking Experiment. American Economic Review, 95, 780-795. https://doi.org/10.1257/0002828054201242

Café, R. M. (2023). Access to credit and quality of expenditure: evidence from Brazilian municipalities. *Cadernos de Finanças Públicas*, *23*(1).

Choudhury, H. A., Das, A., & Rahman, A. (2017). The effectiveness of micro-credit programmes focusing on household income, expenditure and savings: Evidence from Bangladesh. *Journal of Competitiveness*.

Crush, Jonathan & Dodson, Belinda & Williams, Vincent & Tevera, Daniel. (2017). Harnessing Migration for Inclusive Growth and Development in Southern Africa. 10.2307/j.ctvh8r3q1.

Dagnew, D. K., & Kaur, R. (2016). The impact of microfinance on household expenditure patterns: Evidence from Amhara Credit and Saving Institution, Ethiopia. *International Journal in Management & Social Science*, *4*(1), 88-97.

FinScope Lesotho 2021 report.

Friedman, M. (1957). *A theory of the consumption function.* Princeton University Press.

Islam, T. (2016). *Microcredit and poverty alleviation*. Routledge.

Kaboski, J. P., & Townsend, R. M. (2012). The impact of credit on village economies. *American Economic Journal: Applied Economics*, *4*(2), 98-133.

Karlan, D., & Zinman, J. (2011). Microcredit in theory and practice: using randomized credit scoring for impact evaluation. *Science (New York, N.Y.)*, *332*(6035), 1278–1284. https://doi.org/10.1126/science.1200138.

Khandker, S. R., Koolwal, G. B., & Samad, H. A. (2010). *Handbook on impact evaluation: Quantitative methods and practices.* World Bank.

Kumar, A., Mishra, A. K., Sonkar, V. K., & Saroj, S. (2020). Access to Credit and Economic Well-Being of Rural Households. *Journal of Agricultural and Resource Economics*, *45*(1), 145-160.

Makuluni, F. E., & Dunga, H. M. (2022). The impact of access to credit on welfare inequality in Malawi. *Studia Universitatis Babes-Bolyai Oeconomica*, *67*(2), 50-66.

Manzilati, A., Kornitasari, Y., Suprayogi, S., & Efani, A. (2022). Analysis Of Factors Affecting Credit Access And Their Impact On Welfare. In *Journal of International Conference Proceedings* (Vol. 5, No. 4, pp. 405-414).

Moahid, M., Khan, G.D., Bari, M.D.A. and Yoshida, Y. (2023), "Does access to agricultural credit help disaster-affected farming households to invest more on agricultural input?", *Agricultural Finance Review*, Vol. 83 No. 1, pp. 96-106.

Modigliani, F., & Brumberg, R. H. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In K. K. Kurihara (Ed.), *Post-Keynesian economics* (pp. 388-436). Rutgers University Press

Morduch, Jonathan. 1999. "The Microfinance Promise." *Journal of Economic Literature* 37 (4): 1569–1614**.**DOI: 10.1257/jel.37.4.1569

Ozoh, J. N., Nwogwugwu, U. C., Nwokoye, E. S., & Metu, G. (2022). Impact of access to credit on household welfare in Nigeria. *International Journal of Management Studies and Social Science Research*, *4*(2), 187-198.

Pomi, S. S. (2019). Impact of microcredit on rural poverty alleviation in the context of Bangladesh. *International Journal of Economics and Finance*, *11*(6), 1-70.

Quach, H. M. (2017). Does access to credit improve household welfare in the long-run?. *The Journal of Developing Areas*, *51*(1), 129-142.

Quang Vang, D. A. N. G., Viet Thanh Truc, T. R. A. N., Hieu, P. H. A. M., Van Nam, M. A. I., & Quoc Duy, V. U. O. N. G. (2023). Influence of Credit on the Income of Households Borrowing from Banks: Evidence from Vietnam Bank for Agriculture and Rural Development, Kien Giang Province. *The Journal of Asian Finance, Economics and Business*, *10*(2), 257-265.

Santoso, D. B. (2016). *Credit accessibility: the impact of microfinance on rural* Indonesian *households* (Doctoral dissertation, Lincoln University).

Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*, *71*(3), 393-410.

Shirono, K., Beyene, B., Fareed, F., Loots, C., Quevedo, A., & Naidoo, K. (2024). Understanding Barriers to Financial Access: Insights from Bank Pricing Data. *IMF Working Papers*, *2024*(150), A001. Retrieved Mar 26, 2025, from https://doi.org/10.5089/9798400280627.001.A001

Tonch, H. A. (2020). *The Impact of informal credit on household welfare* (Doctoral dissertation, KDI School).

Tu, T. T. T., Viet, N. Q., & Loi, H. H. (2015). Determinant of access to rural credit and its effect on living standard: case study about poor households in Northwest, Vietnam (Note 1). *International Journal of Financial Research*, *6*(2).