Land-use Rights and Credit Access in Vietnam: The Role of Formal and Informal Lending in Financial Inclusion

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Abstract: This paper examines how land-use rights affect household access to both formal and informal credit and how different credit sources relate to household income, using the 2020 Vietnam Household Living Standards Survey (VHLSS). We estimate probit models for borrowing choice across five lender types, Tobit models for loan amounts, and ordinary least squares (OLS) models for income effects, incorporating interaction terms to capture whether owned land is used as collateral. Results indicate that when land is pledged as collateral, loan amounts rise in both markets; for interest rates, formal pricing is largely policy invariant, while in informal markets collateral primarily sharpens the negative rate–scale slopes rather than uniformly lowering levels. We discuss mechanisms explaining why informal credit can have positive income effects (speed, contractual flexibility and embedded information) and highlight the policy implications of issuing land-use rights certificates and improving lending transparency.

Keywords: Collateral, credit choices, income per capita, land-use rights, Vietnam
JEL classification: D2, G5, O1, R2

1. Introduction

Poverty alleviation is one of the primary goals of many countries, particularly in developing economies. To achieve this, governments at different levels have introduced income support programs and subsidies, including subsidised credit for healthcare, education, clean water and agricultural activities such as aquaculture and crop planting. Within the development literature, financial market development is widely viewed as an important pathway for poverty reduction (Bayar, 2023; Junaidi, 2024; Koomson

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et al., 2023). In Vietnam, the rural credit market is highly fragmented, encompassing formal, informal and semi-formal sectors (Putzeys, 2002). The informal credit sector remains notably large (Pham & Lensink, 2007) and directly competes with formal credit, as even households that qualify for bank loans often choose to borrow from private lenders.

A key distinction between the two sectors lies in the requirement of collateral. Formal lenders, particularly banks, generally demand land-use rights certificates, while informal moneylenders do not. Much of the existing literature has examined cultivated land area as a determinant of credit access, but has overlooked land ownership itself (Migheli, 2024). This distinction is critical: households can only pledge owned land as collateral. Vietnam provides a unique context, as land reforms since reunification in 1975 have left many households without proper land-use rights certificates or with certificates misaligned with the land they actually own.

Policy discourse often assumes that informal credit is inherently harmful due to high interest rates, and thus encourages low-income households to shift into subsidised formal credit (Dang et al., 2023; Hoff & Stiglitz, 1990). However, this view is contested. Informal credit frequently reaches households that benefit the most from it (van Gameren et al., 2024), and not all informal credit carries high interest. Intra-family loans may be interest-free (Ojong, 2019), while rotating savings and credit associations (ROSCAs) enable households to pool resources for productive investment (Le & Cao, 2012; Nakamaru, 2023). Informal arrangements can therefore provide timely liquidity and flexibility that formal lenders cannot easily match. As Karaivanov and Kessler (2018) emphasised, informal credit can exploit information and enforcement advantages that mitigate adverse selection, moral hazard and limited commitment problems. Critics and proponents alike recognise the advantages of fast disbursement and the role of social networks in enforcement (Hoff & Stiglitz, 1990; Karaivanov & Kessler, 2018; Pham & Lensink, 2007). Empirical evidence from Thailand shows that the average transaction cost of formal borrowing is about US$30, largely from transportation, while informal borrowing incurs minimal cost (Giné, 2011).

In this study, we define informal credit as loans obtained outside the formal financial system, comprising: (i) socially embedded sources such as relatives, friends, or ROSCAs, and (ii) market-based private lenders such as moneylenders and traders. This distinction is important because these subtypes of informal credit have very different cost structures and welfare implications.

Against this backdrop, it is essential to clarify the roles of both formal and informal credit in household welfare and to reassess the role of land-use rights in determining access. Using data from the 2020 VHLSS conducted by the General Statistics Office and covering all 63 provinces, this paper investigates how land-use rights influence household access to multiple credit sources, the loan terms attached, and the relationship between credit access and income. While the paper also examines loan terms (interest rates and loan amounts) and income outcomes, these are analysed as mechanisms and welfare implications of land-use rights, rather than as standalone topics. By focusing on ownership and the collateralisation of land, we address an important but understudied channel in fragmented and imperfect credit markets, building on the seminal insights of Hoff and Stiglitz (1990), and Stiglitz and Weiss (1981).

2. Related Literature

2.1 Land-use Right Reform in Vietnam

Vietnam's post-1975 land reform emphasised land ownership and restrictions on purchase, particularly in agriculture, though similar rules applied to non-agricultural land before 1986. Together with later policy changes, these reforms helped Vietnam move from food shortages after reunification in 1975 to becoming one of the world's leading exporters of rice, coffee, pepper, rubber, cashew nuts, fisheries and cassava. The development of agriculture and land-use rights can be divided into three phases.

1976–1986: Agricultural policy focused on self-sufficiency and subsidised inputs for industrialisation. Smallholders in the North were consolidated into cooperatives, while over 75% of southern households remained outside (Wolz & Pham, 2010), reflecting strong attachment to private land ownership rooted in the tenant farming system (Bredo, 1986; Do, 1989). In 1981, cooperatives introduced a contract system that allowed households to cultivate allocated land, contribute part of their output, and sell the rest. However, most transactions were informal, based on handwritten agreements, leading to mismatches between household heads and certificate holders. Many households therefore lacked collateral. Weak cooperative support, especially for irrigation and distribution, resulted in declining productivity and widespread hunger (World Bank, 2016). At the same time, the education system remained underdeveloped, while the government encouraged migration from the North and from urban to rural areas to expand agricultural land and labour supply (GSO & UNFPA, 2016).

1986–1993: The adoption of Doi Moi in 1986 abandoned central planning and opened the economy to international trade. Farmers became independent producers, and productivity rose sharply, making Vietnam a rice exporter by 1989 (World Bank, 2016). The 1988 Land Law and Directives 60/HDBT and 154/HDBT granted households longer-term land-use rights, laying the foundation for gradual privatisation. Broader reforms also reshaped labour markets:

> The economic reforms introduced 1986 provided a reservoir of unattached rural labour that wanted and could move, while urbanization and industrialization significantly increased employment opportunities. The social network of migrants has further facilitated the migration process, especially from rural areas to large cities.
>
> (GSO & UNFPA, 2016, p. iii).

1993–present: The 1993 Land Law further extended land-use terms and introduced official land-use right certificates. According to the Constitution, land remains state-owned, but citizens are granted transferable use rights, creating a system similar to China (Benjamin & Brandt, 2002). Farmers were also allowed to freely trade agricultural products, with restrictions on circulation of goods between North and South removed. These changes spurred agricultural markets and reinforced land as an asset. However, the reform process was uneven. The tradition of informal land transactions, together with administrative hurdles and conversion fees, meant many households continued to buy and sell land-use rights through informal written agreements. Transactions before 1988, combined with land-use right exchanges after, left numerous households with land but no official certificates. As a result, these households face restricted access to

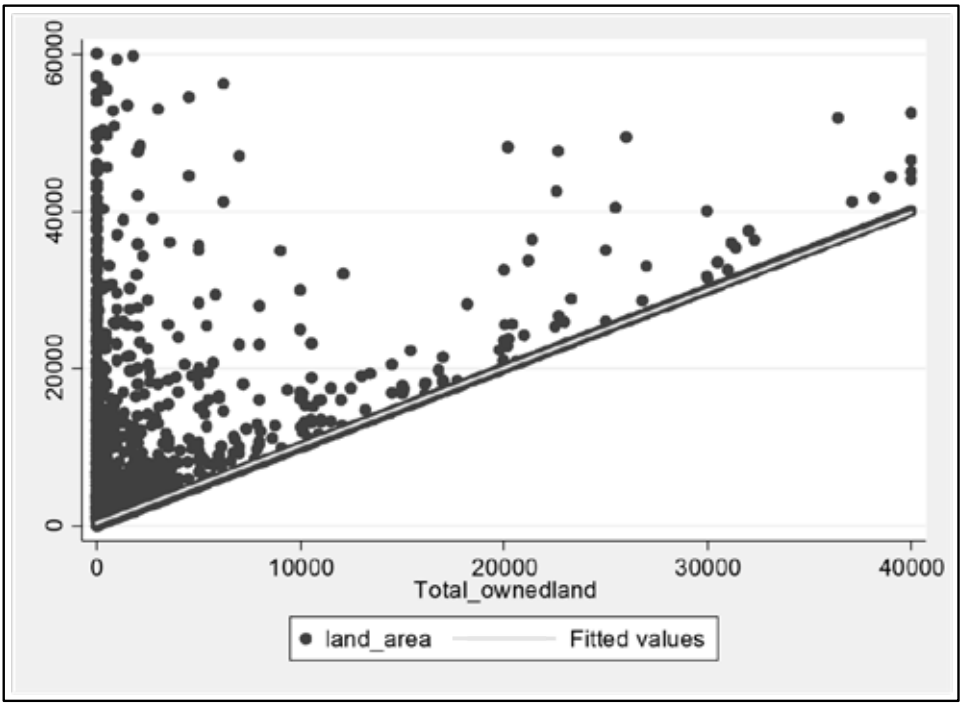

Figure 1. Land area and land area owned by households generated from VHLSS 2020

formal credit. This reality remains visible in rural Vietnam, where official certification often lags behind actual land use. Farmers may cultivate plots acquired through family inheritance, informal sales, or local transfers, but without proper certificates, they cannot use the land as collateral despite ownership being socially recognised. This situation has been highlighted in previous studies and resonates with practical experience: official paperwork does not always reflect on-the-ground ownership. Figure 1 illustrates the issue, showing that many households hold land without certificates, thereby limiting their access to formal financial institutions.

2.2 Current Studies on Credit Access

Households' borrowing decisions in credit markets can be explained through choice theory, where loans are sought to maximise utility, often for production, housing, or consumption (Barslund & Tarp, 2008; Deaton, 1991; Nakamaru, 2023; Pham & Lensink, 2007). Borrowing is typically linked to the expectation of higher future profits, which enables loan repayment, with factors such as production materials, income sources and household assets playing key roles in determining credit demand. Landholding size, in particular, significantly influences borrowing decisions, as land functions both as a productive resource and collateral (Barslund & Tarp, 2008; Domanban et al., 2023). Beyond land area, ownership of titled land is decisive, since only legally recognised property can

be pledged as collateral. Research indicates that households with larger landholdings or better income prospects are more likely to avoid credit rationing and secure lower interest rates (Cao & Le, 2020; Kuhn & Bobojonov, 2021; Pham & Lensink, 2007).

The diversification of income sources and assets also plays a critical role in borrowing decisions (Domanban et al., 2023; Phan et al., 2013; Vaessen, 2001; Zeller, 1994). Additionally, higher expenditure levels correlate with increased borrowing likelihood (Pham & Lensink, 2007). In Vietnam, low-income households often seek formal subsidised loans from policy banks such as the Vietnam Bank for Social Policies (VBSP) or the Vietnam Bank for Agriculture and Rural Development (VBARD) when eligible (Phan et al., 2013). Yet, lacking proper land-use certificates limits their access to collateral-based lending from commercial banks, excluding many otherwise creditworthy borrowers. Asymmetric information further causes credit rationing, where even qualified households are denied formal credit (Stiglitz & Weiss, 1981). Consequently, rural markets in developing countries exhibit a coexistence of formal and informal lenders, with the latter enjoying informational advantages and contractual flexibility (Conning & Udry, 2007; Guirkinger, 2008; Hoff & Stiglitz, 1990).

Previous studies noted that informal credit is heterogeneous: loans from relatives or friends are often interest-free or low-cost, while moneylenders and traders typically charge higher interest but provide quick and flexible access (Karaivanov & Kessler, 2018; Ojong, 2019; Pham & Lensink, 2007). Recognising this distinction is crucial for understanding both the benefits and risks of informal finance.

Formal lenders mitigate risk primarily through collateral. They require physical assets – most importantly titled land – to secure loans (Chakraborty & Mahanta, 2024). This explains why access to land-use rights certificates becomes critical. Empirical evidence confirms that collateral reduces constraints: Diagne and Zeller (2001) and Petrick (2004) found a negative relationship between collateral availability and credit rationing. In Ghana, Osei-Gyebi (2024) highlighted that income positively impacts credit access, while farmers with off-farm income face fewer constraints from credit providers (Vaessen, 2001). Osei et al. (2023) also found that off-farm income influences formal credit amounts, while reducing informal credit reliance.

Demographic factors, such as household head characteristics, also shape credit access. Gender is significant, with female-headed households experiencing more constraints (Sehgal, 2025). The age of the household head has mixed effects, with older heads enjoying better access to credit, while younger ones may prefer informal sources (Nguyen et al., 2022; Osei-Gyebi, 2024). Education is a key determinant, as higher education correlates with larger loans (Le & Pham, 2011; Petrick, 2004), and educated heads are more likely to seek formal credit (Nguyen et al., 2022). However, Zeller (1994) found that higher education may also be associated with credit constraints. Ethnicity and family size further influence credit access, with Kinh households more likely to secure larger loans than other ethnic groups (Vuong et al., 2012).

Credit access is also affected by lending procedures and borrowers' credit histories. Social networks can facilitate access to informal credit (Dang et al., 2023), while strong lender relationships increase the likelihood of obtaining larger loans (Le & Pham, 2011). Reputation and good credit history are crucial for improving access to credit (Pham & Izumida, 2002; Vuong et al., 2012), whereas late payments create barriers (Kaya, 2024).

Borrowers with poor credit histories often turn to informal sources, such as trade credit, private lenders, or family and friends (Nguyen et al., 2022). This highlights an important difference: formal lenders rely on hard information such as collateral and repayment records, whereas informal lenders rely on soft information and social ties (Armendáriz & Morduch, 2010; Besley, 1995).

Formal institutions commonly assess loan-to-collateral ratios to manage risk. Pham and Izumida (2002) found that higher loan requests are less likely to be approved, while Le and Pham (2011) identified a positive relationship between borrowing costs and the amount of credit granted. Lemecha (2023) suggested that rising interest rates tighten credit conditions, with commercial banks reducing loan offerings when collateral is scarce. By contrast, informal credit – even at higher nominal rates – can sometimes raise incomes because of lower transaction costs, faster disbursement, and flexible contracts that fit household production cycles (Banerjee & Duflo, 2010; Karaivanov & Kessler, 2018). This perspective aligns with findings in Vietnam and elsewhere that informal private lenders, embedded in local networks, can complement rather than substitute formal institutions, thereby challenging the view that informal credit is inherently harmful (Zeller & Sharma, 1998).

3. Data and Methods

3.1 Vietnam Household Living Standard Survey

Since 1993, the General Statistics Office (GSO) has conducted nationwide surveys on living standards to inform policy-making. The VHLSS was implemented biennially from 2002 to 2010 and annually thereafter, with odd-year surveys focusing on basic indicators such as population, employment and income. The VHLSS assesses living standards, poverty reduction and progress toward national and global development goals. It employs two subsamples – a larger one on household income and a smaller one including expenditure and other socioeconomic indicators – covering over 3,000 communes to ensure national and regional representation. Data are collected through direct interviews and verified by statistical departments. This study uses the 2020 VHLSS, comprising 47,040 households, about 70% of which are rural. Vietnam's dual credit market, shaped by its land reform history, includes both formal and informal lenders. The VHLSS records five credit sources: relatives/friends, state banks, commercial banks, private moneylenders/traders and associations/ROSCAs. In our analysis, we classify relatives/friends and private moneylenders/traders as informal credit, but distinguish between them: socially embedded informal finance (relatives/friends, ROSCAs) versus market-based informal finance (private moneylenders/traders). This classification allows us to capture heterogeneity within informal credit and to analyse how different types of lenders interact with land-use rights in determining access. Many households own land without a land-use rights certificate, affecting credit access. Additionally, urban households often own rural land and vice versa, but the VHLSS does not specify land type. Given these complexities, our analysis includes both urban and rural households to examine how land-use rights certificates impact credit access.

3.2 Models

In measuring the impacts of independent variables on household credit demand, probit models are preferred over linear probability models because they more accurately reflect binary choices and ensure predicted probabilities fall within a feasible range (between zero and one) (Gujarati, 2004). The relationship between lenders and borrowers generally consists of three stages: applying for loans, screening and decision-making by lenders, and managing loan repayment. However, in empirical studies – especially those relying on secondary data – it is challenging to observe the repayment stage as it requires extensive tracking of borrower behaviour, which is time-consuming and costly. Therefore, this paper focuses on the first two stages of the lending process.

Our research adopts a distinctive approach by using probit models to estimate the correlation between independent variables and the likelihood of borrowing from a variety of five specific formal and informal credit sources. This perspective contributes a novel angle to the existing literature, which typically addresses general categories of formal and informal credit sources. The probit model applied in this study is as follows:

$$\Pr(D = 1 \mid X') = \alpha + \mu X' + \varphi$$
$$E(\varphi \mid X') = 0 \quad (1)$$

where: D is the household's decision to borrow or not. It is measured by two values, 0 and 1 (yes = 1 and no = 0). X' is a vector of observed elements (explanatory variables).

In the second step, credit amount can be presented by a Tobit model as follows:

$$Y = f(M_{ij}) \text{ or}$$
$$Y = \alpha + \beta M_{ij} + \varepsilon_i \quad (2)$$

where: in this model, *Y* represents the loan amount received, which is always positive. Given this non-negative nature of *Y*, a Tobit model is appropriate for estimation. The variable M_{ij} denotes a vector of explanatory variables.

To examine the third issue – the relationship between land ownership and interest rates – we employ a regression model where the interest rate paid by borrowers to formal (or informal) credit providers serves as the dependent variable. For households that borrow from multiple formal (or informal) sources, we use the weighted average interest rate as the measure, addressing a factor often overlooked in prior studies.

While Migheli (2024) highlighted the importance of land ownership as collateral (rather than land area) in previous research, the question of whether owned land is explicitly pledged as collateral remains unexplored. We argue that land-use right certificates are not always used as collateral in household borrowing. Therefore, we incorporate interaction terms for the logarithm of land ownership, the logarithm of the loan amount received, and collateral status (where 1 indicates that a land-use right certificate was used as collateral, and 0 indicates otherwise) to explain interest rates charged by both formal and informal credit providers.

The estimated equation is presented as follows:

$$y_j^i = \beta_0 + \gamma K_j + \mu_j \quad (3)$$

where: y_j^i is the weighted average annual interest rate paid by borrowers to formal (or informal) lenders, while K_j is the set of exploratory variables including the three-way interaction term.

Finally, we estimated the effect of formal and informal credit on the logarithm of household monthly income per capita.

$$R = f(F_{ij}) \text{ or}$$
$$R = \pi + \Omega F_{ij} + £_i \quad (4)$$

where: R is the logarithm of household monthly income per capita. ΩF_{ij} are vectors of explanatory variables including borrowing status from different formal and informal credit sources. Appendix 1 provides the definitions of all variables in this study.

4. Results

To assess multicollinearity, we examine pairwise Pearson correlations among regressors. Almost all pairwise correlations are low, and following Gujarati (2004), values below 0.8 are generally not considered indicative of multicollinearity problems (Appendix 2).

4.1 Determinants of Credit Access

Table 1 reports the average marginal effects (AME) from probit regression models estimating factors influencing households' decisions to borrow from five different types of lenders. The Vietnam Bank for Social Policies (VBSP) and the Vietnam Bank for Agriculture and Rural Development (VBARD) are two special state banks that provide low-interest loans with simplified procedures for specific groups (e.g., low-income individuals, students, ethnic minorities) as per central government policies. Likewise, associations such as the Farmers' Association and the Women's Association offer affordable loans to members, though these are not always readily available. Informal lenders include private entities, friends and relatives. Friends and relatives often lend with little to no interest, whereas private lenders – such as traders, agricultural supply stores and moneylenders – typically charge high interest but have relaxed borrowing conditions.

The table shows that, among the three types of formal lenders, households with larger land areas are more inclined to borrow from VBSP/VBARD, with a 0.2 percentage point increase in the probability of borrowing for every 1% increase in land area ($p<0.01$), while they are 0.1 percentage points less likely to borrow from associations ($p<0.01$). By contrast, landholding does not significantly affect borrowing from private banks. This may be because VBSP and VBARD offer low-interest loans with easy lending procedures and often do not require strict collateral. While associations also provide low-interest loans with similar terms, they appear to be less attractive due to limited availability and restrictions for non-members.

Trinh et al. (2022) found that farmers in Vietnam's Mekong Delta are hesitant to borrow from private banks, despite lower interest rates than informal credit sources, as they feared losing their land if unable to repay. Moreover, VBSP and VBARD interest rates are usually lower than those at commercial banks, and these state banks tend to be more lenient with borrowers who struggle with repayment. Notably, the probit models indicate that households already in debt are much more likely to borrow than those without debt, with marginal effects of 0.093 for friends, 0.312 for VBSP/VBARD, 0.091 for private banks, 0.028 for private lenders, and 0.084 for associations

(all p<0.01). Additionally, households with bank accounts are less likely to borrow from VBSP/VBARD (–0.018, p<0.01) but more likely to borrow from private banks (0.019, p<0.01), as shown in the sixth row from the bottom in Table 1. These findings reinforce the role of credit history in households' borrowing decisions, as seen in prior studies.

Table 1. Determinants of households' credit choices: Average marginal effects from probit estimation

	Friends	VBSP_VBARD	PrivateBanks	PrivateLenders	Associations
Gender	-0.004**	0.002	0.002	-0.002**	0.001
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)
LnAge	-0.003***	0.004**	-0.002**	-0.001*	0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Ethnicity	0.018***	-0.044***	0.024***	0.005***	0.019***
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
LnMembers	-0.002	0.006	0.001	0.005**	0.004
	(0.003)	(0.005)	(0.003)	(0.002)	(0.003)
Support	0.002	0.001	0.001	0.000	-0.001
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)
Number_sickness	0.000	0.001	-0.001	0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
HealthInsurance	0.005	0.001	-0.005*	0.001	0.002
	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)
Member_SalaryWork	0.003	0.007**	-0.007***	0.000	0.002
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)
OneOff_Benefits_Pension	0.002	-0.004	0.008	-0.011	-0.005
	(0.007)	(0.011)	(0.006)	(0.008)	(0.008)
Poor_2019	0.004	0.033***	-0.026***	0.000	-0.008
	(0.006)	(0.008)	(0.008)	(0.004)	(0.005)
Poor_2020	-0.020***	-0.006	-0.004	-0.004	0.007
	(0.007)	(0.009)	(0.009)	(0.004)	(0.005)
LnOwnHouse_Value	0.001**	-0.001**	0.001*	-0.001***	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
BankAccount	0.000	-0.018***	0.019***	-0.002	-0.003
	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)
PayingOff_debts	0.093***	0.312***	0.091***	0.028***	0.084***
	(0.004)	(0.003)	(0.004)	(0.002)	(0.004)
lnTotal_ownedland	0.000*	0.002***	-0.000	0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Prob > chi^2	0.000	0.000	0.000	0.000	0.000
Pseudo R^2	0.280	0.698	0.331	0.188	0.279

Notes: AME are reported. AME measure the average change in the probability of borrowing from each credit source for a one-unit change in the explanatory variable, holding others constant. Variable definitions are provided in Appendix 1. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Regarding control variables, Kinh households are more likely to borrow from four of the five sources (except VBSP/VBARD), with marginal effects ranging from 0.5 to 2.4 percentage points (all $p<0.01$). Interestingly, we found that female household heads are 0.2 percentage points less likely to borrow from private lenders ($p<0.05$), as shown in the second row from the top in Table 1. A possible explanation for this is that female heads tend to be more risk-averse. Overall, findings from the first step do not strongly support the argument that households lack access to credit due to the absence of land-use rights but instead highlight the psychological significance of land for rural households, as described by Trinh et al. (2022).

4.2 Determinants of Loan Value

Table 2 reports average marginal effects (AME) derived from Tobit estimations, with the dependent variable being the value of loans obtained from formal and informal sources. Because VHLSS 2020 does not record credit applications, loan value is used as a proxy for credit access. The estimates indicate a negative and statistically significant association between the logarithm of owned land and informal loan values (−0.026, $p<0.05$), while the effect on formal loans is small and not statistically significant (0.004). This pattern suggests that larger landholdings do not necessarily expand access to formal credit, but they are associated with lower reliance on informal borrowing – consistent with greater self-financing capacity among larger landowners.

Collateral plays a central role in credit rationing. The AME for collateral is large and positive for both markets − 1.214 ($p<0.01$) for formal credit and 0.735 ($p<0.01$) for informal credit − indicating that pledging assets is strongly associated with higher loan values irrespective of lender type. These results highlight that what matters for credit access is not land quantity per se but whether land can be pledged as collateral.

Regarding transaction costs, the AME for "grease money" in formal credit is small in magnitude yet highly significant (0.0001, $p<0.01$), implying that even minor unofficial payments are correlated with larger formal loans. This is consistent with the interpretation of procedural frictions and discretionary power in formal lending, and with evidence in Le and Pham (2011) that hidden borrowing costs − such as commissions to bank staff − can raise loan amounts in Vietnam. For informal credit, the AME of grease money is positive but weaker (0.0005, $p<0.1$), plausibly capturing small relational or brokerage costs that facilitate transactions within informal networks rather than corruption.

Finally, Table 2 shows two additional patterns in borrower characteristics. First, households with a bank account receive larger loans in both markets (BankAccount = 0.406 for formal and 0.488 for informal; both $p<0.01$). Second, a history of paying off debts is associated with larger loans from informal providers (0.722, $p<0.01$) but is not statistically significant for formal providers (0.184, $p>0.1$). These results are consistent with the idea that borrowing history and reputation matter for credit rationing − particularly in informal markets − as discussed by Gyimah et al. (2022), Kaya (2024), and Nguyen et al. (2022).

Overall, the AME estimates in Table 2 reinforce three conclusions: land size by itself does not expand formal credit access; collateral is a powerful determinant of loan value

Table 2. Average marginal effects from Tobit estimates on loan amounts

	Value of loans from formal credit sources	Value of loans from informal credit sources
BankAccount	0.406***	0.488***
	(0.027)	(0.081)
PayingOff_debts	0.184	0.722***
	(0.192)	(0.189)
lnTotal_ownedland	0.004	-0.026**
	(0.003)	(0.011)
GreaseMoney_Formal	0.0001***	
	(0.000)	
Collateral_Formal	1.214***	
	(0.023)	
GreaseMoney_Informal		0.0005*
		(0.000)
Collateral_Informal		0.735***
		(0.264)
Other control	Yes	Yes
Observations	7,171	1,088

Notes: AME from Tobit estimates are reported. AME represent the average change in loan amount associated with a one-unit change in each explanatory variable, *ceteris paribus*. Variable definitions are provided in Appendix 1. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

in both markets; and small unofficial costs are correlated with larger loans − clearly so in the formal market and more weakly in the informal one.

4.3 Interest Rate Determinants

Table 3 and Appendix 3 jointly examine how landholding relates to credit pricing by formal and informal lenders when interest rates are modelled with a three-way interaction among loan size (ln loan), land owned (ln land) and collateral. Because higher-order interactions make each partial effect conditional on the others, Appendix 3 reports the OLS coefficients, while Table 3 presents the AME evaluated at representative borrower profiles (25th/50th/75th percentiles of ln land and ln loan, with collateral = 0/1). The AME capture the *average partial impact* of loan and land characteristics, conditional on the observed borrower distribution. Statistical significance is shown in Table 3 and consistent with the patterns reported in Appendix 3, which fully support the AME results.

For informal credit, both Appendix 3 and Table 3 reveal a pronounced negative association between loan size, landholding, and interest rates. The AME indicate that interest rates decline as loan size increases across all land percentiles (−0.1288 to −0.1096 without collateral) and that the decline is much steeper when collateral

Table 3. Average marginal effects of loan size, landholding and collateral on interest rates

Variable/Evaluation point	Formal	Informal
BankAccount	0.0012	−0.2184
PayingOff_debts	−0.0022	0.0802
Effect of ln(Loan) at ln(Land)=7.368; Collateral = 0	0.0013	−0.1288**
Effect of ln(Loan) at ln(Land)=8.716; Collateral = 0	0.0016	−0.1192***
Effect of ln(Loan) at ln(Land)=9.903; Collateral = 0	0.0019	−0.1096***
Effect of ln(Loan) at ln(Land)=7.368; Collateral = 1	0.0005	−0.6928***
Effect of ln(Loan) at ln(Land)=8.716; Collateral = 1	0.0002	−0.9775***
Effect of ln(Loan) at ln(Land)=9.903; Collateral = 1	0.0001	−1.2293***
Effect of ln(Land) at ln(Loan)=10.309; Collateral = 0	−0.0004	
Effect of ln(Land) at ln(Loan)=10.820; Collateral = 0	0.0002	
Effect of ln(Land) at ln(Loan)=11.533; Collateral = 0	0.0004	
Effect of ln(Land) at ln(Loan)=10.309; Collateral = 1	−0.0005	
Effect of ln(Land) at ln(Loan)=10.820; Collateral = 1	−0.0007	
Effect of ln(Land) at ln(Loan)=11.533; Collateral = 1	−0.0009	
Effect of ln(Land) at ln(Loan)=10.309; Collateral = 0		−0.0358**
Effect of ln(Land) at ln(Loan)=10.820; Collateral = 0		−0.0318**
Effect of ln(Land) at ln(Loan)=11.533; Collateral = 0		−0.0269**
Effect of ln(Land) at ln(Loan)=10.309; Collateral = 1		0.0219
Effect of ln(Land) at ln(Loan)=10.820; Collateral = 1		−0.0864*
Effect of ln(Land) at ln(Loan)=11.533; Collateral = 1		−0.2368**
Collateral effect (1 vs 0) at ln(Loan)=10.820 and ln(Land)=8.716	0.0012	
Collateral effect (1 vs 0) at ln(Loan)=10.820 and ln(Land)=8.716		1.8376***
Observations	7,171	1,088
Adj R-squared	0.0121	0.0385

Notes: AME are reported. AME capture the average partial change in interest rates corresponding to a one-unit change in loan and land characteristics. Variable definitions are provided in Appendix 1. AME are computed from OLS models with three-way interactions among ln(loan), ln(land), and collateral. For *landholding*, evaluation points correspond to ln(land) = 7.368 (low), 8.716 (median), and 9.903 (high). For *loan size*, evaluation points correspond to ln(loan) = 10.309 (low), 10.820 (median), and 11.533 (high). "Formal" and "Informal" indicate the two lender types. Collateral = 0/1 denotes loans *without/with collateral*. Interest rates are in % per year. *** p<0.01, ** p<0.05, * p<0.1.

is pledged (−0.6928 to −1.2293). Similarly, interest rates fall with larger landholdings (−0.0358 to −0.0269 without collateral) and drop further when collateral is used and loan size increases (down to −0.2368). The average collateral effect is about 1.84 percentage points and highly significant. These results confirm that informal lenders engage in risk-based pricing, as wealthier and collateralised borrowers obtain lower rates (Hoff & Stiglitz, 1990; Migheli, 2024). However, the pricing pattern is not uniform: collateral primarily steepens the negative rate–loan-size slopes rather than lowering rates across the board, implying that wealthier borrowers capture most of the cost advantages.

By contrast, formal credit exhibits very limited responsiveness to borrower fundamentals. The AME indicate that the effects of loan size and landholding on interest rates are close to zero (0.0013–0.0019 and −0.0004 to −0.0009) and statistically insignificant, while the average collateral effect is small (approximately 0.0012) and negligible. These findings confirm that formal lending rates are *policy-regulated* and largely invariant to borrower heterogeneity, consistent with the interest-rate ceilings and state-supervised credit allocation documented in Vietnam (Porteous & Helms, 2005).

Overall, the combined evidence from Table 3 and Appendix 3 reveals a dual pricing regime: informal lenders flexibly adjust rates according to borrower characteristics and collateral, while formal lenders adhere to near-fixed, institutionally determined pricing. This divergence underscores the coexistence of market-based and regulated credit systems, with informal finance performing the risk-allocation function that formal institutions are constrained from executing.

4.4 Credit Access and Household Welfare

To assess welfare implications, two models were estimated using AME with the logarithm of monthly income per capita as the dependent variable. As shown in Table 4, borrowing from most credit sources is positively associated with household income. The largest AME are observed for private banks (0.892 and 0.764), followed by private lenders (0.286 and 0.213), associations/ROSCAs (0.213 and 0.186), and state-owned banks (0.167 and 0.144). Borrowing from friends and relatives shows no significant effect, consistent with its role as a last-resort or consumption-smoothing source (Ojong, 2019). These results challenge the conventional belief that informal credit is harmful and suggest that both formal and semi-informal borrowing can enhance household welfare when credit constraints are binding.

Table 4. Average marginal effects of credit access on household income per capita

	LnMonthlyIncome_Capita	LnMonthlyIncome_Capita
Borrower_Friends	0.042	0.004
	(0.081)	(0.086)
Borrowers_VBSP_VBARD	0.167***	0.144***
	(0.034)	(0.036)
Borrowers_PrivateBanks	0.892***	0.764***
	(0.088)	(0.090)
Borrowers_PrivateLenders	0.286**	0.213
	(0.140)	(0.144)
Borrowers_Associations	0.213***	0.186**
	(0.091)	(0.093)
Other control	No	Yes
Adj R-squared	0.004	0.061

Notes: AME are reported. AME indicate the average change in household income per capita associated with borrowing from each credit source. Variable definitions are provided in Appendix 1. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Descriptive evidence from VHLSS reinforces this view. About one-fourth of households hold debt, with 14% borrowing from informal sources. Informal loans average 125 million VND − about 56% of annual household income − and carry high interest rates (≈120% per year) compared with ≈2% for formal loans. Yet, informal credit remains attractive because of low transaction costs (≈12% of formal levels) and minimal collateral requirements (≈3% versus 46%). Among 11,538 borrowing households, 8,024 hold land-use rights, and roughly 40% of them use land as collateral. These figures, not shown for brevity, highlight the segmented but complementary nature of Vietnam's credit market, where informal finance fills the institutional gaps of the formal sector (Karaivanov & Kessler, 2018; Pham & Lensink, 2007).

Overall, both AME and descriptive findings point to a positive association between credit access and household income, with stronger effects for private lenders than for VBSP/VBARD or associations. Rather than replacing informal finance, policy efforts should focus on improving land titling and collateral mechanisms, thereby enabling borrowers to transition toward formal credit channels at lower interest rates.

5. Conclusion and Policy Implications

This study highlights how land-use rights influence access to both formal and informal credit in developing economies. Secure tenure enhances credibility and enables collateralised borrowing, yet many rural households still lack access to formal loans. Empirical results show that pledging land significantly increases loan values, while small unofficial fees reflect administrative inefficiencies rather than corruption. Formal interest rates remain policy-driven, whereas informal lending features flexible, risk-based pricing shaped by borrower characteristics and collateral interactions. Both credit types contribute positively to household income, especially through private lenders. Overall, the evidence demonstrates the coexistence of regulated and market-based credit systems: formal credit constrained by collateral requirements and informal credit acting as a complementary safety net. These findings provide policy-relevant insights for improving financial inclusion and governance in rural credit markets (Prime Minister of Vietnam, 2020; State Bank of Vietnam, 2021).

This study has several policy implications. First, strengthening land registration and title certification is essential for expanding formal credit access. Secure land tenure allows land to serve as reliable collateral, as reflected in the strong collateral effects (1.214 for formal and 0.735 for informal loans). Accelerating land-use right certification, standardising valuation procedures, and implementing Decree No. 43/2014/ND-CP alongside the Vietnam Land Information System would enhance credit availability. The 2023 draft amendment to the Land Law introducing e-certification and digital cadastral maps further supports this goal.

Second, improving administrative transparency and reducing procedural frictions are critical to addressing the "grease money" effects observed in the results. Although small in magnitude, such unofficial fees highlight inefficiencies in loan delivery. Simplifying documentation, digitising loan processing, and enforcing the National Anti-Corruption Strategy 2020–2030 would reduce these costs. Expanding the "One-Stop Administrative Service" model could also strengthen borrower confidence and service quality.

Third, fostering cooperation between formal and informal credit providers can enhance financial inclusion and resilience. Loan guarantees, low-interest programs, and partnerships between banks and community lenders can help households manage risk. Legalising and supervising ROSCAs, together with promoting mobile banking and fintech tools such as Kenya's M-Pesa, would extend outreach to rural borrowers and women entrepreneurs.

From an evidence-based perspective, the findings offer measurable policy benchmarks. Reducing unofficial borrowing costs (≈ 0.0001 of loan value) and increasing collateral utilisation (currently 46% among formal borrowers) would directly improve credit accessibility. Moreover, strengthening financial literacy and targeted programs for women and ethnic minorities remains crucial, as borrowing from both formal and informal sources is positively associated with income.

This study has several limitations that suggest directions for future research. The analysis relies on cross-sectional data (VHLSS 2020), which constrains the ability to capture dynamic changes in borrowing behaviour and the long-term impact of legal reforms. Future research could employ panel or experimental data to better identify causal effects of policies such as the 2023 Land Law amendment and the 2023 Law on Prevention of Corruption (National Assembly of Vietnam, 2023). Moreover, data limitations prevent testing whether collateralised loans fully alleviate credit constraints, as loan application versus approval information was unavailable. Addressing potential endogeneity between credit access and income − through instruments such as lender distance or policy rollouts − would also strengthen causal inference. Comparative analyses across developing economies could further explore how legal and institutional frameworks jointly influence credit market participation and financial inclusion.

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