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**Abstract**

Since the 2008 global financial crisis, interest in supply chain finance has grown as firms increasingly seek alternative sources of working capital. In this context, reverse factoring (RF) has emerged as a prominent short-term financing instrument, particularly for micro, small, and medium-sized enterprises (MSMEs). Under RF arrangements, suppliers sell accounts receivable to financial intermediaries in exchange for immediate liquidity, benefiting from the lower financing cost of large, creditworthy buyers that guarantee payment through invoice confirmation. Using firm-level data on MSMEs in Mexico, this paper provides evidence on the effects of RF adoption. We document three main findings. First, access to RF is associated with a statistically significant increase in firm sales. Second, these gains are primarily driven by expansion along the extensive margin, as firms increase the number of active clients following adoption. Third, the magnitude and persistence of the effect depend on usage frequency: occasional use yields no measurable gains, whereas sustained use generates persistent improvements over time. In addition, descriptive evidence suggests that while RF reduces financing costs, it does not lead to systematic changes in payment terms.

**Keywords**: Reverse factoring, supply chain finance, MSME financing, financial inclusion, fintech.

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# 1 Introduction

From the COVID-19 pandemic to the war in Ukraine and ongoing geopolitical conflicts, recent years have revealed the vulnerability of global supply chains to external shocks. In response, firms are increasingly shifting their focus from efficiency toward resilience, seeking to better withstand current and future disruptions. Strengthening even the smallest links in the supply chain is central to this transition, and expanding access to supply chain finance (SCF) for micro, small, and medium-sized enterprises (MSMEs) plays a critical role in this effort.

Supply chains are central to the functioning of the modern economy, playing a critical role in determining both the availability and the cost of goods and services. Efficient supply chain management enables firms to optimize working capital requirements, enhance operational efficiency, and support firm-level growth. Empirical evidence shows that high-performing firms tend to achieve strong levels of operational efficiency and deep integration with their suppliers (Fawcett et al., 2008; Rezaei et al., 2015). Access to finance further strengthens supply chain resilience by alleviating liquidity constraints and enabling smoother inter-firm transactions (Alfaro et al., 2021; Ersahin et al., 2024). However, despite increasing recognition of supply chains as key drivers of productivity and competitiveness, financing frictions within supply chains —and their impact on firm performance— remain relatively underexplored in the literature (Aparicio et al., 2022; Pfohl and Gomm, 2009; Seifert and Seifert, 2011).

Suppliers, particularly MSMEs, often face extended payment delays —frequently exceeding 90 days— before receiving compensation for delivered goods. Such prolonged cash conversion cycles would be less constraining if smaller firms had adequate access to working capital financing or other short-term credit instruments. However, in Latin America and the Caribbean (LAC), most MSMEs remain excluded from formal sources of short-term finance, limiting their ability to bridge liquidity gaps. At an estimated US$ 1 trillion, the region's MSME finance gap is the second largest in the world (IFC, 2025). According to Figal Garone et al. (2020), 75% of firms in LAC consider access to finance a constraint on their operation. These constraints undermine firm operational capacity, investment decisions, and growth prospects. Evidence from Mexico suggests that limited access to working capital financing can be just as constraining as the lack

of long-term investment capital (Aparicio et al., 2021).

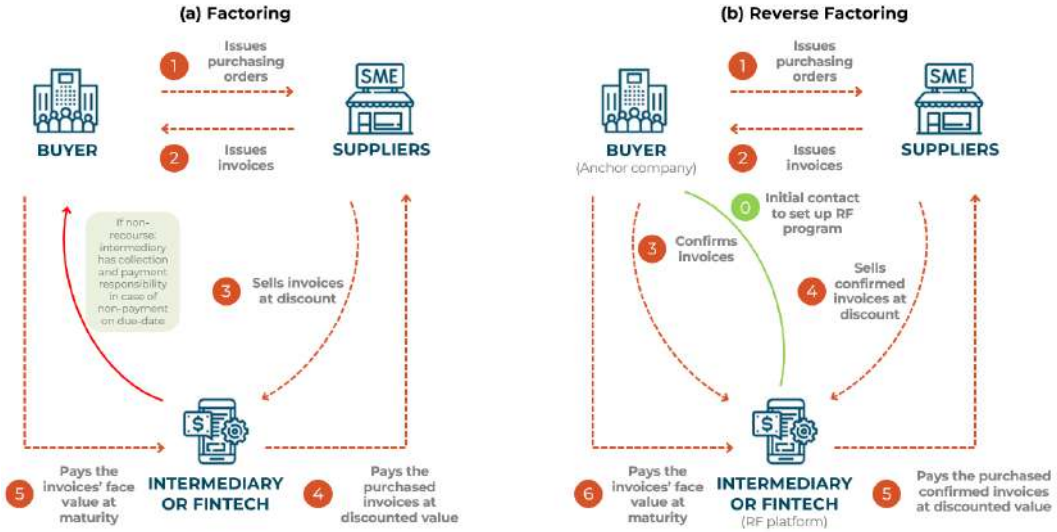
In this context, interest in SCF has increased as firms seek alternative mechanisms to alleviate financing constraints within supply chains. SCF solutions have the potential to help MSMEs overcome traditional barriers to finance and strengthen their participation in supply chains. Often used as a substitute for bank credit, especially during crises, the Global Supply Chain Finance Forum defines SCF as "the use of financing and risk mitigation practices and techniques to optimize the management of the working capital and liquidity invested in the trade and financial flows along end-to-end business supply and distribution chains, domestically as well as internationally." Despite its potential benefits, SCF remains underutilized in LAC, accounting for only around 25% of banks' trade finance portfolios, compared to 75% for traditional trade finance instruments (Aparicio et al., 2022). Although adoption has been increasing in recent years, there is significant opportunity for further expansion.

**Reverse Factoring.** Reverse factoring (RF) has emerged as a particularly prominent SCF instrument, particularly for MSMEs, as it addresses several limitations of traditional factoring. In standard factoring arrangements, suppliers sell their accounts receivable to a financial intermediary in exchange for immediate liquidity, typically at a discount that reflects both interest charges and service fees (Panel (a) in Figure 1). These arrangements can be structured with or without recourse. Under recourse factoring, the supplier retains liability in the event of buyer default, rendering the transaction economically similar to a loan. By contrast, in non-recourse factoring, credit risk is transferred to the financial intermediary, which typically retains a reserve—the difference between the invoice's face value and the amount advanced—to hedge against potential payment shortfalls. A key limitation of traditional factoring, particularly for MSMEs, is that it requires the financial intermediary to independently verify invoice authenticity and assess the creditworthiness of both buyers and suppliers, increasing transaction costs and limiting accessibility.

Although RF also involves the discounting of accounts receivable, MSMEs typically benefit from more favorable financing conditions than under traditional factoring. This is because RF is structured around an agreement between a large, creditworthy buyer (hereafter referred to

as the anchor buyer) and a financial intermediary. Under this arrangement, suppliers benefit from improved financing terms as the anchor buyer provides an explicit payment guarantee for approved invoices and confirms their authenticity —a mechanism commonly referred to as "confirming"— (Panel (b) in Figure 1). These features enhance the credibility of the underlying payment obligation, allowing financial intermediaries to price risk more accurately and offer lower discount rates.

**Figure 1.** Factoring vs. Reverse Factoring




***Source:*** *Authors' own elaboration.*

**Overview of the paper.** This paper examines the impact of RF on MSME performance in Mexico. The analysis draws on longitudinal data from 11,402 firms participating in a RF platform, combining detailed transactional information on RF usage and other financial products with firm-level fiscal data. To estimate effects, we employ difference-in-differences methodologies, including conventional two-way fixed effects estimators as well as more recent approaches that account for staggered treatment adoption.[1] In addition, we complement the econometric analysis with descriptive evidence from a virtual survey of 728 MSMEs in Mexico, which provides information on firms' socioeconomic characteristics, financing profiles, and qualitative insights into RF usage.

[1]For a review of these methods, see Baker et al. (2022). We implement the approach proposed by Callaway and Sant'Anna (2021).

The results indicate that access to RF has a positive average effect on firm growth, as measured by sales. This effect is primarily driven by the extensive margin, with RF enabling MSMEs to expand their client base. However, both the magnitude and persistence of these gains depend on the intensity of RF use: infrequent participation yields no statistically significant effects, whereas repeated use leads to sustained improvements over time. Regarding the trade-off between financing costs and payment terms, preliminary descriptive evidence suggests that while financing costs tend to decline, payment terms remain unchanged in most cases.

To the best of our knowledge, this paper provides the first impact evaluation of RF focused on MSMEs in LAC. While existing empirical research has predominantly examined outcomes at the buyer level, this study shifts the focus to supplier performance, analyzing firm expansion along both the intensive and extensive margins. Methodologically, the paper contributes by applying recent econometric techniques designed for panel data with staggered adoption, thereby strengthening causal identification in a literature that has largely relied on descriptive and case-based evidence. Finally, we document heterogeneous effects by frequency of use, an important dimension largely overlooked in prior work, which typically models RF participation as a binary treatment.

The remainder of the paper is organized as follows. Section 2 reviews the related literature. Section 3 presents the survey data and corresponding results, while Section 4 reports the impact estimates based on administrative data. Section 5 concludes.

## 2 Related Literature and Conceptual Framework

This study relates to three strands of the literature. The first, and most closely related, examines the outcomes of RF adoption among firms and the determinants of its uptake. The second draws on theoretical work analyzing the mechanics of RF within supply chains, identifying the conditions under which it generates gains for buyers and suppliers. Finally, our results connect to the broader literature on the relationship between access to finance and firm performance, within which RF can be understood as a relationally embedded mechanism for relaxing credit constraints. Relative to this body of work, our primary contribution is empirical: we provide new

estimates of the effects of RF on supplier outcomes using firm-level data from Mexico, a context in which access to finance remains a binding constraint for MSMEs.

Within the empirical literature on RF adoption and firm outcomes, two main veins can be identified. A first set of early studies—largely rooted in the operations management literature—relied on interviews and survey data to examine the operational and financial effects of SCF and RF on buyers. Using survey responses from executives at large firms in 55 countries, Seifert and Seifert (2011) find that only 10% of firms had implemented RF, yet those adopters reduced working capital by an average of 13%. Moreover, 57% of respondents reported that RF standardized payment terms, while 52% highlighted improvements in supplier relationships. Additional reported benefits include streamlined processes, greater transparency, and fewer disputes. Consistent with these findings, Liebl et al. (2016) conclude that buyers primarily use SCF to extend days payable outstanding, while also reducing supplier default risk and simplifying supply chain management.

More recent studies using richer administrative datasets report mixed evidence on the benefits of RF for buyers. Analyzing Chinese manufacturers, Shou et al. (2021) find that RF adoption improves cost efficiency and profitability but has no significant effect on cash cycles or working capital management, suggesting its main value lies in strengthening supply chain relationships. In contrast, Chuk et al. (2024), using matched buyer-supplier data across 26 countries, show that RF adoption leads to longer payment periods, enhancing buyers' capacity to invest and distribute dividends. Other work highlights the role of RF and SCF in improving operational stability and supply chain resilience (Beka Be Nguema et al., 2022; Zhang et al., 2019).

Empirical evidence on the impact of SCF and RF on suppliers remains comparatively scarce, though recent work has begun to fill this gap using granular data. Amberg et al. (2024), exploit invoice-level data from a Swedish bank and match difference-in-differences estimators, finding that RF enrollment increases supplier sales, employment, and fixed assets by 10–15%, with no significant change in profitability. These effects appear primarily driven by relaxed liquidity constraints. Similarly, Orestes et al. (2024), studying recourse factoring in Brazil, show that reductions in factoring interest rates increase short-term sales and input purchases and generate

persistent gains in permanent employment. Our contribution lies squarely within this strand of the literature. We show that, in an emerging market such as Mexico, RF adoption leads to sizeable increases in sales for MSMEs, with effects lasting four to six quarters after adoption. We also document changes along the extensive margin through increases in the number of clients and uncover heterogeneity depending on the persistence of RF use.

A related question in the literature concerns whether lower financing costs under RF are offset by longer payment terms, potentially generating a 'win-win" outcome for buyers and suppliers. Chuk et al. (2024) find that RF adoption extends payment periods by roughly 70%, while allowing suppliers to accelerate cash inflows through financial intermediaries. Using buyer-supplier relationship data, they show that RF suppliers experience shorter days of sales outstanding and higher asset turnover, consistent with the predictions of Lekkakos et al. (2016) that RF enhances operational performance. They also find that RF enables suppliers to hold more inventory, in line with Kouvelis and Xu (2021), who argue that RF increases supplier risk tolerance. In contrast, evidence from our survey indicates that a substantial majority of suppliers report no change in payment terms imposed by anchor companies after joining RF programs. Among firms that do report changes, average payment term extensions amount to 46%, with more pronounced effects among smaller firms.

Beyond outcomes, several studies examine the determinants of RF adoption. Klapper (2006), analyzing factoring in Mexico, argues that RF's contractual and operational structure facilitates adoption in environments characterized by limited firm-level information and supply relationships between small firms and large buyers. These features reduce monitoring costs and simplify supplier management for both intermediaries and buyers. Wuttke et al. (2019) find that firms with limited access to external financing adopt RF more rapidly, especially when the associated financing costs are significantly lower, consistent with RF reaching financially constrained borrowers. However, Banerjee et al. (2021) demonstrate that financial incentives alone are insufficient: adoption also depends on perceived fairness, trust in the buyer, and onboarding costs, highlighting the role of relational and organizational factors. Similarly, Nartey (2023) shows that SMEs are more likely to engage with digital SCF platforms when these provide actionable

information and decision-support tools.

A second strand of the literature consists of theoretical and quantitative models that examine the mechanics of RF within supply chains. Originating largely in the operations management literature and motivated by the potential of RF to enhance supply chain resilience, early studies formalized the conditions under which RF improves financial outcomes for buyers and suppliers (Dello Iacono et al., 2015; Kouvelis and Xu, 2021; Tunca and Zhu, 2018; van der Vliet et al., 2015; Zhu and Ou, 2023). These models emphasize lower financing costs and improved liquidity for suppliers, particularly those with weaker credit profiles, as well as extended payment terms and reduced working capital costs for buyers. Buyers may also derive strategic benefits through enhanced supplier relationships and greater supply chain resilience. Importantly, some gains arise even in the absence of large credit rating differentials, although most models abstract from alternative adjustment margins beyond payment terms.[2]

Within this literature, Tunca and Zhu (2018) combine a theoretical framework with calibrated parameters and procurement data from a major Chinese online retailer operating a buyer-intermediated scheme similar to RF. They show that the mechanism lowers interest rates and wholesale prices, increases order fill rates, and raises supplier borrowing, generating substantial welfare gains and cost savings for buyers. Similarly, Kouvelis and Xu (2021) develop a stylized model comparing RF with traditional factoring in a setting with a large buyer and a small supplier. Their results indicate that RF is preferred when supplier credit risk exceeds a threshold, while traditional factoring dominates at intermediate or high-risk levels. Notably, suppliers may not always benefit if RF induces longer payment terms, although adoption can still occur even in the absence of credit risk differentials or payment extensions due to gains accruing to buyers.

Extending these frameworks, Zhu and Ou (2023) incorporate the intermediary's decision problem, showing that RF reduces borrowing costs by mitigating credit risk and fraud. In their model, banks earn higher profits, buyers benefit from longer payment terms and larger orders, but supplier relationships are restricted to a single buyer. Similarly, van der Vliet et al. (2015) demonstrate that while payment extensions reduce buyer working capital costs, they may raise

[2]For a recent review, see Huang et al. (2022), who survey supply chain finance models more broadly, including RF as a specific instrument.

supplier financing costs in a nonlinear fashion, implying that RF benefits can vary substantially across suppliers.

Across these theoretical contributions, a recurring theme is that improved financing conditions for suppliers translate into operational gains that ultimately benefit buyers. Under this view, the rationale for RF adoption extends beyond payment term extensions to encompass procurement efficiency and supply chain stability. While most models remain silent on suppliers' overall scale, they typically predict larger orders from RF-linked buyers or improvements in operational performance. In multi-client settings, however, these gains could reflect a reallocation of sales away from non-RF buyers rather than net firm growth.

Finally, our analysis relates to the broader empirical literature documenting access to finance as a key determinant of MSME growth and performance. Beck and Demirgüç-Kunt (2006) show that small firms report financing obstacles as significantly more binding than large firms and that access to external finance is strongly correlated with firm growth across countries. Causal evidence supports this relationship. The seminal study by Banerjee and Duflo (2014) shows that a directed lending policy in India substantially increased sales and profits among previously excluded firms. Subsequent quasi-experimental studies in developing economies reach similar conclusions, showing that easing credit constraints improves firm-level outcomes. Meta-analytic evidence synthesizing results from 24 studies finds that access to formal loans increases SME employment by approximately 12%, sales by 18%, and profits by 18%, with larger effects when credit is targeted toward more constrained borrowers (Bruhn et al., 2025).

Our study contributes to this literature by showing that introducing a financial product embedded within buyer–supplier relationships can improve supplier outcomes. We focus on an emerging economy context and a population of MSMEs for whose access to working capital is tightly linked to commercial relationships with larger buyers. The use of administrative invoice-level data ensures consistent measurement across firms while also providing information on buyer diversification, allowing us to examine changes in sales concentration. Combined with precise adoption timing, these features enable us to trace dynamic responses and construct credible control groups to identify effects.

**Expected results.** Drawing on the literature reviewed above, our analysis tests several predictions. First, RF adoption is expected to increase MSME scale and growth, with a non-negative impact on sales and a potential shift in client composition toward corporate buyers through anchor relationships. Improved access to financing may also relax operational constraints, enabling firms to attract new clients, implying an extensive-margin effect on sales.

Theoretical and empirical studies further suggest that RF adoption affects financing costs through the role of the anchor firm and may be associated with longer payment terms. While our administrative data do not capture these outcomes directly, the survey data provide qualitative evidence on changes in interest rates and payment terms. They also shed light on firm motivations for adopting RF and the institutional features shaping the diffusion of RF programs in Mexico during the period under study.

# 3 Descriptive Evidence from Survey Data

## 3.1 Survey Data

A short virtual survey was conducted by IDB Invest in collaboration with Momentus Global between January and March 2024. The survey collected information on firm socioeconomic characteristics, funding profiles, and qualitative insights into the use of RF. In addition, respondents were asked to retrospectively report limited quantitative information—including sales, number of employees, and average receivables tenor—for the period 2019–2023.[3]

The sample was drawn from firms registered on two RF platforms operating in Mexico —approximately 9,000 firms on platform I and 13,000 firms on platform II at the time of the survey— as well as from the IDB Group's ConnectAmericas network[4], which included around 4,000 firms. As reported in Table 1, the survey yielded 1,182 responses, corresponding to an approximate response rate of 5% relative to the total number of firms across these sources.

A total of 728 MSMEs completed the survey in full. Of these, 61.7% operate in the service

[3]The full survey questionnaire is available upon request.

[4]ConnectAmericas is a digital initiative of the Inter-American Development Bank (IDB) Group aimed at supporting firms—especially MSMEs—in internationalization and business development.

sector, 34.6% in manufacturing, and 3.7% in the primary sector. Women-led MSMEs account for 18.5% of the sample. All 32 Mexican states are represented, with the largest shares of respondents located in Mexico City (22.8%), the State of Mexico (11.5%), and Nuevo León (10.4%). These sectoral and geographic distributions are broadly consistent with the national MSME population in Mexico, as reported by the *Gobierno de Mexico (2024)*, where 87% of MSMEs operate in the service sector and are primarily located in the State of Mexico (13%) and Mexico City (8.9%).

Of the 728 firms that completed the survey, 625 (85.6%) reported being aware of RF programs, an expected result given that most responses were drawn from RF platform databases. Among these 625 firms, 443 were registered and actively using RF for at least one year during the 2019–2023 period, 47 were registered but inactive over that period, and 135 were not registered on any RF platform.

**Table 1.** Survey Respondents

| **Platform** | **Total responses** | **Complete responses** |
|---|---|---|
| RF platform I | 579 | 285 |
| RF platform II | 413 | 300 |
| Connect Americas | 190 | 143 |
| **Total** | **1,182** | **728** |

***Source:*** Authors' own elaboration based on survey data.

### 3.2 Main Survey Findings

Although based on a relatively small and non-random sample, the survey provides useful insights into how MSMEs make financial decisions. Using self-reported information, we document firms' perceived benefits from RF adoption, compare financing rates under RF arrangements with those available outside such programs, and analyze changes in payment terms before and after RF adoption. While the evidence presented in this section is primarily descriptive, it highlights salient patterns that help contextualize potential impacts that we aim to explore more rigorously using the administrative dataset.

**Financing sources.** The survey sheds light on the financing sources accessed by MSMEs registered on fintech platforms in Mexico—that is, firms with at least some degree of access to external

finance (See Table 2). Among the 728 surveyed firms, 49.2% identified platforms, fintechs, and/or SOFOMs[5] as their main source of external financing, compared to 47.1% who reported access to bank loans and 15.2% that relied on funding from family members. When asked about additional financing sources, a small number of firms reported capital injections from founding members or other investors, while a few cited loans from suppliers. Notably, 68.5% of respondents indicated that they rely on internal liquidity to meet at least part of their financing needs.

**Table 2.** Financing Sources

| Firm size | Internal liquidity | Family | Bank loans | Platforms/ Fintechs/ SOFOMs | No access to financing |
|---|---|---|---|---|---|
| **Micro** (<10 employees) | 71.2% | 20.1% | 35.9% | 40.5% | 7.9% |
| **Small** (10–49 employees) | 64.6% | 12.5% | 56.1% | 56.8% | 2.6% |
| **Medium** (50–200 employees) | 69.7% | 3.4% | 66.3% | 61.8% | 3.4% |
| **Average** | 68.5% | 15.2% | 47.1% | 49.2% | 5.4% |

***Source:*** Authors' own elaboration based on survey data. Note: Multiple-response question; totals do not sum to 100%, as firms may have access to more than one source of financing.

**Benefits of RF.** In response to the question "Report areas where you have seen an improvement due to the use of RF," active users reported substantial perceived benefits. As shown in Figure 2a, 89% of respondents indicated medium-to-high improvements in access to liquidity. These improvements reflect more affordable financing, access to alternative funding sources when bank credit was unavailable or prohibitively expensive, and the ability to smooth liquidity during periods of cash-flow stress.

In addition, 87% of respondents reported improvements in overall firm performance, including shorter accounts receivable cycles, greater capacity to meet operating expenses, and increased sales and employment. Operational improvements were also widely reported: 81% of firms cited greater transparency and efficiency in liquidity and receivables management, as well as improved predictability in financial planning. Finally, 74% reported gains in competitiveness, highlighting

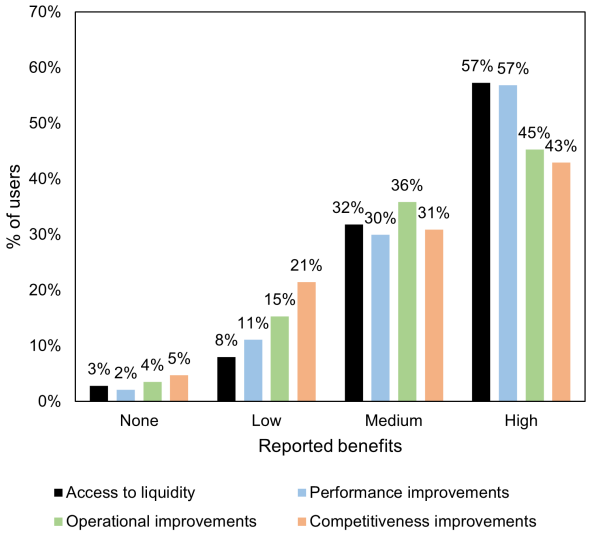
[5] *Sociedades Financiera de Objeto Múltiple* (SOFOMs) are non-bank financial institutions under Mexican law whose primary activity is the provision of credit.

the ability to offer more attractive payment terms to clients and to position themselves as suppliers to larger, more established buyers.

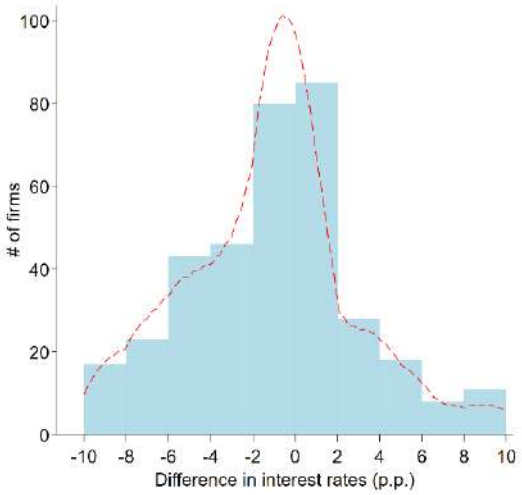
**Interest rates.** The survey also asked active RF users to compare the financing rates obtained through RF programs with those available outside such arrangements. As shown in Figure 2b, 61.3% of users reported benefiting from lower interest rates under RF relative to alternative market options. Among women-led MSMEs, this share was slightly higher, at 64.1% (Figure A1).

**Figure 2.** Benefits of Reverse Factoring

**(a)** Reported benefits by active firms




**(b)** Reported differences in interest rates




**Source:** Authors' own elaboration based on survey data.

**Payment terms.** Finally, firms were asked whether participation in RF programs led to a renegotiation of their original commercial payment terms. As reported in Table 3, a substantial majority of active RF users—84.4% (374 out of 443 firms)—reported no changes in payment terms imposed by anchor companies as a result of joining the program. Among women-led MSMEs, this share was even higher, at 88% (61 out of 69).

By contrast, 15.6% of firms reported changes in payment terms, with an average extension of 20.6 days. This effect appears to be more pronounced among smaller firms, potentially reflecting weaker bargaining power and a more vulnerable position within supply chains. Overall, the

results suggest that participation in RF programs is typically not accompanied by systematic renegotiation of commercial payment conditions.

**Table 3.** Payment Terms Before and After Reverse Factoring

| Firm size | No change in payment terms | Change in payment terms | | | | |
|---|---|---|---|---|---|---|
| | | N | | Mean | | Median |
| | | | | Days | % increase | |
| **Micro** (<10 employees) | 162 (89% of micro) | 20 | B | 34.2 | 59.1% | 30 |
| | | | A | 54.4 | | 60 |
| **Small** (10–49 employees) | 160 (83% of small) | 33 | B | 44.8 | 53.6% | 45 |
| | | | A | 68.8 | | 90 |
| **Medium** (50–200 employees) | 52 (76% of medium) | 16 | B | 57.1 | 25.2% | 30 |
| | | | A | 71.5 | | 90 |
| **Total** | 374 (84%) | 69 (16%) | B | 44.6 | 46.4% | 30 |
| | | | A | 65.3 | | 90 |
| **Women-led MSMEs** | 61 (88%) | 8 (12%) | B | 44.0 | 69.6% | 90 |
| | | | A | 74.6 | | 120 |

***Source:*** Authors' own elaboration based on survey data.

# 4 Empirical Evidence: The Impact of Reverse Factoring

## 4.1 Administrative Data and Descriptive Statistics

For the main analysis, we obtained access to administrative records from a third RF platform operating in Mexico. The dataset contains detailed transactional information on firm use of RF and other financial products offered through the platform, as well as firm-level fiscal data obtained from Mexico's credit bureau and the Tax Administration Service. Firms grant the platform access to these data as part of their contractual arrangements. Importantly, onboarding procedures differ across financial products. While firms may independently register for traditional factoring services, participation in RF is initiated by anchor companies: buyers first establish a relationship with the platform, approve eligible suppliers, and validate invoices that become eligible for discounting.

The database spans the period December 2020 to August 2024 and includes information on

firm sales, as well as on the number, value, and tenor of invoices financed through the platform's products. In total, the database covers 12,427 firms, of which 11,710 are classified as MSMEs with annual sales below MXN 250 million (approximately US$13.5 million). For the empirical analysis, we restrict the sample to 11,402 MSMEs observed between Q1-2021 and Q3-2024, including 151 firms that use RF at least once during the sample period. The resulting panel is unbalanced, reflecting firm entry into and exit from the platform over time.

Among the 11,402 firms in the analysis sample, 75.2% operate in the service sector, 12.2% in manufacturing, and 12.6% in the primary sector. All 32 Mexican states are represented, with the highest concentrations in Mexico City (22.1%), the state of Mexico (12.7%), and Nuevo León (9.9%). These distributions closely mirror those observed in the survey sample and are broadly consistent with the national geographic distribution of firms.

A preliminary comparison of RF users and non-users (Table 4) reveals several systematic differences. On average, RF users are approximately twice as large in terms of annual sales. They also exhibit slightly lower sales concentration among their top three clients (83%, compared to 87% for non-users) and maintain a broader network of business relationships: RF users report, on average, 10 active suppliers and 17 active clients per year, compared to 6 and 13 among non-users, respectively. In addition, RF users are less concentrated in the service sector and more represented in manufacturing, with 25% of firms operating in this sector compared to 12% among non-RF users.

RF usage on the platform has increased substantially over time. While both the number and value of discounted invoices were negligible in 2020, by Q2-2024 the number of RF invoices had risen to nearly 5,500, with a total value of MXN 173 million. Notably, although the number of invoices remained close to the peak observed in Q3-2023, the total value declined, suggesting a reduction in the average size of invoices discounted through RF. Moreover, Table A2 indicates that RF participation periods are relatively short, with an average duration of 2.9 quarters.

**Table 4.** Firm-level Descriptive Statistics

| | **All firms** | | **Treated RF users** | | **Not yet treated RF users** | | **Non-RF users** | |
|---|---|---|---|---|---|---|---|---|
| | N=11,402; Obs.=65,562 | | N=151; Obs.=237 | | N=151; Obs.=1,001 | | N=11,251; Obs.=64,324 | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| ***A. Firm characteristics*** | | | | | | | | |
| ***Firm age*** | | | | | | | | |
| Age (years) | 25 | 25 | 23 | 20 | 23 | 20 | 25 | 25 |
| ***Value chain (annual avg.)*** | | | | | | | | |
| Sales to top 3 clients (%) | 87 | 17 | 83 | 18 | 82 | 20 | 87 | 17 |
| Active suppliers (#) | 6 | 9 | 10 | 12 | 13 | 13 | 6 | 9 |
| Active clients (#) | 13 | 47 | 17 | 27 | 14 | 27 | 13 | 47 |
| ***Sector*** | | | | | | | | |
| Primary | 0.13 | 0.33 | 0.13 | 0.33 | 0.13 | 0.33 | 0.13 | 0.33 |
| Manufacturing | 0.12 | 0.33 | 0.25 | 0.43 | 0.25 | 0.43 | 0.12 | 0.33 |
| Services | 0.75 | 0.43 | 0.63 | 0.48 | 0.63 | 0.48 | 0.75 | 0.43 |
| ***B. Financial Variables*** | | | | | | | | |
| ***Performance (annual avg.)*** | | | | | | | | |
| Sales (MXN'000) | 14,383 | 24,277 | 27,774 | 34,214 | 13,616 | 22,784 | 14,181 | 24,033 |
| ***Financing profile*** | | | | | | | | |
| Active loans (#) | 8 | 14 | 8 | 9 | 8 | 9 | 8 | 15 |
| Active debt (MXN'000) | 4,036 | 11,241 | 3,479 | 6,454 | 3,479 | 6,454 | 4,045 | 11,303 |
| ***Products usage (annual avg.)*** | | | | | | | | |
| RF invoices (#) | 0 | 11 | 40 | 95 | 0 | 0 | 0 | 0 |
| RF invoices (MXN'000) | 25 | 601 | 2,172 | 5,099 | 0 | 0 | 0 | 0 |
| RF invoices - tenor (# of days) | 59 | 24 | 59 | 24 | – | – | – | – |

***Source:*** Authors' own elaboration based on administrative data.

## 4.2 Empirical Strategy

Our objective is to estimate the causal effect of RF adoption on MSME outcomes. We follow a standard framework in the empirical literature, modeling the effect of the introduction of a financial product —RF in this case— on an outcome variable $Y_{it}$ for firm $i$ at time $t$. The treatment

variable $D_{it}$ is defined as a binary indicator that takes the value of 1 from the period in which firm $i$ adopts RF onward, and 0 otherwise,

$$Y_{it} = \beta D_{it} + \alpha x_{it} + \varepsilon_{it} \tag{1}$$

where $x_{it}$ denotes a vector of control variables, typically including multiple sets of fixed effects, and $\varepsilon_{it}$ is the error term. As is standard in the literature, we select our estimation strategy and sample to ensure that coefficient $\beta$ can be interpreted as the causal effect of RF on the outcome $Y_{it}$. In addition, we estimate specifications in which $\beta$ is allowed to vary over time, capturing the dynamic effects of adoption, testing for pre-treatment trends, and assessing robustness to the inclusion of other financial products.

Our primary estimates rely on the difference-in-differences (DiD) estimator proposed by Callaway and Sant'Anna (2021), which is specifically designed for settings with staggered treatment adoption. This approach combines inverse-probability weighting with a DiD framework to estimate cohort- and period-specific average treatment effects on the treated, which are subsequently aggregated into an overall effect. Relative to traditional two-way fixed effects (TWFE) models, this estimator mitigates biases that can arise when already-treated units are used as controls for later-treated firms, as highlighted in the recent literature summarized by Baker et al. (2022). This distinction is particularly important in contexts where treatment effects are heterogeneous across cohorts or over time.

Formally, firms are classified as treated starting in the quarter in which they first discount invoices through RF. At any point in time, the control group consists of firms that have not yet adopted RF or that never adopt it during the sample period. Firms that are already treated at the beginning of the sample period are excluded from the comparison group by construction. For each adoption cohort $g$ and period $t \geq g$, the Callaway–Sant'Anna estimator identifies the average treatment effect on the treated (ATT) as follows:

$$\mathrm{ATT}(g,t) = \mathbb{E}[Y_{it}(1) - Y_{it}(0) \mid G_i = g], \tag{2}$$

where $G_i$ denotes the cohort in which firm $i$ first adopts RF. These cohort- and time-specific treatment effects are aggregated into an overall ATT using appropriate cohort-size weights, thereby yielding the estimated parameters for:

$$Y_{ijst} = \sum_{\tau=-m}^{-2} \beta_\tau \Delta D_{it-\tau} + \sum_{\tau=0}^{q} \beta_\tau \Delta D_{it-\tau} + \alpha X_{jst} + \gamma_t + \phi_i + \varepsilon_{it} \tag{3}$$

where $Y_{ijst}$ denotes the outcome of interest for firm $i$, operating in sector $j$ and located in state $s$, in quarter $t$. The term $\Delta D_{it-\tau}$ indexes event time relative to the adoption period $G_i$, such that $\tau = t - G_i$. The coefficients $\beta_\tau$ capture the dynamic treatment effects at each event time $\tau$. Firm fixed effects $\phi_i$ absorb time-invariant unobserved heterogeneity across firms, while time fixed effects $\gamma_t$ control for common shocks at the quarterly level. Finally, $X_{jst}$ denotes a full set of sector–state–quarter fixed effects. Under the parallel trends assumption, the coefficients $\beta_\tau$ can be interpreted as the average dynamic treatment effects of RF on the outcome variable.

For expositional purposes and as part of robustness analysis, we also report estimates based on conventional TWFE specifications of the following form:

$$Y_{ijst} = \beta \, \mathrm{T}_{it} + \alpha X_{jst} + \gamma_t + \phi_i + \varepsilon_{it}\,, \tag{4}$$

which constructs the counterfactual under a different set of assumptions than those underlying the Callaway and Sant'Anna (2021) approach.

**Identification Assumption.** The identifying assumption underlying the DiD approach is a conditional parallel trends assumption: in the absence of RF adoption, treated and control firms would have followed similar outcome trajectories, conditional on fixed effects and other controls. A key concern is endogenous adoption: firms experiencing unusually rapid growth prior to adoption may be more likely to adopt RF as a liquidity management tool and would have continued to grow even in the absence of treatment. In such cases, the estimated effects may partly reflect differential pre-treatment trends rather than causal impacts. To address this concern, our event-study estimates provide an empirical diagnostic by testing for the presence of

differential pre-trends, while the matching procedure described below improves comparability between treated and control firms along observable characteristics prior to adoption.

**Matching.** Given the substantial imbalance between treated and untreated firms in the full sample (151 adopters versus 11,251 non-adopters), we construct a matched sample to improve balance on observable characteristics. Our preferred approach proceeds in two steps. First, we estimate each firm's propensity to adopt RF using pre-treatment information. Let $D_i$ denote a binary indicator equal to one if firm $i$ adopts RF at any point during the sample period. The propensity score is then defined as follows:

$$p(X_i) = \Pr(D_i = 1 \mid X_i), \tag{5}$$

where $X_i$ includes lagged firm outcomes, sector, location, and other pre-treatment firm characteristics. We then match RF adopters to non-adopters using nearest-neighbor matching with ten neighbors, imposing common support restrictions.[6] In the second step, we apply the DiD estimators described above to the matched sample, exploiting within-firm variation over time to difference out time-invariant unobserved heterogeneity. For completeness, we also report estimates based on the full (unmatched) sample as a robustness check.

### 4.3 Results

#### Main Effects on Firm Performance

Table 5 reports the main results on firm performance. Using the matched DiD estimator proposed by Callaway and Sant'Anna (2021), RF adoption is associated with an estimated 26.6% increase in sales relative to comparable firms that have not yet adopted RF. This effect corresponds to an average increase of approximately US$191,000 in sales over the first year following adoption.

Event-study estimates (Figure 3) indicate that the observed sales gains are concentrated within

[6] Results are robust to alternative choices for the number of neighbors.

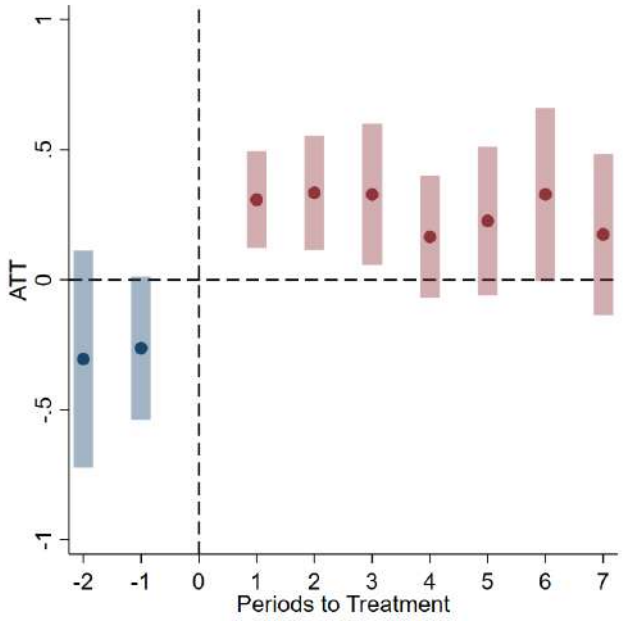
the first three quarters following adoption. Beyond this horizon, point estimates become smaller and less precisely estimated. Importantly, the pre-adoption event-time coefficients are not statistically distinguishable from zero, providing no evidence of differential pre-trends within the range detectable in our data, although smaller differences cannot be ruled out.

**Table 5.** Effect of Reverse Factoring on Firm Performance

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **PSM+CS** | **CS** | **PSM+TWFE** | **TWFE** |
| Avg. Post ATET | 0.266** | 0.263*** | 0.360*** | 0.346*** |
| | (0.104) | (0.102) | (0.092) | (0.084) |
| Observations | 13,626 | 64,432 | 13,547 | 64,304 |
| # of firms | 1,558 | 10,403 | 1,558 | 10,403 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on Callaway and Sant'Anna (2021), implemented through the csdid2 command in Stata17. SE clustered at the firm level in parentheses.

**Figure 3.** Effect of Reverse Factoring on Firm Performance




**Notes:** Estimates based on Callaway and Sant'Anna (2021).

Overall, these patterns are consistent with RF operating primarily as a short-term liquidity instrument that relaxes working capital constraints and supports firm operational scale in the

period immediately following adoption. The concentration of effects in the short run may suggest that RF primarily supports transactional activity and client expansion, rather than inducing longer-term changes in firm productivity or investment behavior.

**Extensive vs. Intensive Margins**

To better understand the mechanisms underlying the observed sales response, we decompose the effects into extensive and intensive margins. Table 6 indicates that the increase in sales is primarily driven by expansion along the extensive margin. Following RF adoption, firms increase the number of active clients by an average of 3.9, corresponding to a 43.1% increase relative to the control group.

By contrast, we find no statistically significant effects on sales per client. If anything, point estimates suggest a temporary decline in sales per client after adoption. One plausible interpretation is that the liquidity provided by RF enables firms to acquire new customers who initially transact at smaller volumes; as these relationships mature, sales per client may gradually converge, even as total sales increase in the short run.

**Table 6.** Effect of Reverse Factoring on Extensive vs. Intensive Margin

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **PSM+CS** | **CS** | **PSM+TWFE** | **TWFE** |
| ***ln (average clients)*** | | | | |
| Avg. Post ATET | 0.431*** | 0.365*** | 0.414*** | 0.393*** |
| | (0.081) | (0.079) | (0.070) | (0.066) |
| Observations | 13,632 | 64,441 | 13,547 | 64,304 |
| # of firms | 1,558 | 10,403 | 1,558 | 10,403 |
| ***ln*(*sales*/*average clients*)** | | | | |
| Avg. Post ATET | -0.163** | -0.102 | -0.054 | -0.047 |
| | (0.078) | (0.075) | (0.068) | (0.061) |
| Observations | 13,632 | 64,432 | 13,547 | 64,304 |
| # of firms | 1,558 | 10,403 | 1,558 | 10,403 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on Callaway and Sant'Anna (2021), implemented through the csdid2 command in Stata17. SE clustered at the firm level in parentheses.

To further explore the sources underlying the observed impact on sales, we examine the effect of RF on sales concentration across clients, focusing in particular on the top three clients and corporate clients. When measured as a share of total sales, however, we cannot reject the null hypothesis of no effect, suggesting that RF adoption does not lead to increased concentration among the largest or corporate clients (Table 7). These results imply that, on average, RF adoption does not make MSMEs more dependent on a narrow set of clients, nor does it increase their reliance on corporate buyers. Moreover, there is no evidence that firms increase client concentration prior to adoption as a strategy to secure access to RF.

**Table 7.** Effect of Reverse Factoring on Sales Concentration

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | **PSM+CS** | **CS** | **PSM+TWFE** | **TWFE** |
| ***% sales Top 3*** | | | | |
| Avg. Post ATET | -0.010 | -0.006 | -0.012 | -0.015* |
| | (0.105) | (0.009) | (0.009) | (0.008) |
| Observations | 16,632 | 64,441 | 13,547 | 64,313 |
| # of firms | 1,558 | 10,403 | 1,558 | 10,403 |
| ***% sales to Corporates*** | | | | |
| Avg. Post ATET | 0.027 | 0.025 | -0.003 | -0.011 |
| | (0.022) | (0.022) | (0.017) | (0.016) |
| Observations | 6,681 | 30,156 | 6,630 | 30,066 |
| # of firms | 965 | 5,642 | 965 | 5,642 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on Callaway and Sant'Anna (2021), implemented through the csdid2 command in Stata17. SE clustered at the firm level in parentheses.

**Heterogeneity by Frequency of Use**

RF usage varies substantially across adopters. On average, firms use RF for 2.9 quarters, and more than half of adopters use the product for at least three quarters (Table A2). To explore heterogeneity in treatment effects, we estimate separate effects for firms with fewer than three

quarters of RF use and those with three or more quarters.[7]

Table 8 shows that the positive association between RF adoption and sales is concentrated among firms with more sustained usage. Firms with shorter durations of RF use exhibit increases primarily along the extensive margin, with limited effects on overall sales. These estimates should be interpreted as descriptive evidence of heterogeneity rather than causal evidence of persistence or learning, as usage intensity is itself an endogenous firm choice.

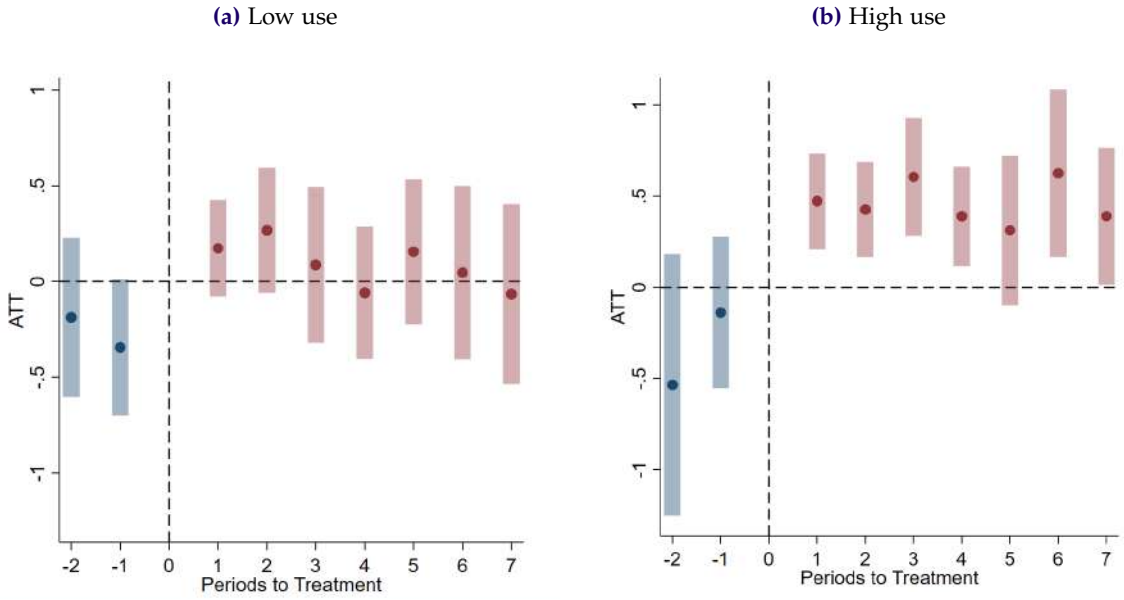
**Table 8.** Effect of Reverse Factoring by Frequency of Use

| | (1) | (2) |
|---|---|---|
| | $<$ 3 **quarters** | $\geq$ **3 quarters** |
| ***ln (sales)*** | | |
| Avg. Post ATET | 0.086 | 0.460*** |
| | (0.152) | (0.125) |
| Observations | 13,606 | 13,516 |
| # of firms | 1,557 | 1,520 |
| ***ln (average clients)*** | | |
| Avg. Post ATET | 0.363*** | 0.460*** |
| | (0.106) | (0.117) |
| Observations | 13,606 | 13,516 |
| # of firms | 1,557 | 1,520 |
| ***ln(sales/average clients)*** | | |
| Avg. Post ATET | -0.277** | 0.000 |
| | (0.117) | (0.091) |
| Observations | 13,606 | 13,516 |
| # of firms | 1,557 | 1,520 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on Callaway and Sant'Anna (2021), implemented through the csdid2 command in Stata17. SE clustered at the firm level in parentheses.

[7]The three-quarter cutoff is chosen for expositional purposes based on the empirical distribution of RF usage; alternative thresholds yield similar results.

**Figure 4.** Effect of Reverse Factoring on Firm Performance by Frequency of Use




**Notes:** Estimates based on Callaway and Sant'Anna (2021).

**Robustness Checks**

As a robustness exercise, we re-estimate the main specifications using traditional TWFE models (Columns 3 and 4 of Table 5, Table 6 and Table 8; and Table 9 Panel A). Although TWFE estimates may be biased in settings with staggered treatment adoption, the estimated coefficients are broadly consistent in both magnitude and sign with those obtained from the matched DiD approach.

We also assess the sensitivity of our results to the composition of the control group. Excluding never-treated firms does not materially affect the estimates. Attempts to impose a fully balanced panel result in a sample that is too small for reliable inference; accordingly, we do not report these results. Finally, controlling for the simultaneous use of other financial products available on the platform leaves estimates largely unchanged (Table 9, Panel B), suggesting that the findings are not driven by exposure to multiple financial products.

Overall, while these robustness checks cannot fully eliminate all concerns related to selection and pre-treatment dynamics, they reinforce the main conclusion that RF adoption is associated

with a short-run increase in firm sales, primarily driven by expansion along the extensive margin. Taken together, the results provide consistent evidence that improved access to short-term liquidity facilitates client acquisition and transaction growth, rather than reflecting underlying differences in pre-treatment trends or firm characteristics.

**Table 9.** Robustness Checks – Traditional TWFE and Additional Controls

| | (1) **ln(sales)** | (2) **ln(average clients)** | (3) **ln(sales/ average clients)** |
|---|---|---|---|
| **Panel A: Frequency of use** | | | |
| RF = 1 × Use of RF $<$ 3 quarters | 0.208* | 0.381*** | -0.173** |
| | (0.120) | (0.096) | (0.085) |
| RF = 1 × Use of RF $\geq$ 3 quarters | 0.521*** | 0.407*** | 0.114 |
| | (0.109) | (0.086) | (0.081) |
| P-val equality | 0.051* | 0.837 | 0.014** |
| Observations | 64,304 | 64,304 | 64,304 |
| **Panel B: Controlling for multiple treatments** | | | |
| RF = 1 | 0.334*** | 0.383*** | -0.049 |
| | (0.084) | (0.067) | (0.061) |
| Observations | 64,304 | 64,304 | 64,304 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on traditional TWFE. SE clustered at the firm level in parentheses.

## 5 Conclusions

This paper examines the effects of RF on the growth of MSMEs in Mexico, drawing on two complementary data sources: a survey of MSMEs associated with two RF platforms and a business network platform, and administrative data from a third RF platform. By combining these sources, the analysis provides a comprehensive view of firm financing behavior and performance outcomes.

Descriptive evidence from the survey suggests that RF constitutes a relatively low-cost source

of financing for MSMEs. By lowering the cost of working capital, RF appears to alleviate short-term liquidity constraints faced by small firms. At the same time, survey responses indicate that, for a subset of firms, RF adoption may be associated with longer payment tenors, potentially offsetting part of the benefits derived from lower financing costs. These patterns are consistent with prior empirical evidence and align with the trade-offs highlighted in theoretical models of supply chain finance.

Using administrative panel data and DiD methodologies, we find that RF adoption is associated with a statistically significant increase in firm sales. The estimated effects are driven primarily by expansion along the extensive margin, as adopting firms experience a substantial increase in the number of active clients following adoption. These findings are consistent with the interpretation of RF as a liquidity-enhancing instrument that relaxes working capital constraints, enabling MSMEs to scale their operations and expand their customer base.

We further document meaningful heterogeneity in treatment effects. Firms that use RF for three or more quarters exhibit larger and more persistent gains than those with shorter usage durations. While these patterns should be interpreted with caution—given that usage intensity is itself an endogenous choice—they suggest that sustained access to RF may enhance firm ability to utilize the instrument effectively, potentially through learning effects or improved financial planning.

Several important questions remain for future research. A key area concerns the allocation of liquidity obtained through RF. It remains unclear whether firms primarily allocate these funds to day-to-day working capital needs, operational improvements, or longer-term investment activities. A deeper understanding of how firms deploy RF-linked liquidity would help elucidate the mechanisms underlying the observed performance effects and distinguish between short-term scaling and more persistent growth channels.

Another promising avenue for further research is the relatively low adoption rates of RF among eligible firms. Identifying the determinants of initial take-up, as well as the factors that differentiate firms that persist in using RF from those that discontinue its use, remains an open question. Similarly, the motivations and constraints shaping anchor firm decisions to imple-

ment RF programs are not well understood. Addressing these questions—potentially through experimental or quasi-experimental designs—could provide valuable insights into the barriers to adoption and the conditions under which RF delivers the greatest benefits for both suppliers and buyers.

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# Appendix

**Appendix Table A1.** Dictionary of Variables Included in the Administrative Database

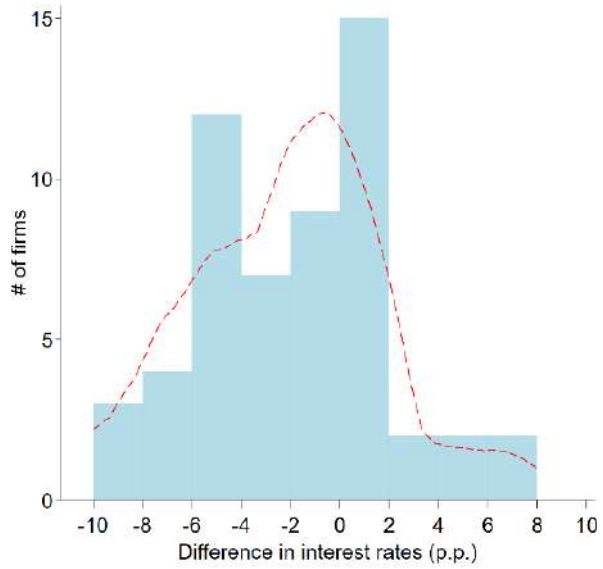
| Variable number | Variable description |
|---|---|
| 1 | Firm ID |
| 2 | Year |
| 3 | Month-year |
| 4 | Number of invoices financed with Factoring (#) |
| 5 | Total amount financed with Factoring (MXN) |
| 6 | Average tenor of invoices financed with Factoring (days) |
| 7 | Number of invoices financed with Reverse Factoring (#) |
| 8 | Total amount financed with Reverse Factoring (MXN) |
| 9 | Average tenor of invoices financed with Reverse Factoring (days) |
| 10 | Number of invoices financed with Payments (#) |
| 11 | Total amount financed with Payments (MXN) |
| 12 | Average tenor of invoices financed with Payments (days) |
| 13 | Sales (MXN) |
| 14 | Purchases (MXN) |
| 15 | Expenses (MXN) |
| 16 | Number of active clients in the reference month (#) |
| 17 | Percentage of sales concentrated by the main 3 clients (%) |
| 18 | Number of invoices to corporative clients (#) |
| 19 | Amount of invoices to corporative clients (MXN) |
| 20 | Number of active suppliers in the reference month (#) |
| 21 | State |
| 22 | Postal code |
| 23 | Sector (SCIAN code) |
| 24 | Business age |
| 25 | Date of Buro data extraction |
| 26 | Number of closed debt (#) – Buro (last observation) |
| 27 | Amount of closed debt (MXN) – Buro (last observation) |
| 28 | Number of active debt (#) – Buro (last observation) |
| 29 | Amount of active debt (MXN) – Buro (last observation) |
| 30 | Credit default over 180 days (dummy) – Buro (last observation) |

**Appendix Table A2.** Frequency of Reverse Factoring Use

| Number of quarters of RF use | Number of firms |
|---|---|
| 1 | 51 |
| 2 | 34 |
| 3 | 26 |
| 4 | 8 |
| 5 | 5 |
| 6 | 12 |
| 7 | 6 |
| 8 | 6 |
| 9 | 3 |
| Total | 151 |

***Source:*** Authors' own elaboration based on administrative data.

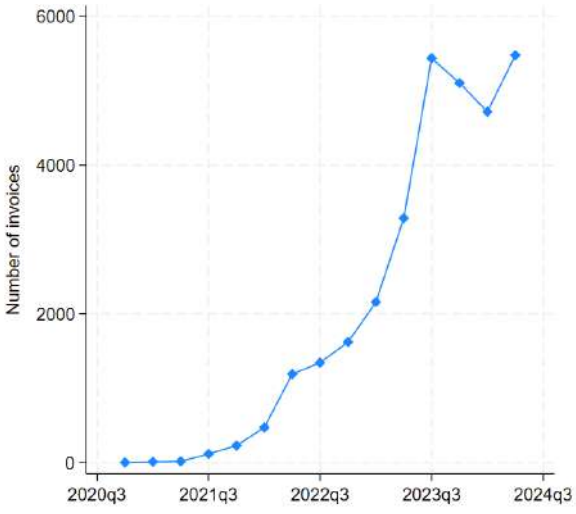
**Appendix Figure A1.** Reported Differences in Interest Rates Within and Outside Reverse Factoring in Women-led MSMEs



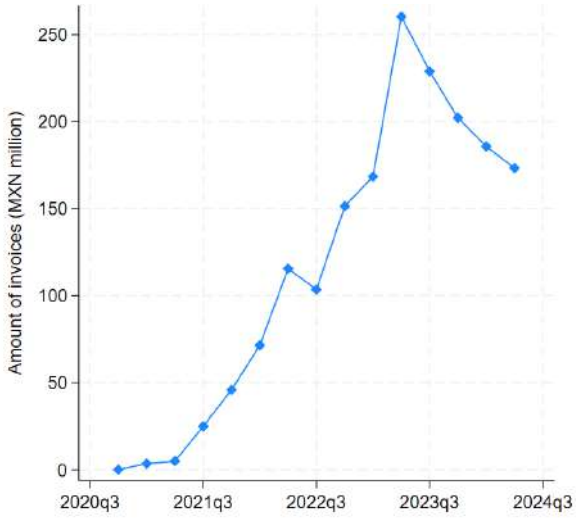

**Source:** Authors' own elaboration based on survey data.

## **Appendix Figure A2.** Reverse Factoring Use

**(a)** Number of invoices



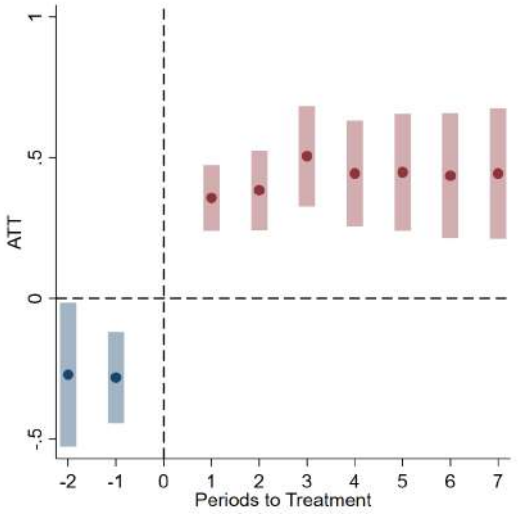

**(b)** Amount of invoices (MXN million)



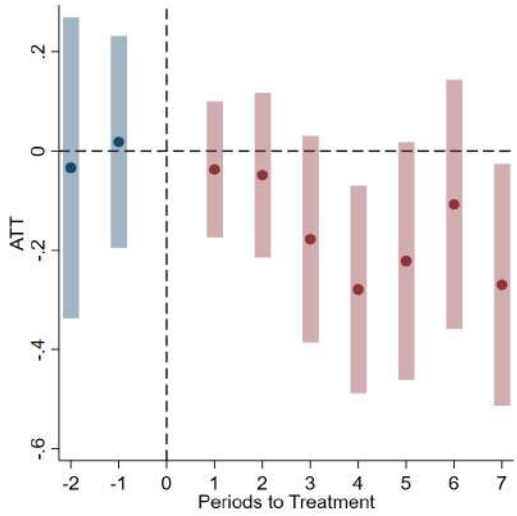

**Source:** Authors' own elaboration based on administrative data.

## **Appendix Figure A3.** Effect of Reverse Factoring on Extensive vs. Intensive Margin

**(a)** Ln (average clients)




**(b)** Ln (sales/average clients)

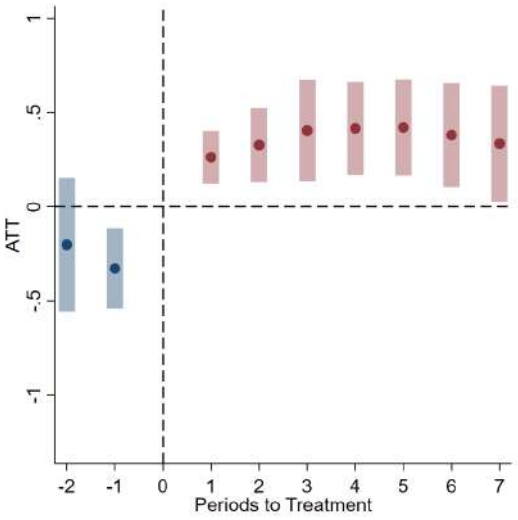



**Notes:** Estimates based on Callaway and Sant'Anna (2021).

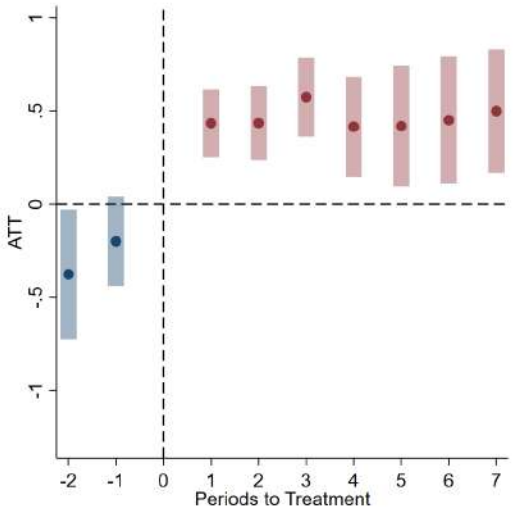
**Appendix Figure A4.** Effect of Reverse Factoring by Frequency of Use

**Ln (average clients)**

**(a)** Low

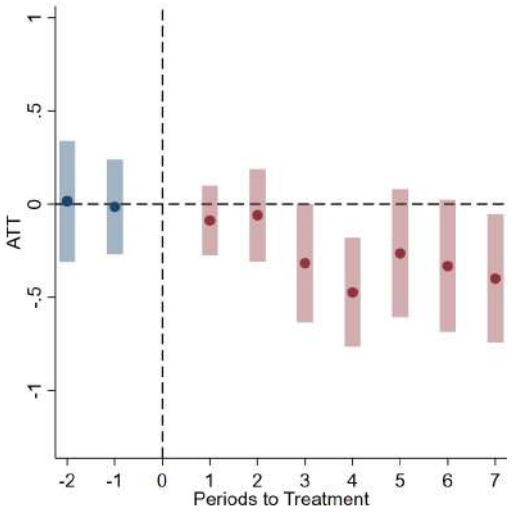



**(b)** High

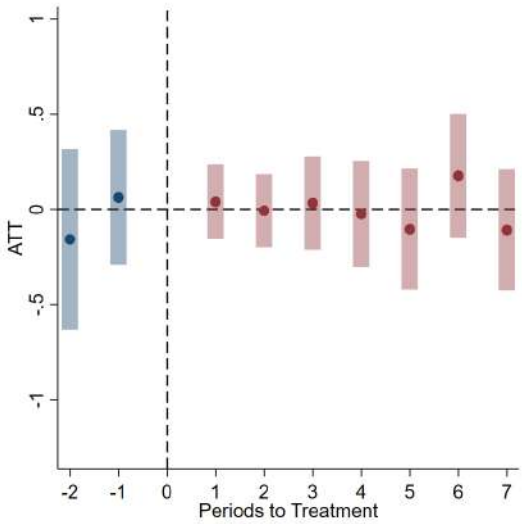



**Ln(sales/average clients)**

**(c)** Low




**(d)** High




**Notes:** Estimates based on Callaway and Sant'Anna (2021).

**Appendix Table A3.** Effect of Reverse Factoring on Sales Concentration by Frecuency of Use

| | (1) $<$ 3 **quarters** | (2) $\geq$ **3 quarters** |
|---|---|---|
| ***% sales Top 3*** | | |
| Avg. Post ATET | 0.000 | -0.019 |
| | (0.013) | (0.017) |
| Observations | 13,612 | 13,522 |
| # of firms | 1,557 | 1,520 |
| ***% sales to Corporates*** | | |
| Avg. post ATET | 0.007 | 0.043 |
| | (0.032) | (0.030) |
| Observations | 6,697 | 6,586 |
| # of firms | 970 | 926 |

Notes: * p<0.10, ** p<0.05, *** p<0.01. Estimates based on Callaway and Sant'Anna (2021), implemented through the csdid2 command in Stata17. SE clustered at the firm level in parentheses.