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STRUCTURAL FINANCING CHALLENGES AND CREDIT DYNAMICS IN MSMES: EVIDENCE FROM TECAMACHALCO, PUEBLA

RETOS DE FINANCIACIÓN ESTRUCTURAL Y DINÁMICA CREDITICIA EN LAS MICRO, PEQUEÑAS Y MEDIANAS EMPRESAS: DATOS DE TECAMACHALCO, PUEBLA

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Structural Financing Challenges and Credit Dynamics in MSMEs: Evidence from Tecamachalco, Puebla

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RESUMEN

Las micro, pequeñas y medianas empresas (MIPYMES) constituyen un componente esencial del desarrollo económico regional; no obstante, su crecimiento se ve limitado por el acceso restringido al financiamiento formal y por condiciones estructurales que dificultan su consolidación. Este estudio examina las fuentes de financiamiento utilizadas por las MIPYMES de Tecamachalco, Guerrero, Puebla, e identifica las barreras crediticias que enfrentan. Bajo un diseño cuantitativo, descriptivo y transversal, se aplicó un cuestionario estructurado a 30 unidades económicas del sector comercial. Los resultados evidencian que el 75% de los emprendedores inició operaciones con ahorros personales, mientras que solo el 20.83% accedió a financiamiento externo. Las principales barreras identificadas incluyen la desconfianza hacia las instituciones financieras, trámites complejos, altos costos percibidos y la falta de historial crediticio, factores que limitan la inclusión financiera. Aunque las fintech y los programas gubernamentales emergen como alternativas viables, su adopción aún es incipiente. Se observan montos de crédito reducidos, una baja bancarización y un uso predominantemente productivo de los recursos. El estudio concluye que es indispensable fortalecer la educación financiera, promover la inclusión digital y consolidar la colaboración entre gobierno, academia e industria mediante el enfoque de Triple Hélice, con el fin de mejorar la competitividad, la sostenibilidad y la capacidad de crecimiento de las MIPYMES en la región.

Palabras clave: MIPYMES; Fuentes de financiamiento; Barreras crediticias; Inclusión financiera; Triple Hélice.

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Retos de financiación estructural y dinámica crediticia en las micro, pequeñas y medianas empresas: datos de Tecamachalco, Puebla

ABSTRACT

Micro, small, and medium-sized enterprises (MSMEs) are a critical pillar of regional economic development; however, limited access to formal financing and structural barriers in the credit system often constrain their growth. This study examines the financing sources used by MSMEs in Tecamachalco, Guerrero, Puebla, and identifies the key obstacles that hinder their access to credit. Using a quantitative, descriptive, cross-sectional design, the researchers administered a structured questionnaire to 30 commercial MSMEs. Findings indicate that 75% of entrepreneurs launched their businesses using personal savings, while only 20.83% obtained external financing. Major barriers include distrust of financial institutions, complex administrative procedures, high perceived costs, and lack of credit history, all of which contribute to low levels of financial inclusion. Although fintech solutions and government programs represent emerging alternatives, their adoption remains limited. The results also reveal small credit amounts, low levels of formal financial engagement, and a predominantly productive use of funds. The study concludes that strengthening financial education, promoting digital inclusion, and fostering collaboration among government, academia, and industry through the Triple Helix model are essential strategies to enhance MSMEs' competitiveness, sustainability, and growth potential in the region.

***Keywords*:** MSMEs; Financing sources; Credit barriers; Financial inclusion; Triple Helix

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1. INTRODUCTION

Micro, Small, and Medium-Sized Enterprises (MSMEs) are central to economic dynamism, employment generation, and regional development. Despite their importance, MSMEs often face structural constraints that limit access to formal financing, restricting investment in technology, infrastructure, and business expansion. In Mexico, these challenges are particularly acute in semi-urban and rural regions, where financial inclusion remains limited. This study analyzes MSME financing patterns in Tecamachalco de Guerrero, Puebla, and explores the barriers that impede access to formal credit. By integrating a literature review with empirical data from local entrepreneurs, the research provides a comprehensive understanding of financing behaviors, perceptions of credit conditions, and institutional obstacles. The findings aim to inform public policy, strengthen financial education, and promote alternative financing mechanisms that enhance MSME competitiveness.

2. Conceptual Framework

2.1 Definition of MSMEs

The OECD (2019) defines MSMEs as independent economic units with a limited workforce and relatively low turnover. In Mexico, the Ministry of Economy (2022) classifies MSMEs as follows:

- Microenterprises: up to 10 employees
- Small enterprises: up to 50 employees
- Medium-sized enterprises: up to 250 employees

MSMEs are typically flexible, less bureaucratic, and able to adapt quickly to market changes, yet they face significant resource constraints (Beck & Demirgüç-Kunt, 2006).

3. MSMEs in the Economic Context

Across Latin America, MSMEs represent approximately 99% of all businesses and generate nearly 60% of formal employment (ECLAC, 2021). Despite their economic relevance, MSMEs encounter persistent challenges, particularly in accessing formal financing, adopting technology, and navigating regulatory environments.

4. Importance of Financing for MSMEs

Financing enables MSMEs to invest in fixed assets, working capital, innovation, and expansion. However, informality, lack of collateral, and limited financial literacy often restrict access to formal

credit (Ramírez & Rojas, 2020). As a result, many MSMEs rely on internal or informal sources of financing, which limits their growth potential.

5. Sources of Financing

5.1 Internal Financing

Internal financing—such as reinvested profits and partner contributions—is the most common source among MSMEs. Although accessible, it limits scalability (Chiavenato, 2016).

5.2 External Financing

External financing includes:

- Bank credit: loans, credit lines, secured financing
- Non-bank institutions: cooperatives, microfinance entities, fintech platforms
- Informal sources: family, friends, private lenders
- Government programs: subsidized loans, guarantees, technical assistance
- Venture capital and angel investors: more common in startups and innovative sectors

Despite these options, MSMEs often face barriers such as high interest rates, complex procedures, and limited awareness of available programs.

6. Barriers to Financing

MSMEs encounter structural barriers including:

- Lack of credit history
- Insufficient collateral
- High interest rates
- Complex administrative processes
- Information asymmetry (Stiglitz & Weiss, 1981)

These barriers are more pronounced in rural and semi-urban areas (Hernández-Castro & Ríos, 2024).

7. Emerging Trends: Digitization and Fintech

Fintech platforms have expanded access to financial services by offering faster, more flexible, and technology-driven credit solutions. In Mexico, fintech adoption has grown significantly, providing alternatives for historically unbanked sectors (Fintech Radar México, 2023). However, adoption remains limited in regions like Tecamachalco.

2. METHODOLOGY

This study employed a quantitative, descriptive, and cross-sectional design. We selected a non-probabilistic convenience sample of 30 commercial MSMEs in central Tecamachalco based on accessibility and willingness to participate.

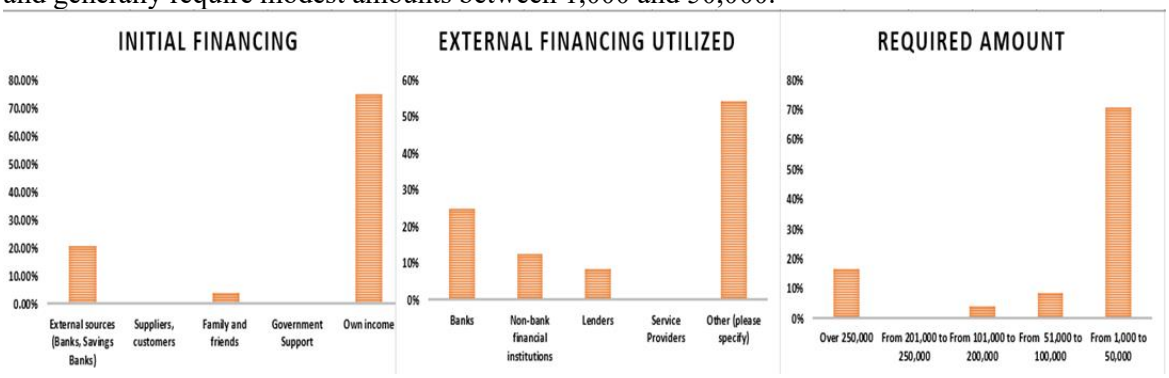
We collected data using a structured questionnaire adapted from Hernández et al. (2024). The instrument assessed financing sources, credit amounts, interest rates, collateral requirements, loan terms, and fund use. Expert review established content validity.

3. Results

3.1 Initial Financing Sources

Initial financing sources show how new businesses begin operations despite limited access to formal credit. In most cases, entrepreneurs rely heavily on their own savings or personal income, showing that self-financing remains the most common strategy at the start-up stage. This pattern highlights both business owners' resourcefulness and the structural challenges they face when trying to obtain external financial support early in their development.

Figure 1. Sources and amounts of business financing. The charts illustrate that most enterprises rely primarily on their own income for initial financing, use other unspecified sources for external funding, and generally require modest amounts between 1,000 and 50,000.



The charts (Figure 1) show that most businesses rely on their own income for initial financing, with only a smaller portion using external sources like banks or family support. When they do seek external financing, the majority comes from other unspecified sources, while banks play a secondary role. Regarding the required amount, most businesses need relatively small sums—between 1,000 and 50,000—suggesting modest financial needs focused on short-term or small-scale operations.

3.2 Credit Amounts

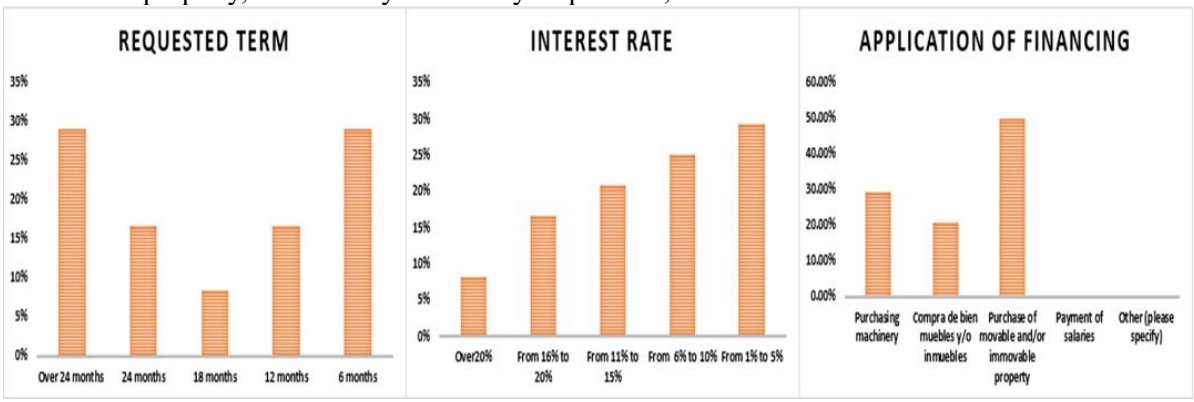
As shown in Figure 1, most entrepreneurs obtained credit amounts below $50,000 MXN, representing 71% of respondents. This finding confirms the predominance of micro-scale financing, where small sums mainly cover basic start-up expenses such as equipment, materials, or initial inventory. The limited size of these loans suggests that businesses operate with modest capital and depend largely on personal or informal funding sources rather than institutional credit. Such patterns highlight the financial constraints typical of emerging ventures in local markets.

3.3 Loan Terms and Interest Rates

As shown in Figure 1, loan terms among respondents were divided mainly between short-term agreements of around six months and long-term arrangements exceeding 24 months, each accounting for 29% of the cases. This balanced distribution suggests that entrepreneurs adopt different financing strategies depending on their immediate needs and repayment capacities. Short-term loans typically address urgent operational expenses or initial purchases, while long-term credit allows businesses to invest in assets that take longer to generate returns. The coexistence of both types of financing reflects the diverse financial realities of emerging ventures and the flexibility required to sustain their early growth.

Figure 2 shows that loan requests are mainly concentrated in short-term periods of six months and long-term periods exceeding 24 months, each representing around one-third of cases. Regarding interest rates, most respondents obtained loans with relatively low rates between 1% and 10%**,** suggesting favorable credit conditions for small borrowers. As for the use of financing, most funds were used to purchase movable and immovable property, followed by machinery acquisition. This pattern indicates that entrepreneurs prioritize investment in tangible assets to strengthen their productive capacity rather than covering operational expenses such as salaries.

Figure 2. Loan characteristics and financing application. The charts show that most loans were requested for short-term (6 months) and long-term (over 24 months) periods, with interest rates mainly between 1% and 10%. Financing was primarily applied to the purchase of movable and immovable property, followed by machinery acquisition, refle



3.4 Use of Funds

As shown in Figure 2, the allocation of funds reflects entrepreneurs' priority to strengthen the basic operational structure of their businesses. Half of the respondents (50%) used the financing to purchase supplies, indicating an immediate need to secure essential materials for production or service delivery. Another significant portion (29.2%) invested in machinery, suggesting efforts to improve efficiency or expand productive capacity. Meanwhile, 20.8% allocated resources to movable or immovable property, which points to long-term investments such as workspace improvements or the acquisition of equipment with durable value. Overall, these patterns show that financing is directed mainly toward tangible assets that support the stability and growth of emerging ventures.

3.5 Collateral Requirements

Collateral requirements varied considerably among respondents, revealing important differences in how lenders manage risk. In 37.5% of cases, borrowers were asked to provide collateral, typically by pledging assets such as equipment, property, or other valuable items to secure the loan. This indicates that a significant portion of financing still relies on formal guarantees, especially when lenders perceive higher uncertainty or limited repayment capacity. In contrast, 33.3% of respondents reported no collateral requirements, suggesting that many loans were granted through more flexible or informal arrangements, possibly based on personal trust, community ties, or simplified lending processes. This

mix of practices reflects a diverse credit environment in which access to financing is shaped not only by financial criteria but also by social relationships and perceived entrepreneurial reliability.

Figure 3. Credit characteristics and sources. The charts show that most financing came from banks and personal contacts, with guarantees and credit limits varying widely across respondents.

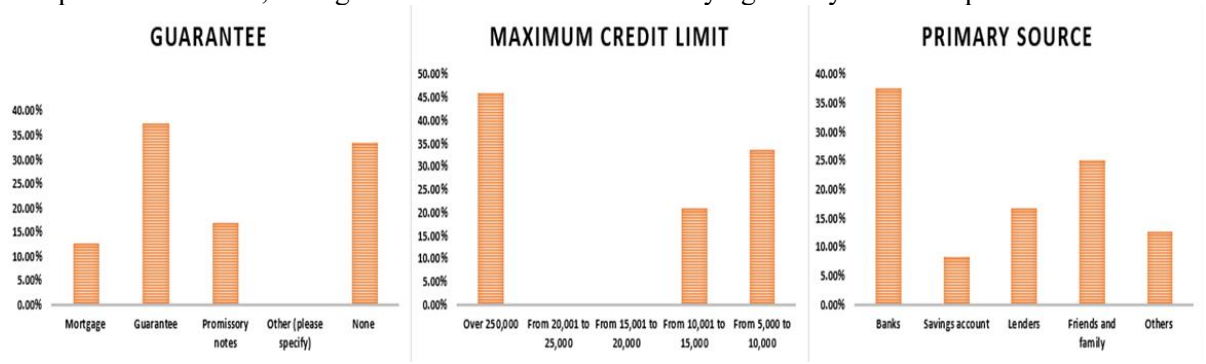


Figure 3 shows that most respondents obtained financing through banks, followed by friends and family, indicating a mix of formal and informal credit sources. Regarding guarantees, the most common forms were personal guarantees and cases with no collateral, suggesting flexible lending conditions for small borrowers. In terms of maximum credit limits, the largest proportion of respondents received amounts over 250,000 MXN, while smaller credit ranges were less frequent. These results reflect a diverse financing landscape where entrepreneurs rely on both institutional and personal networks, with varying levels of formality and credit capacity.

3.6 Maximum Credit Requested and Preferred Source

As shown in Figure 3, the majority of respondents indicated that, in case of urgent financing needs, they would request amounts exceeding $250,000 MXN (45.8%), while a smaller but significant group (33.4%) would seek between $5,000 and $10,000 MXN. This contrast reveals two distinct financing profiles: one oriented toward larger investments, possibly for business expansion or equipment acquisition, and another focused on short-term liquidity to cover operational expenses.

Regarding the preferred sources of credit, banks (37.5%) remain the main option, reflecting entrepreneurs' trust in formal institutions and their perception of greater reliability and access to structured loan programs. However, family and friends (25%) and private lenders (16.7%) also play an important role, showing that informal networks continue to provide essential financial support, especially for small businesses with limited access to traditional credit channels. Together, these results

highlight the coexistence of formal and informal financing mechanisms within the local entrepreneurial ecosystem.

3.7 Perceptions of Bank Interest Rates and Credit Acceptance

Respondents reported a broad range of bank interest rates, from 6% to values exceeding 20%, reflecting the heterogeneity of credit conditions offered by formal financial institutions. This variability is interpreted as a structural barrier for small and emerging enterprises, as higher interest rates increase the cost of capital and reduce the feasibility of formal credit as a financing strategy. Higher rates are often linked to stricter risk-assessment criteria, limited credit histories, and the classification of micro-entrepreneurs as high-risk borrowers. Consequently, these perceptions directly influence credit acceptance, shaping entrepreneurs' willingness to engage with the banking sector and often redirecting demand toward informal or semi-formal sources of financing. Understanding these perceptions is essential for contextualizing the observed reliance on alternative credit channels within the local entrepreneurial ecosystem.

Figure 4. Bank interest rates, probability of credit acceptance, and reasons for financing rejection in Mexico (2022). The data show the distribution of interest rate ranges, credit approval likelihoods, and the main causes of financing denial among surveyed firms.



Only 12.5% indicated a high likelihood of accepting a bank loan.

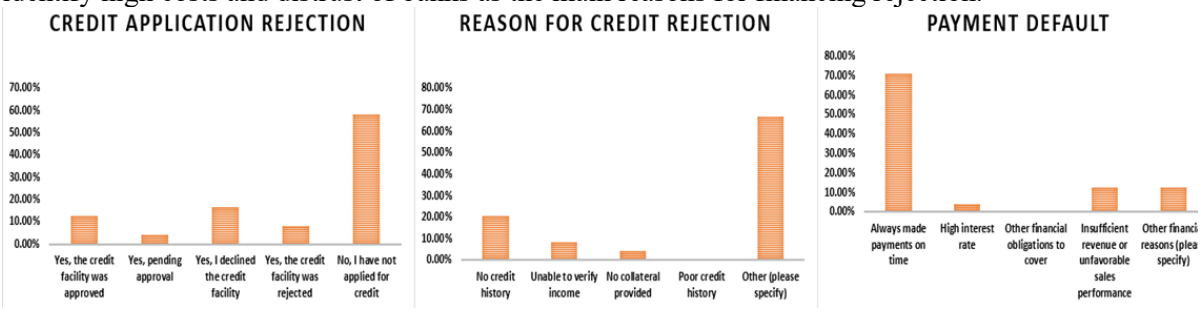
Reasons for rejecting financing included high costs (45.8%) and distrust of banks (20.8%).

3.8 Credit Applications and Payment Behavior

The figure shows respondents' perceptions of bank interest rates, credit acceptance, and reasons for financing rejection. Most participants identified interest rates between 6% and 10% as typical, while a smaller proportion perceived rates exceeding 20%, reflecting variability in formal credit conditions. Only 12.5% of respondents indicated a high likelihood of accepting a bank loan, suggesting limited

confidence in institutional financing. The main reasons for rejecting credit were high financing costs (45.8%) and distrust of banks (20.8%), which highlight psychological and structural barriers to financial inclusion. These findings emphasize that perceived cost and institutional credibility remain decisive factors influencing entrepreneurs' willingness to engage with formal credit systems.

Figure 5. Perceptions of bank interest rates and credit acceptance. The charts show that most respondents perceive interest rates as moderate, show low willingness to accept bank loans, and identify high costs and distrust of banks as the main reasons for financing rejection.



4. Discussion

The findings reveal a strong dependence on self-financing among MSMEs in Tecamachalco, consistent with patterns observed in emerging economies (Cano-Urbina & Sánchez, 2023). The low rate of credit applications (58.3%) reflects structural barriers rooted in information asymmetry, which leads banks to ration credit due to uncertainty about MSME repayment capacity (Stiglitz & Weiss, 1981).

Distrust of financial institutions and misconceptions about interest rates further discourage entrepreneurs from seeking formal financing. These perceptions align with national financial inclusion data (Demirgüç-Kunt et al., 2022), highlighting the need for targeted financial education and institutional outreach.

Fintech platforms represent a promising alternative, yet adoption remains limited due to low digital literacy and limited local presence. Strengthening digital financial inclusion could significantly reduce barriers for MSMEs in semi-urban regions.

5. CONCLUSIONS

MSMEs in Tecamachalco rely mainly on internal financing because of structural barriers, limited credit history, and distrust of formal institutions. Although entrepreneurs demonstrate responsible financial behavior, their access to formal credit remains restricted. Strengthening financial education, promoting

fintech adoption, and fostering collaboration through the Triple Helix model are essential strategies to enhance MSME competitiveness and sustainability.

6. Limitations and Future Research

This study is limited by its small sample size and non-probabilistic sampling method, which restrict generalizability. Future research should incorporate larger samples, mixed-methods approaches, and comparative analyses across municipalities to deepen understanding of MSME financing dynamics.

7. Practical Implications

- Policymakers should design accessible credit programs tailored to semi-urban MSMEs.
- Financial institutions must improve outreach and simplify credit procedures.
- Academic institutions can support financial literacy and digital inclusion initiatives.
- Fintech companies should expand operations in underserved regions.

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