Int. j. adv. multidisc. res. stud. 2025; 5(6):1229-1236

Received: 23-10-2025
Accepted: 03-12-2025

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Collateral securities and access to credit in urban areas of the Democratic Republic of Congo: The case of the city of Kisangani

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Abstract
This study investigates the effect of collateral security on access to credit among small and medium-sized enterprises (SMEs) in Kisangani, Democratic Republic of Congo, while considering the role of firm revenue. Using primary cross-sectional data from 267 SMEs operating in commerce, production, and services between 2023 and 2025, and applying Ordinary Least Squares estimation, the analysis demonstrates that collateral security exerts a strong and positive influence on the value of loans obtained, confirming its centrality in SME financing. Annual revenue is also found to significantly increase loan amounts, underscoring the importance of firm performance as a key determinant of creditworthiness. The findings highlight both the reliance of banks on collateral-based lending and the structural challenges faced by SMEs with limited assets in fragile financial systems. Drawing from these results, the study recommends greater flexibility in collateral requirements, strengthened credit information systems and movable collateral registries, targeted programs to enhance SME revenue performance, and the introduction of credit guarantee schemes to mitigate risk and broaden access to finance.

Keywords: Collateral security, access to credit, SME, Kisangani, Democratic Republic of Congo

JEL classification: G21, G32, L26, O55

1. Introduction

Despite significant global efforts to achieve Sustainable Development Goal 8, which aims to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all, access to credit still remains a major challenge in Africa, and particularly in the Democratic Republic of Congo (DRC). Evidence from the Global Findex Database indicates that only about 11% of the adult population in the DRC has access to formal financial services, far below the Sub-Saharan African average of 43%, which undermines financial inclusion and economic development (Demirgüç-Kunt *et al*., 2022; Kavota, 2025b) [13, 21]. Over the past decades, a growing body of literature has examined the determinants of credit access and the role of economic variables in alleviating financial constraints. For instance, financial literacy has been shown to significantly improve access to formal loans by enhancing individuals' ability to navigate complex financial systems (Hasan *et al*., 2023; Kelly, 2025b) [17, 24]. Similarly, income level has been identified as a critical determinant, with higher and more stable household earnings increasing the likelihood of securing bank loans (Miroshnichenko *et al*., 2022) [33]. Employment status also matters, as formal employment provides borrowers with the credibility and repayment capacity that financial institutions seek (Asah & Louw, 2021; Mansour *et al*., 2024) [4, 31]. In addition, government policies such as financial sector reforms and credit guarantee schemes have been found to facilitate credit access, especially for small and medium-sized enterprises (SMEs) (Akang, 2023) [2]. While these studies provide important insights into how economic variables shape credit access, the reality is that for much of the population in Kisangani, access to credit remains very limited, suggesting that economic factors alone are insufficient to overcome existing barriers to financial inclusion.

Collateral securities have therefore emerged as an important mechanism in the literature to mitigate credit market imperfections and address the problem of asymmetric information between lenders and borrowers. By requiring borrowers to pledge valuable assets, lenders reduce the risk of default and adverse selection, which in turn encourages them to extend

credit. Collateral requirements have been proven effective in enhancing credit availability to SMEs (Berger & Udell, 2006) [7], improving repayment performance by lowering the probability of default (Kelly, 2024) [22], and reducing lending costs by mitigating moral hazard problems (Jack *et al*., 2023) [18]. Consequently, collateral securities can serve as a critical screening and risk-sharing device, offering financial institutions greater confidence to extend credit, while simultaneously enabling borrowers—especially those with limited financial histories—to demonstrate their commitment to repayment. Given the demonstrated effectiveness of collateral securities in fostering SME financing, strengthening credit discipline, and reducing information asymmetries in credit markets, it is logical to expect that they should generate favorable outcomes for credit access in Kisangani. Understanding this dynamic is crucial for designing policies and financial practices that can sustainably expand credit access to the population in the DRC.

Theoretically, collateral securities play a central role in overcoming imperfections in credit markets characterized by information asymmetry and moral hazard. According to Stiglitz and Weiss (1981) [45], adverse selection and moral hazard make lenders reluctant to provide credit to borrowers without sufficient guarantees, thereby leading to credit rationing. Collateral serves as a signaling mechanism that allows lenders to differentiate between high-risk and low-risk borrowers by requiring borrowers to pledge valuable assets, thus aligning incentives and reducing the likelihood of default (Jack *et al*., 2023; Kelly & Radler, 2024) [18, 25]. Empirically, several studies demonstrate that collateral requirements significantly expand access to credit by reducing the perceived risk of lending. Jiménez and Saurina (2004) [19] show that collateralized loans are associated with lower default rates in Spanish credit markets, while Berger and Udell (2006) [7] argue that collateral is particularly crucial for small and medium-sized enterprises (SMEs), which often face greater difficulties in securing external financing. Similarly, Menkhoff *et al*. (2012) [32] find in Thailand that collateralized loans mitigate lending risks in microfinance institutions, making them more willing to extend credit to riskier clients. These findings suggest that collateral not only increases the supply of credit but also improves repayment performance, thereby reinforcing its theoretical and practical relevance in improving credit access.

Despite these insights, empirical applications in Sub-Saharan Africa remain limited and fragmented, with only a handful of studies explicitly examining the link between collateral and access to credit. For instance, Fowowe (2017) [15] highlights that financial sector reforms in Africa have expanded credit markets, but collateral requirements remain a significant constraint for households and SMEs. Similarly, Beck *et al*. (2008) [6] and Kavota, (2025b) [21] show that firms in Africa report collateral as one of the greatest obstacles to obtaining bank financing. While these studies shed light on the broader constraints of credit access, they do not provide a focused analysis of how collateral securities specifically influence credit availability in urban contexts such as Kisangani, where banking penetration is extremely low, informal lending dominates, and formal credit is heavily collateral-dependent (Demirgüç-Kunt *et al*., 2022; Kelly & Wassou, 2025) [13, 26]. Moreover, Kisangani presents a unique context given its underdeveloped financial infrastructure, limited asset registries, and weak enforcement of property rights, which may affect the effectiveness of collateral as a credit-enhancing tool. This indicates a clear gap in the literature: while the role of collateral in improving credit markets has been widely studied in developed and some emerging economies, there is little empirical evidence on its effectiveness in fragile, under-banked environments like Kisangani. Addressing this gap is essential for understanding whether collateral securities can indeed improve access to credit in such contexts and for informing policy reforms tailored to the realities of the DRC.

In filling the above identified gap, the present study contributes to the literature by providing novel empirical evidence on the role of collateral security in shaping access to credit within the unique urban context of Kisangani, DRC. Unlike previous studies that examine credit constraints in Africa more broadly, this research employs firm-level data from SMEs and applies an econometric approach to isolate the specific impact of collateral on loan acquisition. By focusing on Kisangani, where formal banking remains underdeveloped, asset registries are weak, and credit markets are highly collateral-dependent, the study offers context-specific insights that are often overlooked in continental or cross-country analyses (Fowowe, 2017) [15]. Furthermore, the inclusion of firm revenue enriches the analysis by highlighting the interaction between financial performance and collateral in influencing credit outcomes, thereby advancing theoretical and policy debates on financial inclusion in fragile economies. This study thus extends the frontier of knowledge by contextualizing the collateral–credit nexus within a secondary African city, offering evidence that is both academically significant and practically relevant for designing reforms in under-banked environments.

2. Literature Review

2.1 Theoretical Framework

The present study adopts the Transaction Cost Theory, which originates from the seminal work of Coase (1937) [11], who argued that firms exist because they can organize transactions more efficiently than markets by reducing transaction costs such as search, bargaining, and enforcement costs. Later, Williamson (1985) [49] advanced the theory by formalizing the concepts of bounded rationality, opportunism, and asset specificity, positioning transaction cost economics as a dominant framework for understanding organizational structures and governance mechanisms. Initially applied to explain the boundaries of the firm and the choice between markets and hierarchies, the theory has since evolved to become widely applicable in fields such as corporate governance (Chen *et al*., 2022) [10], supply chain management (Zhu, 2024) [51], and institutional economics (Cuypers *et al*., 2021) [12]. Empirical applications have also been diverse: Klein *et al*. (1978) [28] applied the theory to vertical integration and asset specificity in contractual relationships; Shelanski and Klein (1995) [43] demonstrated its utility in antitrust and regulatory analysis; and Ali *et al*. (2021) [3] used it to study international joint ventures. More recently, the theory has been employed in development economics and financial markets to analyze how institutional structures and contractual mechanisms reduce transaction frictions (Magelssen *et al*., 2022) [30]. This evolution underscores the robustness of the Transaction Cost

Theory as a conceptual framework for studying how governance mechanisms, including financial contracts, mitigate the risks and costs associated with economic exchanges.

Applied to the context of collateral securities and credit access in the city of Kisangani, the Transaction Cost Theory offers a powerful lens to explain how collateral can reduce the perceived risks and transaction costs faced by financial institutions. Lending in fragile markets like Kisangani is characterized by high information asymmetry, weak enforcement of contracts, and limited availability of reliable credit histories, all of which increase the search, monitoring, and enforcement costs for banks (Demirgüç-Kunt *et al*., 2022) [13]. By requiring borrowers to pledge collateral, lenders reduce the costs of screening applicants, mitigate opportunism, and enhance repayment incentives, thereby making lending more efficient and less risky (Mitra, 2022) [34]. In this way, collateral functions as a governance mechanism that aligns the interests of lenders and borrowers, lowers the probability of default, and facilitates credit expansion. However, in Kisangani, where many potential borrowers lack formally recognized assets or face insecure property rights, the effectiveness of collateral as a transaction-cost-reducing device may be constrained, limiting its potential to expand credit access. Transaction Cost Theory thus provides both a theoretical justification for the reliance on collateral in credit markets and a framework for assessing its effectiveness in a context where institutional weaknesses may undermine its intended role.

2.2 Empirical Literature

The existing literature on the collateral securities–credit access nexus can be broadly categorized into two groups. On the one hand, studies examining the direct influence of collateral ownership, characteristics, or related borrower factors on access to credit, and on the other hand, studies assessing the broader institutional, regulatory, and legal context that shapes the effectiveness of collateral in facilitating credit access. Each category addresses distinct but interrelated dimensions of how collateral securities influence the availability and utilization of credit.

The first strand of literature focuses on how collateral, alongside borrower and firm-specific characteristics, directly impacts the ability of households, microenterprises, small and medium-sized enterprises (SMEs), and other actors to access credit. Chandio *et al*. (2017) [9] examined farmers' access to credit in Sindh province, Pakistan, using survey data from 300 rural households and a probit regression model, finding that gender, household size, education, farming experience, farm size, income, and collateral availability significantly increased the likelihood of obtaining credit, whereas age was not significant. Similarly, Onkundi *et al*. (2023) [39] explored the influence of collateral availability on credit access among 384 SMEs in Meru County, Kenya, using descriptive and inferential statistics, reporting that while access to credit from SACCOs was possible without collateral due to the use of guarantors' savings, banks and microfinance institutions remained highly reliant on collateral, thus highlighting its critical role in formal credit markets. Aidoo *et al*. (2023) [1] extended this understanding by investigating the moderating role of loan size on the relationship between collateral characteristics and credit access among agricultural MSMEs in Ghana's Ashanti Region, applying a quantitative causal research design and Pearson multiple regression; they found that collateral costs, registration, and insurance positively and significantly affected credit access, while loan size moderated these relationships differently, negatively for collateral registration and insurance but positively for collateral age. Mwirigi *et al*. (2019) [35] further reinforced the importance of collateral by analyzing 370 women-owned SMEs in Nairobi, Kenya, through a descriptive cross-sectional survey and regression analysis, reporting that owner characteristics, collateral, networking, and interest rates significantly predicted access to credit, with interest rates exerting a strong influence. Similarly, Sakwa *et al*. (2019) [42] investigated SMEs in Turbo Sub County, Kenya, using a sample of 340 entrepreneurs and descriptive and correlational designs, and found that collateral security positively and significantly influenced access to credit, allowing firms possessing collateral to obtain loans more easily and improving their overall performance. Kundy and Shah (2025) [29] also corroborated these findings in the context of cottage industry owners in Dodoma, Tanzania, through a cross-sectional survey of 357 respondents analyzed with Chi-square tests and binary logistic regression, reporting that ownership of tangible assets, title deeds, business assets, and employment contracts significantly increased the likelihood of accessing formal credit, though the amounts accessed were generally small.

Regarding the second category of studies, research has examined how broader institutional, legal, and regulatory frameworks mediate the effectiveness of collateral in improving credit access. Vig (2013) [46] analyzed the response of Indian firms to a securitization reform that strengthened creditor rights, using firm-level financial data, and found that firms reduced secured debt, total debt, and debt maturity while increasing liquidity hoarding, particularly among firms with higher proportions of tangible assets, indicating that legal protections for creditors directly influence firms' financial behavior and their willingness to engage in secured borrowing. Campello and Larrain (2016) [8] extended this insight to the context of Eastern Europe, using generalized difference-in-differences analysis to assess reforms that expanded the range of assets legally accepted as collateral, including movable assets such as machinery and equipment, and found that firms operating more movable assets borrowed more, invested more, hired more, and became more efficient and profitable following the reforms, with significant reallocation effects in fixed assets and employment at the macroeconomic level.

Despite extensive research on credit constraints and SME financing, empirical studies focusing specifically on the effect of collateral security on access to credit in fragile financial environments such as Kisangani remain scarce. Existing works largely emphasize broader determinants of credit access across Africa and other developing regions, but they do not provide a detailed analysis of how collateral shapes loan acquisition in urban contexts marked by weak financial infrastructure, limited asset registries, and low banking penetration. The present study propose to fill this unanswered gap on whether collateral securities effectively enhance access to credit in such settings with focused empirical investigation.

3. Methodology

3.1 Data

The data for this study are derived from primary sources collected between 2023 and early 2025 through surveys conducted with three major commercial banks in Kisangani, DRC: Trust Merchant Bank, Rawbank, and First Bank. A sample of 267 small and medium-sized enterprises (SMEs) was surveyed across the three main economic sectors of commerce, production, and services. The focus on SMEs is crucial given their recognized role as the backbone of the Congolese economy, where they make substantial contributions to job creation and household livelihoods despite persistent financing constraints (Avouba *et al*., 2024) [5]. By collecting firm-level information directly from both banks and entrepreneurs, the study ensures the reliability of the data while reflecting the lived realities of credit access and collateral use within Kisangani's financial sector.

The choice of Kisangani as the study region is informed by its strategic significance in the economic geography of the DRC. As the largest city in the northeastern region and capital of Tshopo Province, Kisangani functions as a key commercial hub linking inland markets with national and regional trade networks (Nzongola-Ntalaja, 2013) [38]. Its location along the Congo River underpins its role as a center for trade, manufacturing, and services, while simultaneously exposing structural challenges common to many secondary urban centers in Sub-Saharan Africa. These include limited access to financial services, underdeveloped infrastructure, and persistent gender gaps in economic participation. By focusing on Kisangani, the study not only sheds light on the dynamics of collateral and credit access in an urban economy outside the capital city but also generates evidence that resonates with the broader challenges faced by entrepreneurs in comparable urban contexts across the DRC and the wider region.

3.2 Definition of Variables

3.2.1 Dependent variable

The dependent variable in this study is access to credit, operationalized as the monetary value of the loan obtained (measured in US dollars); as reported in Table 1 this continuous measure ranges from a minimum of 0 USD to a maximum of 500,000 USD, with a sample mean of 14,764 USD. A value of 0 therefore denotes that an enterprise did not obtain any formal loan during the observation period (whether because it did not apply, its application was rejected, or it relied exclusively on internal or informal financing), while the 500,000 USD observation represents the largest single loan disbursed to an SME in the sample and signals the presence of substantially larger credit allocations to a small subset of firms. Measuring access to credit by loan amount captures both the extensive margin (whether credit was obtained) and the intensive margin (the depth of credit), making it a richer indicator than a simple binary measure; however, it also conflates credit supply with firm demand and may reflect heterogeneity in firm size, sectoral capital requirements, and bank lending practices. The relatively modest mean—14,764 USD—combined with the very large maximum points to a likely right-skewed distribution and the influence of outliers, which has important implications for estimation. Reporting loan values in USD standardizes comparisons across firms and time and reduces distortions from local currency volatility.

3.2.2 Independent variable

The independent variable in this study is collateral security, measured as the monetary value of collateral pledged by enterprises to obtain credit, expressed in US dollars. As shown in Table 1, the value of collateral ranges from 0 USD to 3,125,524 USD, with a mean of 92,765 USD. A value of 0 indicates firms that either did not pledge any collateral—possibly because they were excluded from formal credit markets, accessed only non-collateralized microloans, or relied on personal trust-based arrangements—while the maximum value of 3,125,524 USD represents the highest collateral pledged by an SME in the sample, reflecting the presence of large, capital-intensive firms able to mobilize substantial fixed assets such as land, machinery, or buildings to secure credit. The wide dispersion between the minimum and maximum underscores the heterogeneity of SMEs in Kisangani, where some enterprises operate with very limited assets, while others, particularly in production and service sectors, have access to more valuable collateral portfolios. Measuring collateral in monetary terms allows for capturing both the extensive margin (whether collateral was pledged) and the intensive margin (the magnitude of collateral), making it a more precise indicator than a simple binary measure. The relatively high average collateral value (92,765 USD) compared to the mean loan size suggests that banks often require collateral well above the loan value, consistent with risk-averse lending practices in fragile financial environments such as the DRC. Using USD values also standardizes the measure by minimizing distortions from exchange rate volatility, ensuring comparability across firms and over time. This operationalization is particularly important in understanding how collateral functions not only as a prerequisite for accessing credit but also as a determinant of the volume of loans granted in Kisangani's credit market.

In addition to the main independent variable of collateral security, this study controls for the annual revenue of SMEs, measured in US dollars, to account for differences in firm performance and financial capacity. Revenue is a determinant of creditworthiness, as banks often assess a firm's repayment ability based on the stability and magnitude of its income streams. SMEs with higher revenues are generally perceived as less risky borrowers, which can enhance their access to larger or less collateralized loans, while low-revenue firms may face stricter collateral requirements or outright credit rationing. Including revenue in the analysis therefore, helps to isolate the effect of collateral from the broader financial strength of the enterprise, ensuring that the observed relationship between collateral and credit access is not confounded by differences in firm profitability or repayment capacity.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Loan Obtained	267	14764.045	50866.334	0	500000
Value of Collateral	267	92765.01	204967.02	0	3125524
Annual Revenue	267	190065.92	443500.65	0	5000000

3.3 Model and Estimation Technique

Drawing from the works of Kavota (2025) [20] and Rutazihana and Kelly (2025) [41], the present study adopts a linear empirical approach, leading to the formulation of the following linear empirical models.

$$Loan_i = \alpha_0 + \alpha_1 Collateral_i + \alpha_2 Revenue_i + \mu_i \quad (1)$$

Where $Loan$ is the dependent variable representing the access to credit by SMEs, $Collateral$ represents the value of collateral securities by SMEs to banks and represents the independent variable of the study, $Revenue$ representing the value of the annual revenue of the entrepreneurs, which the study controls for, α_i are the parameters to be estimated, and μ is the stochastic error term.

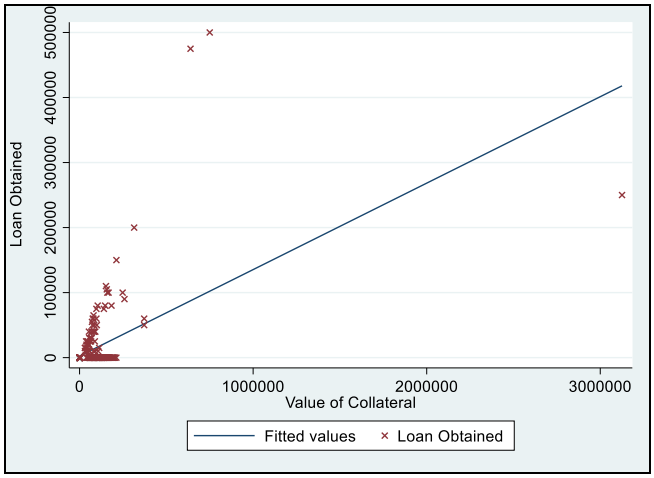
The present study employs the Ordinary Least Squares (OLS) estimation technique to analyze the effect of collateral security on access to credit in Kisangani. Given that the dataset consists of cross-sectional data on 267 individuals aggregated over a single period (2023–2025), OLS is an appropriate and widely used method for estimating linear relationships between variables. The primary advantage of OLS lies in its ability to provide the Best Linear Unbiased Estimator (BLUE) under the Gauss-Markov assumptions, making it a robust and efficient technique for estimating the parameters of the model (Wooldridge, 2016; Wassou *et al*., 2024) [50, 47]. OLS is particularly suited for examining how changes in the value of collateral influence the loan amount obtained, as it captures the magnitude and direction of the relationship while allowing for straightforward interpretation of coefficients. In addition, the transparency of OLS makes it a common choice in applied economics and finance studies where policymakers and practitioners seek easily interpretable results.

A further justification for the use of OLS in this study is its extensive application in prior empirical research on credit markets, collateral, and firm-level financial access. Numerous studies investigating the determinants of credit access and the role of collateral in lending decisions have employed OLS as their baseline estimation approach, citing its simplicity and effectiveness in modeling cross-sectional data (Beck *et al*., 2008; Kelly, 2025a) [6, 23]. In such contexts, OLS allows researchers to identify whether collateral exerts a statistically significant influence on credit allocation, while also controlling for firm-specific characteristics such as revenue, sector, or ownership. By aligning with these methodological precedents, this study ensures comparability with the broader literature on SME financing, thereby strengthening the validity and relevance of its findings in the African credit market context.

Finally, the choice of OLS is justified on practical grounds, given the characteristics of the data and the focus of the research. The cross-sectional nature of the data, with no time dimension, limits the use of panel data techniques, while the relatively moderate sample size reduces the feasibility of more computationally demanding nonlinear models. Thus, by employing OLS, the study not only adheres to econometric standards but also generates reliable evidence on the role of collateral security in shaping access to credit among SMEs in Kisangani, evidence that is both methodologically sound and practically useful for banks and policymakers.

4. Finding and Discussion

Fig 1 illustrates the trend between the value of collateral security and the value of the loan obtained, showing a generally positive relationship, as higher collateral values tend to be associated with larger loan amounts. However, it is also evident that the majority of SMEs in the sample are clustered around very low values of both collateral and loans, which reflects the reality that most small firms in Kisangani operate with limited fixed assets and face stringent credit constraints that prevent them from pledging high-value collateral or accessing substantial loan amounts. This clustering at the lower end highlights the structural challenges of SME financing in developing economies, where limited asset ownership and risk-averse lending practices restrict credit expansion. Table 2 presents the correlation matrix of the study variables, offering preliminary impressions that corroborate the observed positive link between collateral and credit access while also shedding light on the influence of other firm-level factors. Nonetheless, correlation alone cannot establish causality, and further econometric analysis is required to provide deeper insights into the determinants of credit access, uncovering the underlying reasons for the outcomes observed and their implications for SME financing policy in the Democratic Republic of Congo.



Source: Author's Construction

Fig 1: Collateral security Vs Access to Credit

Table 2: Correlation Matrix

Variables	(1)	(2)	(3)
(1) Loan Obtained	1.000		
(2) Value of Collateral	0.536	1.000	
(3) Annual Revenue	0.351	0.405	1.000

The regression results in Table 3 reveal a strong and positive relationship between collateral security and access to credit in Kisangani. The coefficient of 0.645 is statistically significant at the 1 percent level, indicating that, holding other factors constant, a one-unit increase in the value of collateral pledged leads to a 0.645 USD increase in the loan amount obtained. This positive and highly significant effect suggests that collateral remains a central determinant of credit allocation in the DRC's banking system, as financial institutions heavily rely on asset-backed lending to mitigate risk in environments characterized by weak legal enforcement and high default risks. The robustness of the results is supported by the high R-squared value (0.831), which implies that a large proportion of the variation in access to credit is explained by collateral and revenue. These findings corroborate existing empirical studies that identify collateral as a key constraint to SME financing,

particularly in developing countries where imperfect credit markets dominate (Beck *et al*., 2008; Onkundi *et al*., 2023) [6, 39]. Theoretically, they align with the credit rationing framework of Stiglitz and Weiss (1981) [45], which posits that collateral requirements help lenders mitigate adverse selection and moral hazard in the credit market.

The control variable, annual revenue, also shows a positive and highly significant relationship with loan amount obtained, with a coefficient of 0.201. This indicates that a one-unit increase in annual revenue corresponds to an increase of 0.201 USD in the value of the loan, all else equal. The magnitude and significance of this coefficient demonstrate that revenue is an important indicator of creditworthiness, as higher revenues signal a stronger repayment capacity and reduce the perceived risk borne by financial institutions. This finding is consistent with earlier empirical work, which highlights firm revenue and profitability as critical factors influencing credit approval and loan size (Gikunju, 2023; Nguyen *et al*., 2023) [16, 36]. In doing so, the model successfully isolates the effect of collateral from other financial characteristics of SMEs, ensuring that the observed relationship is not driven by differences in firm performance or repayment capacity.

Table 3: Linear Regression

Loan Obtained	Coef.	St.Err.	t-value	p-value	[95% Conf Interval]		Sig
Value of Collateral	0.645	0.004	10.21	0.000	0.536	0.753	***
Annual Revenue	0.201	0.002	49.64	0.000	0.197	0.305	***
Constant	85.949	7.828	9.18	0.000	60.833	95.064	***
Mean dependent var		14764.045		SD dependent var		50866.334	
R-squared		0.831		Number of obs		267	
F-test		1781.177		Prob > F		0.000	
Akaike crit. (AIC)		5835.763		Bayesian crit. (BIC)		5846.525	
*** $p<.01$, ** $p<.05$, * $p<.1$							

The economic implications of these findings are profound for SME financing and financial sector development in Kisangani and the DRC at large. The heavy reliance on collateral-based lending underscores the structural barriers faced by smaller firms with limited asset ownership, effectively excluding them from meaningful access to formal credit. This situation can exacerbate income inequality, slow entrepreneurial growth, and hinder structural transformation, as only larger firms with significant fixed assets can leverage collateral to secure substantial loans (Kelly *et al*., 2024; Wassou *et al*., 2025) [27, 48]. At the same time, the positive role of revenue suggests that improving SME performance through capacity-building, productivity enhancement, and market access could strengthen their credit profiles and ease access to finance. Policymakers may therefore need to encourage reforms that reduce excessive dependence on collateral, such as the development of credit information systems, movable collateral registries, and credit guarantee schemes, which have been shown to ease SME financing constraints in other developing economies (Srinatha *et al*., 2024; Feuzeu & Kelly, 2025; Nkoa *et al*., 2025) [44, 14, 37]. Addressing the rigid collateral requirements while fostering SME growth could unlock broader financial inclusion and contribute to the sustainable development of Kisangani's urban economy.

5. Conclusion and Policy Recommendations

This study set out to examine the effect of collateral security on access to credit among SMEs in Kisangani, Democratic Republic of Congo, with particular attention to the role of firm revenue. Using primary cross-sectional data collected between 2023 and 2025 from 267 SMEs across the commerce, production, and services sectors, and analyzed through Ordinary Least Squares estimation, the study investigated how collateral and annual revenue influence the value of loans obtained. The empirical results revealed a strong and positive relationship between the value of collateral pledged and the amount of credit accessed, affirming that collateral remains the most decisive factor shaping SME financing in Kisangani. Additionally, annual revenue was found to significantly increase loan amounts, indicating that banks also weigh repayment capacity when granting credit. The study highlights the centrality of collateral and firm performance in shaping credit access dynamics, while reflecting the broader structural challenges faced by SMEs in fragile financial environments such as the DRC.

Based on the findings, the following recommendations emerge from this study. First, financial institutions in Kisangani should consider adopting more flexible collateral frameworks, including the acceptance of movable assets, to reduce barriers for SMEs with limited fixed assets. Second, policymakers should strengthen credit information systems and movable collateral registries to enhance transparency and reduce the risks that drive banks to demand excessive collateral. Third, targeted support programs aimed at improving SME revenue performance—such as business development services, capacity-building, and market access initiatives—should be prioritized to indirectly enhance their creditworthiness. Finally, the introduction of credit guarantee schemes could play a pivotal role in sharing lending risks between banks and the government, thereby broadening credit access for smaller and more vulnerable enterprises.

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