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## Abstract

This study set out to examine the effect of collateral requirements on the performance of micro–Liquefied Petroleum Gas (LPG) retailers in Nyeri County, Kenya. Although micro and small enterprises are key drivers of Kenya’s economy, their growth is often constrained by stringent credit conditions. Financial institutions continue to emphasize immovable assets such as land titles as collateral, which many small retailers do not possess. This exclusion denies them affordable credit, restricting their ability to finance stock, meet safety regulations, and expand operations—factors essential for supporting Kenya’s transition to clean energy. Adopting a descriptive cross-sectional design, the research targeted 209 registered micro LPG retailers in the county, with 138 respondents selected through Yamane’s formula and random sampling. Data were collected using structured questionnaires and analyzed through both descriptive and inferential statistics, including bivariate regression. Reliability was confirmed using Cronbach’s alpha, and ethical principles such as informed consent and confidentiality were observed. The findings revealed that collateral requirements were widely viewed as restrictive, excessive, and unclear, with a mean rating of 4.09. Regression analysis showed that collateral accounted for 50.7% of the variation in business performance ( $R^2 = 0.507$ ). The positive coefficient ( $\beta = 1.044$ ,  $p < 0.05$ ) indicated that when collateral frameworks were more flexible, retailers’ performance improved significantly. This demonstrates that easing collateral obligations through alternatives such as movable assets creates pathways for small enterprises to access credit and strengthen their operations. The study concludes that collateral requirements significantly influence access to finance and performance of micro LPG retailers, where flexible frameworks foster growth. It recommends inclusive collateral models and stronger enforcement of the Movable Property Security Rights Act (2017).

**Keywords:** *Collateral requirements, credit access, micro LPG retailers, enterprise performance, movable assets, Nyeri County, Kenya.*

## 1.0 Background to the Study

Across small and micro enterprise finance, collateral requirements remain one of the most decisive gatekeepers of credit access, shaping whether credit catalyzes expansion or entrenches exclusion (Sang, 2021; Mburu & Njogu, 2021). Collateral is the asset a borrower pledges as security for a loan, which the lender can seize in case of default, typically land, buildings, equipment, or other valuable property (Ochido, 2016). In practice, collateral serves as a screening and risk-mitigation

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instrument in markets characterized by information asymmetry and agency problems, a logic formalized by Credit Rationing Theory (Stiglitz & Weiss, 1981) and reinforced by lenders' perceptions that MSEs are riskier, costlier, and harder to serve (Mburu & Njogu, 2021; Noman, 2021). For micro liquefied petroleum gas (LPG) retailers, whose working capital is tied up in cylinders, refills, and distribution logistics, stringent collateral tests directly condition the feasibility and timing of inventory purchases, safety investments, and market expansion (Haritone & Mirie, 2016; Sang, 2021).

The interrelationship between collateral and performance is particularly sharp in the LPG retail model: when lenders demand immovable or high-value assets, many micro retailers—often operating with modest, movable stock and thin margins—cannot qualify, deferring growth-critical investments in cylinders, storage, and transport (Haritone & Mirie, 2016; Sang, 2021). Even where credit is available, the appraisal, valuation, and perfection of collateral introduce additional costs and delays that raise effective borrowing costs and compress usable cash flow—classic transaction costs in Coase–Williamson's sense (Coase, 1937; Williamson, 1985). These frictions limit stock depth, increase the risk of stockouts, and constrain compliance investments in a safety-sensitive sector, thereby weakening profitability and customer retention over time (Haritone & Mirie, 2016; Sang, 2021).

Regionally, empirical work underscores collateral's double-edged character—both a gateway to lending and a barrier for the smallest firms. In Zimbabwe, SMEs reported that restrictive collateral requirements were a central hurdle to obtaining formal loans, with knock-on effects on enterprise growth (Matavire et al., 2013). In Tanzania, microfinance organizations that relaxed collateral demands facilitated SME performance by easing entry to credit, suggesting that collateral design—not merely access—matters for outcomes (Madole, 2013). Kenyan and Nigerian evidence similarly shows that when microfinance banks and MFIs adopt more flexible collateral regimes—substituting rigid land-title demands with alternatives—the growth and survival prospects of small firms improve (Dennis et al., 2015; Olowe et al., 2013). At the same time, some Kenyan studies observe a positive association between the ability to meet collateral conditions and enterprise growth, essentially because collateral unlocks credit at scale for those who have bankable assets (Hassan, 2017). Taken together, these findings indicate that collateral's performance effect is context-dependent: excessively stringent requirements exclude micro firms, while appropriate, flexible collateral can enable productive borrowing (Matavire et al., 2013; Madole, 2013; Hassan, 2017).

In Kenya, collateral remains a salient constraint despite the centrality of MSEs to employment and GDP (KNBS, 2019; Mutinda, 2020). Empirical studies report that lenders' insistence on formal, high-value collateral (often titled land) sidelines micro enterprises lacking documented assets, especially those in informal settings (Ochido, 2016; Ondabu, 2019). Micro-enterprises frequently lack collateral and credit histories, pushing them toward informal lenders whose terms are often costlier and less protective (Njoroge & Bett, 2019; Ouma et al., 2020). Women-owned MSEs face compounded barriers where land ownership and rights issues limit access to acceptable collateral, dampening credit uptake and growth (Mbiti et al., 2015). Kenyan work focused directly on SMEs further isolates collateral requirements as a core determinant of credit access—often more binding than interest rates—thereby shaping investment, employment, and market presence (Gichuki, Mutuku, & Kinuthia, 2014; Ochido, 2016). In such an environment, Vision 2030 goals for inclusive growth and enterprise upgrading require collateral policies that align with the realities of micro firms' asset structures (Ministry of Planning, National Development & Vision 2030, 2007).

For micro LPG retailers in Nyeri County, the collateral problem is acute because typical assets are movable and modest—inventory, cages, delivery motorcycles—while many lenders prefer immovable property or titled land (Haritone & Mirie, 2016; Ochido, 2016). Where collateral is required, valuation and perfection can be slow and costly, further tightening liquidity windows in a sector that depends on quick stock turn and safety compliance (Williamson, 1985; Haritone & Mirie, 2016). By contrast, when collateral frameworks are right-sized—accepting diversified forms (e.g., equipment, inventory, guarantees) and lowering appraisal barriers—retailers can smooth replenishment cycles, maintain safety standards, and grow customer bases, translating access into measurable performance gains (Madole, 2013; Dennis et al., 2015; Olowe et al., 2013). Thus, in Kenya’s clean-energy transition, collateral design is not a technical footnote; it is a strategic lever that determines whether micro LPG retailers can finance the assets that underpin safe, reliable, and affordable LPG distribution (Haritone & Mirie, 2016; Ministry of Planning, National Development & Vision 2030, 2007).

Theoretically, these dynamics sit at the intersection of Credit Rationing Theory—where collateral screens borrower risk under asymmetric information—and Transaction Cost Theory, which highlights how the costs of arranging, valuing, and enforcing collateral can be prohibitive for micro firms (Stiglitz & Weiss, 1981; Coase, 1937; Williamson, 1985). Empirically, Kenya-specific work confirms that collateral rigidity systematically depresses credit uptake among microenterprises, with particularly strong effects in sectors needing frequent working-capital cycles like LPG retailing (Gichuki, Mutuku, & Kinuthia, 2014; Ochido, 2016; Ondabu, 2019). In sum, for micro LPG retailers in Nyeri County, collateral requirements are a structural determinant of performance because they regulate entry to finance, shape the timing and scale of asset acquisition, and embed costs that directly impact cash flow and competitiveness (Haritone & Mirie, 2016; Sang, 2021).

### **1.1 Statement of the Problem**

In Kenya, access to credit has long been recognized as a central enabler of growth for micro and small enterprises (MSEs), yet collateral requirements remain one of the most formidable barriers to credit uptake. Financial institutions commonly demand high-value, immovable assets such as land titles or buildings, which many micro-enterprises lack due to their small size, informal structures, and limited asset base (Ochido, 2016; Ondabu, 2019). According to the Central Bank of Kenya (2023), over 38% of MSE loan applications are either rejected or only partially approved, with collateral requirements cited as one of the leading reasons. This restricts firms’ ability to obtain credit for investment, stock acquisition, or compliance with regulatory standards, thereby weakening competitiveness. For micro LPG retailers in Nyeri County—whose assets are largely movable (cylinders, cages, motorcycles) and undervalued in formal credit markets—the rigidity of collateral frameworks disproportionately excludes them from accessing affordable loans, leaving them dependent on costly informal financing (Njoroge & Bett, 2019; Ouma et al., 2020).

The severity of this challenge has been echoed across Africa. In Ghana, SMEs that contribute nearly 70% of GDP report that restrictive collateral demands curtail their capacity to leverage bank loans for expansion (Ahiawodzi & Adade, 2012). In Zimbabwe, Matavire et al. (2013) found that stringent collateral obligations prevented small firms from securing credit even where viable business opportunities existed. Similarly, Tanzanian evidence shows that microfinance institutions that reduced collateral rigidity fostered stronger SME growth and sustainability (Madole, 2013). These regional findings mirror Kenya’s experience, where studies such as Gichuki, Mutuku and



Kinuthia (2014) reveal that collateral remains a more binding credit constraint for SMEs than even interest rates, thereby undermining their growth and survival.

Despite these insights, existing scholarship in Kenya has tended to examine collateral requirements as part of broader credit access challenges without isolating their direct effect on enterprise performance. Studies have emphasized the general difficulty of SMEs in accessing credit (Ngumbi, Waweru & Rita, 2020; Hassan, 2017), but less attention has been given to how collateral valuation, liquidity, and enforcement processes specifically shape the financial and operational outcomes of enterprises in capital-intensive sectors such as LPG retailing. This leaves a critical knowledge gap in understanding how collateral frameworks influence not just credit access, but also the performance trajectory of micro-enterprises that underpin Kenya's clean-energy distribution.

This study therefore sought to address this gap by examining the effect of collateral requirements on the performance of micro LPG retailers in Nyeri County. By focusing on how collateral obligations affect access to finance and subsequent business outcomes—including profitability, customer service, and operational efficiency—the study provides evidence to inform lenders, policymakers, and development partners on the need for more inclusive collateral regimes. Such evidence is essential for aligning financial practices with the government's Vision 2030 and Sustainable Development Goal 7, which emphasize affordable and clean energy access through the strengthening of micro-enterprise distribution systems

## **1.2 Significance of the Study**

This study is significant to financial institutions as it provides empirical evidence on how stringent collateral requirements limit the capacity of micro LPG retailers to access and productively utilize credit. By highlighting the challenges associated with reliance on immovable collateral such as land titles, the findings will guide banks and microfinance institutions in developing more inclusive collateral frameworks, such as accepting movable assets, inventory, group guarantees, or credit history as alternatives. Such innovations could reduce default risks while broadening their lending portfolios. The results therefore provide a pathway for financial service providers to enhance outreach, design credit products better aligned with micro-enterprises' asset structures, and strengthen repayment performance among borrowers in the energy retail sector.

For policymakers and development stakeholders, the study is equally valuable as it underscores how collateral rigidity undermines Kenya's clean-energy access agenda and Vision 2030 goals. By focusing on micro LPG retailers in Nyeri County, the research situates collateral requirements within a sector central to the transition toward affordable and clean household energy. The findings will support evidence-based reforms, such as credit guarantee schemes and legal frameworks that recognize movable collateral, thereby creating a more enabling credit environment. For academia, the study expands existing literature by isolating collateral requirements as a distinct determinant of performance, an area often overlooked in SME finance research. Finally, micro LPG retailers themselves will benefit from insights that articulate their financing challenges, enabling advocacy for fairer credit conditions and equipping them to engage lenders more effectively.

## **2.0 Theoretical Review**

The Credit Rationing Theory was advanced by Stiglitz and Weiss (1981) to explain persistent imperfections in credit markets, particularly those affecting small and micro enterprises. The theory argues that information asymmetry exists between lenders and borrowers: while enterprises

know more about their ability and intention to repay, lenders are left to infer risk with limited data. To mitigate this uncertainty, lenders adopt rationing mechanisms rather than simply adjusting interest rates. One of the most prominent mechanisms is the imposition of collateral requirements, where borrowers must pledge tangible assets such as land, buildings, or equipment to secure loans. Collateral thus becomes both a safeguard against default and a signal of borrower quality, effectively screening applicants in markets with high adverse selection and moral hazard.

Underlying this theory are several assumptions. First, it presumes that lenders cannot perfectly distinguish between high-risk and low-risk borrowers, and raising interest rates indiscriminately could push even good borrowers away, exacerbating defaults. Second, it assumes that borrowers willing to pledge collateral are more committed to repayment, since they risk losing valuable assets if they default. Third, the theory presupposes that credit markets are not perfectly competitive, and thus rationing through high collateral thresholds is a rational equilibrium response by lenders to protect themselves. These assumptions capture the dynamics observed in many developing economies, where lack of reliable credit information systems and underdeveloped financial infrastructure force lenders to rely heavily on collateral as a risk-mitigation strategy.

The Credit Rationing Theory has notable strengths and weaknesses. On the one hand, it provides a powerful explanation for why access to credit is limited not just by interest rates but by structural barriers such as collateral. It captures the reality faced by micro and small enterprises in developing countries, where immovable collateral is often the main hurdle to obtaining loans. On the other hand, the theory has been critiqued for underplaying the broader socio-economic and institutional contexts that influence lending. For example, in many African settings, property rights and land titling systems are poorly developed, leaving many microenterprises asset-poor in the eyes of formal lenders even when they hold valuable movable assets. Moreover, strict adherence to collateral requirements may unintentionally exclude viable enterprises, perpetuating financial exclusion rather than solving it.

In the context of this study, the Credit Rationing Theory is highly relevant in analyzing how collateral requirements affect the performance of micro LPG retailers in Nyeri County. These retailers often lack immovable collateral demanded by banks, such as titled land, and instead hold movable assets like cylinders, cages, and delivery motorcycles, which are undervalued in formal credit markets. As a result, collateral requirements ration them out of formal lending, forcing reliance on informal credit sources that are costlier and less secure. This study applies Credit Rationing Theory to show that while collateral helps lenders reduce default risks, it systematically excludes micro LPG retailers from productive borrowing. By grounding the analysis in this theory, the research underscores the need for more inclusive collateral frameworks—such as the use of movable assets, group guarantees, or credit guarantee schemes—to unlock financing and enhance performance in this vital clean-energy sector.

### **3.0 Research Methodology**

The study adopted a descriptive cross-sectional design to investigate how collateral requirements affect the performance of micro-Liquefied Petroleum Gas (LPG) retailers in Nyeri County. This design was suitable as it enabled the researcher to capture prevailing perceptions on collateral obligations—covering the type of assets demanded, valuation procedures, and liquidity of pledged assets—and their implications for profitability, customer service, and operational efficiency. The target population comprised 209 registered micro LPG retailers as documented by the County Licensing Department (2023), with owners and managers purposively identified due to their direct

involvement in financing decisions. A representative sample of 138 respondents was determined using Yamane's formula (1967) at a 95% confidence level and 5% margin of error, and selected through simple random sampling to minimize bias. Data were collected using structured questionnaires with Likert-scale items, and a pilot test conducted in Kirinyaga County confirmed instrument validity and reliability, with Cronbach's alpha values above 0.7. Descriptive statistics such as means, percentages, and standard deviations summarized the responses, while inferential techniques including bivariate and multiple regression determined the strength and direction of relationships. Ethical standards were upheld through informed consent, voluntary participation, and confidentiality. This methodological approach provided cost-effective, rigorous, and ethically grounded evidence on how collateral requirements influence financing opportunities and performance outcomes among micro LPG retailers in Nyeri County.

## 4.0 Findings

### 4.1 Descriptive Findings

The study set out to evaluate the effect of collateral requirements on the performance of micro-Liquefied Petroleum Gas (LPG) retailers in Nyeri County. Respondents were asked to indicate the extent to which they agreed with various statements relating to collateral requirements, using a five-point Likert scale. The findings are presented in Table 1, and they paint a clear picture of the challenges micro LPG retailers face when attempting to secure credit.

**Table 1: Collateral Requirements on performance of micro LPG retailers**

| Collateral Requirement Statements                                                   | TVHE (%) | THE (%) | TME (%) | TSE (%) | NE (%) | Mean | Std. Dev |
|-------------------------------------------------------------------------------------|----------|---------|---------|---------|--------|------|----------|
| The types of collateral accepted by lenders are restrictive.                        | 37.5     | 44.2    | 7.5     | 8.3     | 2.5    | 4.06 | 1.007    |
| Obtaining the required collateral presents significant hurdles for our business.    | 40.0     | 41.7    | 9.2     | 3.3     | 5.8    | 4.07 | 1.075    |
| The value and liquidity of collateral required are often high.                      | 35.8     | 44.2    | 10.0    | 7.5     | 2.5    | 4.03 | 0.995    |
| The valuation process for collateral is lengthy and complex.                        | 36.7     | 43.3    | 10.0    | 5.8     | 4.2    | 4.03 | 1.041    |
| The consequences of defaulting on a loan due to collateral requirements are severe. | 40.8     | 42.5    | 8.3     | 4.2     | 4.2    | 4.12 | 1.014    |
| There is no clarity in collateral appraisal procedures.                             | 41.7     | 40.0    | 8.3     | 5.8     | 4.2    | 4.09 | 1.053    |
| Collateral requirements often exceed the value of the loan.                         | 45.8     | 34.2    | 10.0    | 5.8     | 4.2    | 4.12 | 1.078    |

| Collateral Requirement Statements                                   | TVHE<br>(%) | THE<br>(%) | TME<br>(%) | TSE<br>(%) | NE<br>(%) | Mean        | Std.<br>Dev  |
|---------------------------------------------------------------------|-------------|------------|------------|------------|-----------|-------------|--------------|
| There are frequent changes in lender policies regarding collateral. | 42.5        | 44.2       | 5.8        | 4.2        | 3.3       | 4.18        | 0.961        |
| <b>Average</b>                                                      |             |            |            |            |           | <b>4.09</b> | <b>1.028</b> |

Overall, respondents strongly agreed that collateral requirements were a significant barrier, with an average mean score of 4.09 and a standard deviation of 1.028, suggesting a consistent pattern of concern across the sample. Specifically, restrictive types of collateral emerged as a key issue, with 37.5% of respondents indicating this was a challenge and a mean score of 4.06. Similarly, 40% of retailers acknowledged that simply obtaining the required collateral posed major hurdles, reflecting the mismatch between the assets typically demanded by lenders and the movable assets held by micro LPG businesses.

The data also revealed that the value and liquidity of required collateral were disproportionately high (mean = 4.03), which placed undue pressure on retailers operating with limited capital bases. The length and complexity of collateral valuation procedures further compounded these difficulties (mean = 4.03), delaying access to credit at times when businesses needed quick financing to replenish stock or meet regulatory safety requirements. Respondents also raised concerns about the severe consequences of default tied to collateral (mean = 4.12) and the lack of clarity in appraisal procedures (mean = 4.09), highlighting transparency and fairness gaps in the lending process.

Perhaps the most striking finding was that 45.8% of respondents reported collateral requirements often exceeded the value of the loan itself, with a mean score of 4.12. This not only discouraged loan applications but also reinforced perceptions of credit markets as inaccessible to micro-enterprises. In addition, frequent changes in lender policies around collateral (mean = 4.18) added uncertainty and instability, further dissuading micro LPG retailers from pursuing credit.

Taken together, these findings provide strong evidence that collateral requirements present a systemic constraint to credit access, thereby limiting micro LPG retailers' ability to invest in stock, expand operations, and comply with regulatory standards. These results resonate with earlier studies such as Abayo & Oloko (2015), who identified collateral as a critical barrier to microcredit access, and Mbiti et al. (2015), who found that collateral was a major obstacle for women-owned enterprises in Kitui County. The findings therefore confirm that without reforms to collateral frameworks—such as embracing movable assets or flexible guarantee mechanisms—micro LPG retailers in Nyeri County will continue to struggle with financing, which in turn undermines their business performance and long-term sustainability.

## 4.2 Inferential Analysis

The regression analysis sought to determine the influence of collateral requirements on the performance of micro-Liquefied Petroleum Gas (LPG) retailers in Nyeri County, and the results are presented in Tables 2, 3, and 4.



**Table 2: Model Summary**

| Mo<br>del | R     | R Square | Adjusted<br>R<br>Square | Std. Error of the Estimate |
|-----------|-------|----------|-------------------------|----------------------------|
| 1         | .712a | 0.507    | 0.503                   | 0.703338                   |

a Predictors: (Constant), Collateral Requirements Mean

**Table 3: ANOVA**

| Mo<br>del |            | Sum of<br>Squares | df  | Mean<br>Square | F       | Sig.  |
|-----------|------------|-------------------|-----|----------------|---------|-------|
| 1         | Regression | 60.148            | 1   | 60.148         | 121.588 | .000b |
|           | Residual   | 58.373            | 118 | 0.495          |         |       |
|           | Total      | 118.52            | 119 |                |         |       |

a Dependent Variable: Performance Mean

b Predictors: (Constant), Collateral Requirements Mean

**Table 4: Coefficient of Regression**

| Model |                              | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|-------|------------------------------|-----------------------------|------------|---------------------------|--------|-------|
|       |                              | B                           | Std. Error | Beta                      |        |       |
| 1     | (Constant)                   | -0.436                      | 0.392      |                           | -1.112 | 0.268 |
|       | Collateral Requirements Mean | 1.044                       | 0.095      | 0.712                     | 11.027 | 0.000 |

a Dependent Variable: Performance Mean

The model summary revealed an R value of 0.712, indicating a strong positive correlation between collateral requirements and performance. The  $R^2$  value of 0.507 implies that collateral requirements accounted for 50.7% of the total variation in performance, while the remaining 49.3% was attributable to other factors not captured in the model. This demonstrates that collateral is not just an ancillary consideration but a central determinant of financing outcomes and, by extension, business performance for micro LPG retailers.

The ANOVA results confirmed the robustness of the regression model, with an F-statistic of 121.588 and a p-value less than 0.05, signifying that the model was statistically significant. In other words, collateral requirements significantly explain variations in performance among micro LPG retailers. The regression coefficients further underscore this effect: the coefficient for collateral requirements ( $\beta = 1.044$ ,  $p < 0.05$ ) was both positive and statistically significant. This finding suggests that a one-unit improvement in collateral flexibility—whether through acceptance of movable assets, simplified appraisal processes, or reduced collateral-to-loan ratios—translates

into an estimated 1.044-unit increase in enterprise performance. Conversely, rigid collateral policies hinder performance by restricting access to affordable financing needed to maintain adequate stock, expand operations, and comply with industry safety regulations.

The findings align with regional and local empirical evidence. Mbiti et al. (2015) demonstrated that collateral remained one of the most restrictive barriers for women-owned enterprises in Kitui County, thereby limiting their growth despite high demand for credit. Similarly, Abayo & Oloko (2015) found that stringent collateral requirements prevented small businesses in Kisumu County from securing microcredit, even when credit demand was strong. Further, Hassan (2017) highlighted that in Langata Constituency, credit accessibility and SME growth were positively influenced when collateral obligations were reduced or made more realistic. Together, these studies confirm that collateral requirements consistently constrain SME access to credit across contexts, reinforcing the relevance of the current findings for micro LPG retailers in Nyeri County.

Interpreting these results within the theoretical lens of Credit Rationing Theory (Stiglitz & Weiss, 1981) also provides a deeper understanding. Lenders use collateral to mitigate risks arising from information asymmetry, but this risk-management approach disproportionately disadvantages micro-enterprises that lack titled assets such as land or buildings. For micro LPG retailers—whose business assets are largely movable and undervalued in formal credit markets—stringent collateral requirements become exclusionary, effectively rationing them out of formal finance. This exclusion reduces liquidity for inventory replenishment, limits compliance with safety standards, and constrains growth in a sector that is central to Kenya’s clean energy transition.

Overall, the regression results make it clear that collateral requirements exert a significant and positive influence on performance when structured inclusively, but as currently applied, they remain overly restrictive. Relaxing collateral frameworks through the acceptance of movable assets, wider adoption of the Movable Property Security Rights Act (2017), and deployment of credit guarantee schemes could unlock substantial growth opportunities for micro LPG retailers. These results therefore not only validate the hypothesis but also provide actionable insights for lenders and policymakers seeking to strengthen financial inclusion and enterprise sustainability.

## **5.0 Summary of Findings**

The study established that collateral requirement are a major barrier to credit access among micro–LPG retailers in Nyeri County, with respondents consistently highlighting the restrictive nature of collateral demanded by financial institutions. The descriptive results indicated high levels of agreement that the types of collateral accepted were narrow and difficult to obtain, with many lenders insisting on immovable assets such as land titles, which most micro LPG retailers do not possess. Respondents also raised concerns about the high value and liquidity of collateral demanded, the complexity of collateral valuation procedures, and the tendency of some lenders to require collateral exceeding the value of the loan. Collectively, these factors were perceived as discouraging credit applications and limiting opportunities for investment, expansion, and compliance with safety regulations in the LPG sector.

The regression analysis further reinforced these findings, demonstrating that collateral requirements explained 50.7% of the variation in business performance. The results indicated that easing collateral obligations—such as reducing the collateral-to-loan ratio or broadening acceptable asset classes—significantly improved performance, with the regression coefficient ( $\beta = 1.044$ ,  $p < 0.05$ ) showing a strong positive relationship. In practical terms, this means that more

flexible collateral arrangements are associated with higher business performance, as they allow micro LPG retailers to secure credit for inventory, safety upgrades, and customer service improvements. The statistical significance of the model ( $F = 121.588$ ,  $p < 0.05$ ) confirmed that collateral is not a peripheral but a central determinant of microenterprise financing outcomes.

These findings are consistent with prior research in Kenya and beyond. Studies such as Abayo & Oloko (2015) and Mbiti et al. (2015) identified collateral as one of the greatest barriers to SME credit access, while Hassan (2017) demonstrated that easing collateral obligations improves enterprise growth. By situating these findings within Nyeri County's micro LPG sector, the study underscores the practical consequences of collateral rigidity in a clean energy industry that is critical to achieving Kenya's Vision 2030 and Sustainable Development Goal 7. The results therefore highlight the urgent need for more inclusive collateral frameworks—such as the use of movable property, credit guarantee schemes, or group-based guarantees—to ensure that micro LPG retailers can access the financing necessary to thrive and contribute to national energy and economic goals.

## 6.0 Conclusion

The study concluded that collateral requirements significantly affect the performance of micro-LPG retailers in Nyeri County. Restrictive types of collateral, excessive valuation, and unclear appraisal procedures were found to be major barriers to credit access. The regression results confirmed that flexible collateral arrangements improve performance by enabling access to finance for stock, compliance, and expansion. These findings validate Credit Rationing Theory by showing how collateral rationing excludes viable enterprises. Addressing collateral barriers is therefore essential to unlock the growth potential of micro LPG retailers.

## 7.0 Recommendation

The study recommends that lenders adopt more inclusive collateral frameworks, including acceptance of movable assets such as LPG cylinders, cages, and delivery motorcycles. Policymakers should promote full implementation of the Movable Property Security Rights Act (2017) to broaden the asset base acceptable for credit. Financial institutions should simplify and standardize collateral valuation processes to enhance transparency. The government should expand credit guarantee schemes to cushion lenders against default risks, reducing dependence on immovable collateral. Finally, capacity-building initiatives should educate micro-entrepreneurs on alternative financing mechanisms and collateral management.

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