Empowering Growth: A Longitudinal Analysis of Financial Literacy's Impact on Colombian Small Businesses*

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Abstract

This study investigates the causal effects of financial literacy (FL) on the performance and operational characteristics of Micro, Small, and Medium-sized Enterprises (MiPymes) in Colombia. Exploiting a large-scale randomized controlled trial (RCT) involving over 1,000 firms, we analyze unique longitudinal data combining pre- and post-intervention owner-manager surveys with administrative business records (RUES) spanning 2019-2024. Our identification strategy employs instrumental variables (IV) to account for imperfect program compliance and difference-in-differences (DiD) to assess long-term impacts. We find that the FL intervention led to significant positive long-run effects on MiPyme performance, notably increased income and employment, without elevating detrimental debt levels. Furthermore, the program enhanced entrepreneurs' financial attitudes, promoted sounder financial behaviors, and improved organizational capabilities. Our results provide robust causal evidence disentangling the channels through which FL fosters MSME growth and sustainability, offering valuable insights for policy aimed at economic development and poverty reduction.

JEL Codes: G53, D22, L25, O12, C93

Keywords: Financial Literacy, Randomized Controlled Trial, Business Performance, Colombia

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1 Introduction

The pervasive challenge of small and medium-sized enterprise (SME) failure, despite their critical role as engines of job creation and economic dynamism globally (ICSB, 2019, World Trade Report, 2016), underscores an urgent need to identify effective levers for their growth and survival. In Colombia, where MSMEs constitute 95% of businesses and 60% of national employment (Colombian Ministry of Commerce, 2023), this issue is particularly salient, as a substantial majority succumb within their initial five years (Calvino et al., 2015). A growing body of literature points towards deficient managerial capabilities, notably in financial literacy (FL), as a significant contributor to these high failure rates (Ganotakis, 2010, Haliassos et al., 2020).

While the benefits of FL for personal financial well-being are well-documented (Lusardi and Mitchell, 2014), its causal impact on MSME performance, operationalized through specific financial attitudes, behaviors, and organizational capabilities, remains less understood, particularly in developing economies. Existing research on FL in MSMEs is sparse, especially in Latin America where a mere 1.4% of such studies have been conducted (Graña Álvarez et al., 2022). This paper addresses this critical gap by providing rigorous, longitudinal evidence on the multifaceted impacts of an FL intervention on Colombian MiPymes. Our primary contribution lies in disentangling the channels through which FL influences firm outcomes—financial attitudes, behaviors, organizational capabilities, and ultimately, long-run performance—using a robust experimental design with long-term administrative data follow-up. We specifically exploit the randomized assignment of a large-scale financial education program, addressing endogeneity concerns inherent in observational studies and providing insights into the persistence of treatment effects.

The impetus for this investigation is further amplified by Colombian policy initiatives, such as CONPES 3956 (2019), which champions financial education to bolster business formalization and decision-making. Seizing this momentum, Bancoldex's Banca de las Oportunidades launched a pilot Financial Education RCT Program for MiPymes in 2021. This program, designed based on established pedagogical principles and behavioral economics insights (Drexler et al., 2014, Campos et al., 2017), provides a valuable

experimental setting to assess the causal effects of FL. The details of this intervention are elaborated in Section 2.

Guided by a theoretical framework where financial education sequentially influences financial attitudes, behaviors, and organizational capabilities, thereby impacting firm performance (Graña-Alvarez et al., 2024), this study investigates the central question: How does financial literacy affect financial attitude, financial behavior, organizational capabilities and, crucially, the long-run[1] performance of MiPymes in Colombia?

To answer this, we leverage a unique dataset originating from surveys conducted before (2021) and immediately after (2022) the randomly assigned intervention (Bancoldex, 2022), capturing rich information on firm and managerial characteristics, financial knowledge, attitudes, and practices. Critically, we augment this survey data with administrative records from the Unified Business and Social Register (RUES) spanning 2019 to 2024, enabling an assessment of long-term performance metrics such as income and employment. Our empirical strategy employs a difference-in-differences (DiD) approach for long-run estimations and an instrumental variable (IV) model to address imperfect compliance in the short/medium-term survey data, using the initial random assignment as the instrument. This combination of experimental design, rich longitudinal data, and robust econometric techniques allows for a credible identification of causal effects.

Our findings reveal that participation in the financial literacy program leads to significant improvements in MiPyme income and job creation in the long run, without a concomitant rise in detrimental debt levels, suggesting enhanced financial prudence. The FL course also positively impacted financial attitudes, behaviors, and organizational capabilities. These results, derived from both IV and DiD models, strengthen the causal interpretation of FL's benefits. Beyond validating public investment in financial education, our study illuminates the pathways—enhanced planning, productivity, and formalization—through which FL fosters MSME development. However, we also highlight nuances, such as the complex relationship between financial product holding and actual usage, meriting further investigation.

[1]We consider 6 years (2019-2024) as comprising the long-run evaluation period, aligning with the average lifetime considerations for MSMEs in emerging contexts and data availability.

The existing literature broadly supports the positive role of FL. For instance, improved FL is associated with better financial attitudes, encouraging proactive financial management and reducing aversion to formal financial tools (Ekanem, 2013; Koropp et al., 2013). It also fosters sounder financial behaviors, such as the adoption of accounting systems, prudent credit use, and effective cash flow management (Nitani et al., 2020; Sayinzoga et al., 2016), and can enhance organizational capabilities, particularly financial accessibility through improved interaction with lenders (Bongomin et al., 2017; Hussain et al., 2018). While these linkages are recognized, our study contributes by providing robust causal evidence from a large-scale intervention within a developing country context, tracing effects over an extended period and across multiple firm dimensions.

This paper proceeds as follows: Section 2 details the intervention. Section 3 describes the data sources. Section 4 outlines our identification and empirical strategy. Section 5 presents the main findings. Finally, Section 6 discusses the implications and concludes.

2 The Financial Education Program for MiPymes

The intervention evaluated in this study is the "Programa de Educación Financiera para Mipymes" (Financial Education Program for MiPymes), designed and implemented by Bancoldex's Banca de las Oportunidades program in collaboration with the Bogotá Chamber of Commerce (CCB) and other key partners, including Confecámaras and 22 regional Chambers of Commerce who facilitated outreach (Bancoldex, 2022). The program's development was informed by the Colombian national policy for business formalization (CONPES 3956 of 2019), which identified financial education as a key instrument for improving entrepreneurial decision-making, and an analysis of existing financial education offerings, which were often virtual, extensive in content, and lacked rigorous impact evaluation (Bancoldex, 2022).

This led to the creation of a targeted, free virtual course aimed specifically at microentrepreneurs in Colombia from manufacturing, service, and commercial sectors—a segment chosen for its significant representation in the national economy yet relatively

lower financial inclusion indicators (Bancoldex, 2022). The content itself was developed by the temporary union Innovación y Finanzas (Dokuma, Clever Finance, and Critertec) (Bancoldex, 2022).

To cater to adult learners and enhance engagement, the program's pedagogical design was multifaceted, integrating four core methodologies (Bancoldex, 2022). Firstly, it employed **Andragogy**, focusing on the adult learning process by acknowledging participants' accumulated knowledge and experiences and prioritizing teachings with direct practical applications. Secondly, **Transmedia Education** was utilized to enrich the student experience; a miniseries served as a central narrative, complemented by various interactive tools, such as a simulation game, and diverse evaluation components to explore different facets of each topic. Thirdly, the **E-learning** (Online Education) format provided flexible access to all materials, including visual resources, audio content, readings, and examples, thereby making the individual learning process adaptable to participants' schedules and paces. Finally, **Gamification** techniques were applied, specifically through a simulation game, to influence behavior and bolster knowledge acquisition among the entrepreneurs. The diverse range of materials developed for the program included a central miniseries (9 chapters), along with supplementary testimonial videos (5), animated micro-capsules (18), infographics (8), audio files (12), and the aforementioned simulation game, as detailed visually in Figure 1 and conceptually in Diagram 1 of Bancoldex (2022).

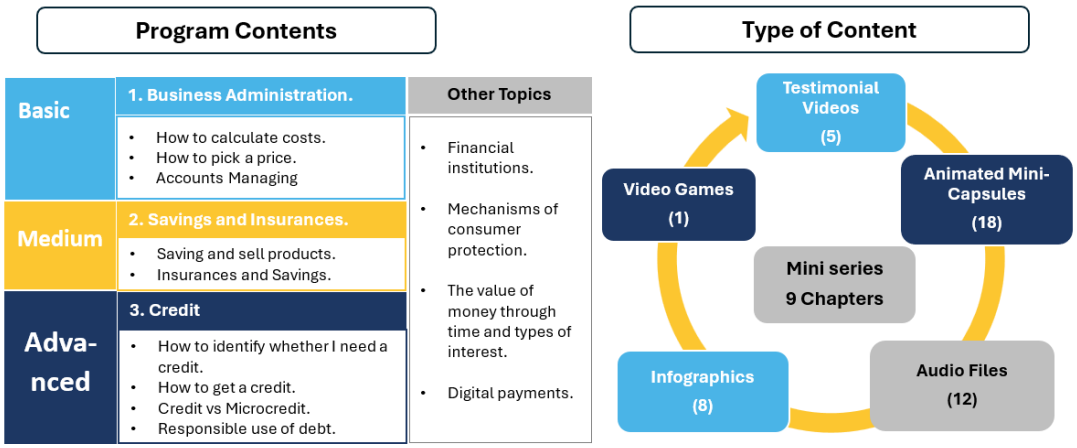

Figure 1: Overview of the Financial Education Program's Content Structure and Material Types. (Adapted from Banca de las Oportunidades (Bancoldex, 2022))

The curriculum itself, depicted on the left side, and the detailed content type, on the

right side, of the figure1 (Bancoldex (2022)), were structured based on established literature and incorporated principles from behavioral economics to address common cognitive biases among entrepreneurs (Arráiz-Pérez et al., 2020; Bancoldex, 2022). The program was organized into three main modules. The first module, **Business Administration**, was specifically designed to help entrepreneurs grasp the importance of separating personal and business accounts, offering practical guidance on its implementation, alongside a simple methodology for product costing and price setting. Following this, the second module addressed **Savings, Emergency Funds, and Business Investment**. This section covered strategies for saving, establishing emergency funds, and making sound business investments, and also discussed the generalities of insurance, with an emphasis on those offering coverage against financial shocks frequently encountered by MSMEs. The final core module focused on **Credit**, highlighting the financing opportunities available to micro-entrepreneurs, outlining the steps to acquire credit (and related insurance products), and providing instruction on effective debt management.

Beyond these core modules, cross-cutting themes, referred to as "Other topics," were also incorporated briefly and simply. These supplementary topics provided general information about key institutions such as the Central Bank (Banco de la República) and Fogafín (protecting savings through deposit insurance), as well as supervisory and regulatory bodies like the Financial, Solidarity Economy, and Industry and Commerce Superintendencies. Mechanisms for consumer protection and fundamental financial concepts, including the time value of money and different types of interest rates, were also covered (Bancoldex, 2022). Throughout the program, "nudges"—such as simplifying choices, using relatable narratives, and positive framing—were actively employed to encourage healthier financial behaviors (Bancoldex, 2022).

The course was disseminated between October and November 2021, with participants accessing it via Bancóldex's Virtual Campus or, for those affiliated with the Bogotá Chamber of Commerce, its website application (Bancoldex, 2022). Enrollment was followed by random assignment among 1,043 firms in 2021. Of these, 520 firms were assigned to the treatment group (offered the course) and 523 to the control group. Due to the

nature of voluntary online courses, 111 firms in the treatment group actually completed the program. For the follow-up survey in 2022 (conducted by Proyectamos Colombia, approximately four months after course completion for the treated), data was collected from these 111 completers and 351 firms from the control group (Bancoldex, 2022). After integrating administrative data from the Unified Business and Social Register (RUES) for long-term performance analysis, the final analytical sample consisted of 79 firms in the treated group and 351 in the control group, as depicted in Figure 2.

Despite the sample attrition inherent in longitudinal studies involving voluntary participation, the resulting analytical sample retains sufficient statistical power for detecting meaningful effects. Specifically, with 79 treated MiPymes and 351 control MiPymes in the final RUES-linked sample, we maintain 80% power to detect moderate effect sizes (Cohen's d = 0.5) at a 5% significance level, assuming a two-tailed test. Further details on the power calculations can be found at this link.

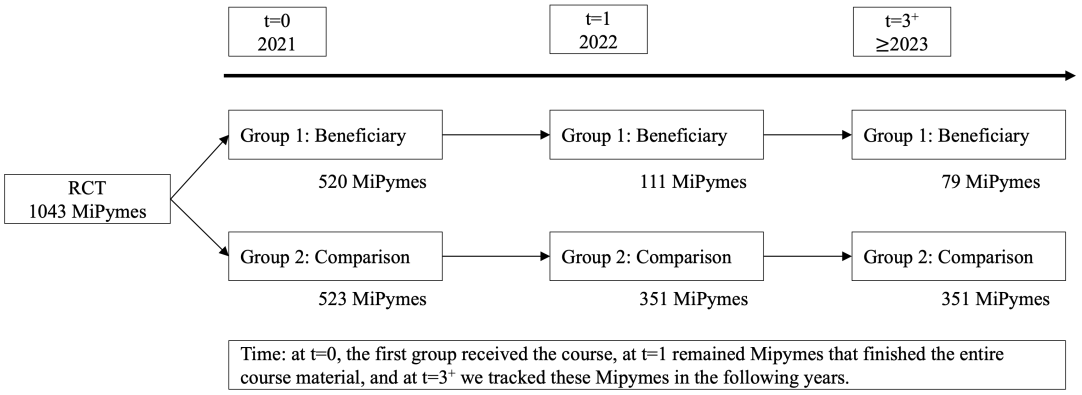

Figure 2: Flow of MiPyme participants through the Randomized Controlled Trial (RCT) stages. (Adapted from Bancoldex (2022))

3 Data

The primary data for this study originate from a Randomized Controlled Trial (RCT) conducted by Bancoldex (2022) involving MiPyme owner-managers in Colombia. Data collection occurred in two main waves: a baseline (entry) survey conducted in 2021 as individuals enrolled for the financial education program via virtual platforms, and a follow-up survey administered approximately four months after program completion

in 2022, primarily via telephone. Participants affiliated with the Bogotá Chamber of Commerce accessed the course and initial survey through its website, while others used Bancóldex's Virtual Campus.

3.1 Survey Data

The two survey phases collected general and socioeconomic information about the microentrepreneurs and their firms, such as gender, business age (seniority), participation in other courses, and region. They also included measures of business formality, economic sector, company size, and others essential for control variables and baseline balance checks.

- **Baseline Survey (2021):** This survey gathered detailed information on:
  - Owner-manager sociodemographics (gender, age, education, etc.).
  - Firm characteristics (business age/seniority, sector, initial employee count, legal formality status, geographic region).
  - Prior training/experience (participation in other courses).
  - Baseline measures of financial capabilities, including:

    Financial Knowledge: Assessed through specific questions on concepts like compound interest.

    Financial Attitudes: Including risk preferences and views on debt/savings.

    Financial Behaviors & Practices: Such as budgeting, record-keeping, and financial planning.

    Ownership and use of formal/informal financial products: Coverage of accounts, credit, insurance, and digital payment methods.

- **Follow-up Survey (2022):** While not identical to the baseline, this survey revisited key areas to capture changes, specifically focusing on financial knowledge, financial behavior, financial product ownership, and a composite measure of financial health. The financial health component was composed of three dimensions: (i)

Financial management and control; (ii) Resilience, financial planning, and savings; and (iii) Household-business nexus.

3.2 Administrative Data: Unified Business and Social Register (RUES)

To evaluate long-term financial performance, we augmented our survey data with objective, third-party reported administrative records from the Unified Business and Social Register (RUES) (*Registro Único Empresarial y Social*). RUES is a comprehensive national database maintained by the Chambers of Commerce in Colombia, containing mandatory registration and renewal information for all formal businesses. This data allowed us to track key performance indicators objectively.

- **Key Variables:** From RUES, we extracted annual data on:
  - *Total Assets:* A measure of the firm's accumulated wealth over time.
  - *Annual Income/Revenue:* An indicator of business activity and profitability, reflecting operations.
  - *Number of Registered Employees:* A crucial metric for job creation and business growth.
- **Time Period Covered:** We obtained RUES data spanning from 2019 to 2024, providing annual observations both pre-intervention (2019-2020) and post-intervention (2021-2024) to facilitate difference-in-differences analysis.
- **Data Linkage:** Firms from the survey data were linked to their RUES records using unique business identification numbers (NIT) or business names. The linkage process achieved a high match rate, ensuring data integrity for the longitudinal analysis.

3.3 Baseline Characteristics and Randomization Check

As detailed by Bancoldex (2022), a rigorous randomized controlled trial was conducted. The random assignment to treatment and control groups was effective in ensuring that, at baseline (2021), the groups were statistically similar across a wide range of observable characteristics. This comparability is critical for supporting the causal interpretation of our intervention. Table 7 and 8 present the results of chi^2 , and t statistically tests for mean comparisons, for categorical variables, and continuous or binomial variables, respectively.

In line with what was presented by Bancoldex, 2022, baseline characteristics and demographics of businesses are not different between the treated and none treated group. Moreover, Table 7 showed that after applying a chi^2 test for categorical variables almost all the financial outcomes were not statistically different in this categories between assigned and not assigned groups before the treatment period, furthermore, Table 8 presents a comprehensive overview of baseline characteristics for both the assigned to treat and the control group along with p-values estimated with a $t-test$, confirming the success of the randomization. For example, at baseline, the before mentioned groups have the same levels of use of credit, business account holdings, and use of financial products,among many others.

3.4 Attrition Analysis

While randomization ensures initial comparability, longitudinal studies often face attrition. To formally investigate whether attrition was systematically related to pre-program characteristics, we estimate a logit model where the dependent variable is a binary indicator for attrition between the initial sample enrollment and our medium-term follow-up. The regressors in this model include a comprehensive set of baseline firm and owner-manager characteristics. These encompass: owner's gender; categorical variables for economic sector (with commerce as the benchmark) and firm size (with micro-enterprises as the benchmark); company age ('Seniority', grouped into five ordered categories); participation in other financial courses; categorical measures of baseline financial knowledge and

risk behavior (ordered from high to low knowledge, and low to high risk, respectively); firm's reported assets, income, and number of employees in 2020; and a series of binary indicators for the holding or use of specific financial products or acceptance of various payment types. The results of this attrition analysis are presented in Table 1.

Table 1: Attrition Analysis: Determinants of Dropout for Mid-Term Evaluation

Variable	**Coef.**	**Std. Error**	**P-value**
Owner-Manager Characteristics			
Woman (1=Yes)	0.060	0.052	0.249
Financial Knowledge (1=High to 5=Low)	-0.044	0.034	0.191
Interest Compounding Knowledge (1=Yes)	0.004	0.045	0.925
Risk Behavior (1=Low to 7=High)	-0.017	0.012	0.178
Intuitive Decisions (Scale)	-0.002	0.021	0.938
Attended Other Courses (1=Yes)	-0.007	0.052	0.887
Firm Characteristics (Baseline 2020 or earlier)			
Seniority (1=Newest to 5=Oldest)	0.016	0.020	0.434
Sector: Manufacture (vs. Commerce)	-0.082	0.083	0.326
Sector: Services (vs. Commerce)	-0.042	0.053	0.431
Size: Small (vs. Micro)	-0.067	0.063	0.287
Size: Medium (vs. Micro)	0.008	0.130	0.951
Size: Large (vs. Micro)	0.278	0.378	0.463
Assets (2020)	0.000	0.000	0.014**
Income from Main Activity (2020)	0.000	0.000	0.029**
Number of Employees (2020)	0.000	0.006	0.946
Financial Practices & Products (Baseline)			
Accounting: Mental Only (1=Yes)	-0.045	0.105	0.666
Accepts Invoice (15-30 days) (1=Yes)	0.005	0.059	0.938
Credit Demand: None (1=Yes)	-0.041	0.055	0.448
Credit Demand: Other (1=Yes)	0.039	0.148	0.794
Takes High-Risk Projects (1=Yes)	0.011	0.021	0.612
Holds Digital Wallets (1=Yes)	0.122	0.090	0.175
Holds Investments (1=Yes)	0.522	0.187	0.005***
Holds Microcredit (1=Yes)	-0.014	0.077	0.851
Holds Personal Account Only (1=Yes)	-0.093	0.053	0.080*
Saves via Stocks/Currencies (1=Yes)	-0.234	0.238	0.327
Uses Digital Wallets (1=Yes)	-0.154	0.091	0.091*
Uses No Financial Products (1=Yes)	-0.104	0.084	0.215
Observations			411
Pseudo-R^2 McFadden			0.04544

Note: Results from a logit model where the dependent variable is a binary indicator of attrition between the initial sample and the mid-term follow-up (Attrition=1). Standard errors are robust. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Variables 'Assets (2020)' and 'Income from Main Activity (2020)' coefficients are very small positive values. Detailed variable definitions and scale interpretations are provided in Section 3.

The statistics presented in Table 1 offer insights into the correlates of attrition. While many baseline characteristics do not significantly predict dropout, several key financial indicators exhibit statistically significant associations. Specifically, firms with higher reported assets and income in 2020, as well as those holding investments at baseline, were significantly more likely to attrit from our medium-term follow-up. Conversely, firms holding only a personal account or using digital wallets for their financial products showed a marginally lower propensity to attrit. The low overall Pseudo-R^2 (0.045) suggests that these observable baseline characteristics explain a relatively small portion of the variation in attrition. However, the presence of systematic attrition correlated with these pre-treatment firm financial characteristics underscores the potential for selection bias in naive Ordinary Least Squares (OLS) or simple mean-comparison estimates of the program's impact.

4 Identification and Empirical Strategy

Evaluating the causal impact of financial education programs on Micro, Small, and Medium Enterprises (MSMEs) is often complicated by selection biases. Firms that choose to participate in or complete such programs may systematically differ from those that do not, in ways that also correlate with their financial outcomes. Furthermore, longitudinal studies, such as our evaluation of medium-term impacts, face the challenge of attrition, where firms drop out from follow-up surveys. If this attrition is non-random, it can further bias the estimated program effects. This section details our strategy to address these challenges and identify the causal impact of the financial education program.

4.1 Identification

The initial study design, as detailed in the accompanying program report (Bancoldex, 2022), employed a Randomized Controlled Trial (RCT), where MiPymes were randomly assigned to a treatment group (offered the financial education course) or a control group (not immediately offered the course). This randomization is the cornerstone of our iden-

tification strategy. In an ideal scenario with full compliance and no attrition, random assignment ensures that, on average, the treatment and control groups are comparable in terms of both observed and unobserved pre-program characteristics, allowing any subsequent differences in outcomes to be attributed to the program.

However, realizing this ideal scenario is complicated by two primary factors in our context: imperfect compliance with treatment assignment (i.e., not all firms offered the course completed it) and participant attrition, particularly in longitudinal follow-ups. The original program report notes a high rate of desertion even in the short-term follow-up (Bancoldex, 2022). For our medium-term evaluation, which utilizes survey data collected more than one year after course completion, attrition is an even more significant concern. To formally investigate whether this attrition is systematically related to pre-program characteristics, we estimate a logit model where the dependent variable is a binary indicator for attrition between the initial sample enrollment and our medium-term follow-up. The regressors in this model include a comprehensive set of baseline firm and owner-manager characteristics. These encompass: owner's gender; categorical variables for economic sector (with commerce as the benchmark) and firm size (with micro-enterprises as the benchmark); company age ('Seniority', grouped into five ordered categories); participation in other financial courses; categorical measures of baseline financial knowledge and risk behavior (ordered from high to low knowledge, and low to high risk, respectively); firm's reported assets, income, and number of employees in 2020; and a series of binary indicators for the holding or use of specific financial products or acceptance of various payment types. The results of this attrition analysis are presented in Table 1.

Given the indications of the possibility of non-random attrition, coupled with the inherent self-selection into actual program completion (as detailed in Section 2), relying solely on comparing program completers to non-completers or to the control group without further adjustment would likely yield biased estimates. Therefore, to obtain credible causal estimates of the program's effect on medium-term outcomes (derived from survey data), we employ an Instrumental Variable (IV) strategy. The initial random assignment to the treatment group serves as a powerful and exogenous instrument for actual

program completion. This IV approach, detailed below, allows us to leverage the experimental design to address both the self-selection into course completion and potential biases arising from non-random attrition, thereby estimating a Local Average Treatment Effect (LATE).

4.2 Empirical Strategy

Our empirical strategy employs two primary econometric models to assess the impact of the financial education program: an Instrumental Variable model for medium-term outcomes and a Difference-in-Differences model for long-run performance.

4.2.1 Instrumental Variable (IV) Model for medium-term Impacts

To estimate the causal effect of completing the financial education program on MSMEs' medium-term financial outcomes (measured via the follow-up survey), we use a Two-Stage Least Squares (2SLS) IV approach. The instrument, denoted as Z_i, is a binary variable indicating whether firm i was initially randomly assigned to the treatment group (i.e., offered the financial education course). The endogenous variable, D_i, represents the actual treatment received, defined as the completion of the financial education course. The medium-term financial outcome for firm i is denoted by Y_i.

The first stage of our 2SLS model regresses the endogenous treatment variable D_i on the instrument Z_i and a vector of baseline control variables X_i:

$$D_i = \alpha_0 + \alpha_1 Z_i + X_i' \gamma_1 + u_i \tag{1}$$

Here, α_1 captures the effect of being assigned to the treatment group on the probability of actually completing the course. The control variables X_i include baseline firm and owner-manager characteristics such as sector, size, age, and pre-program financial knowledge and behaviors, as collected in the initial survey. These controls serve to improve the precision of our estimates. We report the F-statistic for the excluded instrument from this first-stage regression in Section 5 to assess instrument relevance.

The second stage regresses the medium-term financial outcome Y_i on the predicted values of treatment completion from the first stage, $\hat{D}_i$, and the same set of control variables X_i:

$$Y_i = \beta_0 + \beta_1 \hat{D}_i + X_i' \gamma_2 + e_i \tag{2}$$

The coefficient β_1 is our parameter of interest, representing the LATE – the average causal effect of completing the financial education course on medium-term financial outcomes for firms whose participation status was determined by their random assignment (i.e., "compliers").

The validity of the LATE estimate derived from this IV strategy hinges on several key assumptions. First, the **relevance** condition necessitates that the instrument, Z_i (random assignment to the program offer), must be correlated with the endogenous treatment variable, D_i (actual course completion); that is, $\alpha_1 \neq 0$ in Equation 1. Given that random assignment directly determined eligibility and access to the course, a strong positive correlation is anticipated, an assumption we empirically verify by examining the first-stage F-statistic (reported in Section 5).

Second, the **exclusion restriction** posits that the instrument Z_i affects the outcome Y_i solely through its influence on the treatment status D_i, and not via any alternative pathway, once the effects of baseline control variables X_i are accounted for. In the context of our study, this implies that the mere random assignment to the program invitation should not directly impact a firm's medium-term financial outcomes other than by influencing whether the firm ultimately completed the financial education course. The design of the Randomized Controlled Trial, where the only systematic difference intentionally introduced between the groups was the offer of the program, provides strong theoretical support for this assumption, as there are no other plausible channels through which assignment alone would affect outcomes for those who did not take up the offer.

Third, the **independence** assumption, also referred to as the exogeneity of the instrument, requires that Z_i be independent of potential outcomes and potential treatment statuses. More practically, this means that Z_i must be uncorrelated with the error terms u_i and e_i in Equations 1 and 2. The random assignment process itself is designed to en-

sure this assumption holds, as Z_i is determined by a random process and is therefore, by construction, uncorrelated with any pre-existing observed or unobserved characteristics of the firms that might also influence outcomes or treatment uptake.

Finally, for the estimated β_1 to be interpreted as a LATE, the **monotonicity** assumption must be satisfied. This assumption implies that there are no "defiers"—that is, no firms that would have completed the course if they had been assigned to the control group but chose not to complete it when assigned to the treatment group (or vice-versa in a way that reverses the expected effect of the instrument). In the context of a voluntary educational program offered to one group and not another, this assumption is highly plausible; it is unlikely that being offered the program would cause a firm to forgo participation it otherwise would have undertaken.

The advantage of this IV approach is its ability to leverage the exogenous variation from random assignment to overcome biases from self-selection into course completion and potential biases from non-random attrition related to unobservables correlated with both attrition and outcomes.

4.2.2 Difference-in-Differences (DiD) Model for Long-Run Impacts

To evaluate the potential dynamic and long-run effects of being offered the financial education program on firm performance (measured via administrative RUES data), and as a complementary analysis to our IV estimates, we employ a Difference-in-Differences (DiD) specification. This model compares the change in outcomes from the pre-intervention period to the post-intervention period between firms assigned to the treatment group and those assigned to the control group. The basic DiD specification is:

$$Y_{it} = \theta_0 + \theta_1 Treat_i + \sum_{k \neq \text{ref}} \theta_{2k} \text{TimePeriod}_{kt} + \delta(Treat_i \times Post_t) + \alpha_i + \varepsilon_{it} \qquad (3)$$

Where Y_{it} is the outcome (e.g., revenue, number of employees) for firm i at time t. $Treat_i$ is an indicator variable equal to one if firm i was assigned to the treatment

group, and zero otherwise. TimePeriod_{kt} denotes a set of time dummies for each period k, excluding one reference period. $Post_t$ is an indicator variable equal to one for periods after the intervention began. The interaction term $Treat_i \times Post_t$ captures the difference-in-differences (DiD) estimator, with δ representing the average treatment effect — that is, the differential change in outcomes for the treatment group relative to the control group after the intervention. α_i captures firm fixed effects, accounting for time-invariant unobserved heterogeneity across firms. ε_{it} is the idiosyncratic error term.

A key identifying assumption for the DiD model is the parallel pre-trends assumption: in the absence of treatment, the average change in outcomes for the treatment group would have been the same as for the control group. The RCT design, by ensuring baseline comparability between the groups on average, provides strong support for the plausibility of this assumption holding prior to the intervention. This DiD approach offers an intent-to-treat (ITT) perspective on the program's average impact over time using objective administrative data.

5 Results

5.1 Long Term Impacts on Business Performance

According to Graña-Alvarez et al., 2024 all the expected and desired effects of Financial Literacy (FL) on MSME's are oriented to improve directly or indirectly their performance. In this study the performance would be evaluated over the value of the assets of a company, their income of any source and their number of employees. Table 2 presents the estimations derived from DiD model (Equation 3), without clusters, clustering by business ID and the number of observations in each model.

Table 2: Long term effects (2019-2024)

Financial Performance			
Dependent Variable (Standardized)	**Fixed Effects Model (1)**	**Fixed Effects (ID cluster) Model (2)**	**Observations**
Assets	0.024 (0.170)	0.024 (0.048)	3144
Income	0.111 (0.131)	0.111* (0.043)	2873
Employees	0.085* (0.041)	0.085* (0.049)	3147

Note: This table presents the results obtained by the DiD model (Equation 3). Across rows, the dependent variable changes. Across columns, the model changes, with the main difference being that Model (2) includes clustering by business ID. All three dependent variables considered are numeric and standardized, meaning $\hat{\beta}_j$ reveals the estimated effect of being treated and in the post-treatment period in standard deviations of y. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Consistent with the literature, all the estimated effects of the treatment shown in Table 2 are positive, which suggests that the intervention is associated with a general improvement in financial performance of MSME's. In regards of income, being treated is associated significantly with an increase of 0.111 standard deviations in a confidence level of 90%. As for number of employees, on both estimations the treatment showed a 0.085 standard deviation increase, at the same significance level. Nonetheless, there is no evidence suggesting that completing the course motivates businesses to increase their asset holdings.

5.2 Mechanisms to explain business performance changes

As presented in the Context (Section 2), financial literature (FL) might impact other business areas before it actually impacts MSME's performance (Graña-Alvarez et al., 2024). FL may have an effect on financial attitudes, financial behavior and organizational capabilities. That is why, Table 3 and figure 3 classify the dependent variables; over which the treatment showed a significant effect; by this areas, helping us to understand the implications of the found financial course impacts.

Pertaining to **financial attitudes** it was estimated an average increase of 24 percentage points in the likelihood of understanding how compound interest rate works and an average reduction in the likelihood of not being able to cover all business expenses with the obtained income (25.9 percentage points), due to the treatment. Besides, treated firms are on average 0.51 levels lower in payment default that they would be without a treatment, which means that they presented a reduction in the untimeliness of their payments. These three results are deeply linked with the counted of the course in which they learned types of interest (Other topics), how to be responsible with the use of debt (Credit) and how to calculate costs (Business Administration) (Figure 1).

The estimations by MCO presented biased estimations pointing towards an average improvement, due to the treatment, on the likelihood of not needing a loan to cover a monthly income if an negative external shock impacts the firm (12.4 percentage points), a reduction in the likelihood of accepting bank transfers (9.1 pp) and an increase in the likelihood of accepting other payment methods different from cash, checks, bills to be pay on the next 15 days, digital wallets transfers, debit and credit cards (3.5 pp). Meanwhile, it was estimated that due to the treatment firms may be 0.19 levels higher in their self-evaluated financial ignorance, 0.16 levels higher in their payment default and 9.6 pp less likely of using digital wallets. contraindicative facing the increase in their compound interest understanding and the presented improvement on payments timeliness.

For its part, **financial behavior** the fact of finishing the course was related with an average decrease in the likelihood of asking for a credit (28.8 pp), saving money by investing in other businesses (24.2 pp) and using saving accounts for the business(19.9pp). The decreasing credit demand can be explained by the acquiring knowledge on compound interest, that is, by understanding the risk and the increasing value of a debt, the treated MSME's might had decreased their desire of asking for a loan. At the same time, they understood the value of the earned money in a way that they rather keep it and use it their business instead of investing it in other businesses. In turn, it is not convenient before the targeted formality a decrease on using saving accounts, but that might be because of a lack of understanding on how can that product be profitable for a MSME,

instead of considering it an extra cost.

The MCO estimations, on their end, showed the treated group of firms on an average higher positioning in no financial planning and a decreasing average likelihood of using digital wallets and saving money by no conventional ways including borrowing it, buying commodities, leaving it on an account, keeping it in cash or partaking on a friends "chain"[2], all of this compared to the none treated group. This findings are not very indicative of an improvement in formalization of MSME's, for its part, the no financial planning still labeled as bias, since improvement in timeliness of payments and capacity to cover all expenses with income showed upgrades by IV estimations.

Finally, in terms of **Organizational Capabilities** the treatment group presented a 24.6 pp increase in the likelihood of holding saving accounts for the firm. This finding indicates the FL implications on formality, nonetheless more research should be applied in financial inclusion for MSME's, inasmuch the fact of holding a financial product doesn't imply the use of it, and with the use of it comes the observable information by financial institutions and public entities to understand better the business nature, its financial sustainability and how to address it. Given that, the MCO estimators indicated an average decrease in the likelihood of holding micro insurances (1.9 pp) and a 0.42 lower level on the timed required by the firm to restore its normal condition after a negative shock, compared to the control group.

[2]A chain in Colombia correspond to a group o people who saves money with a certain frequency and gives the money to just one member at a time, while the others will receive the total amount saved on one round of funding at other periods.

Table 3: Impacts of financial literacy on financial features.

Dependent Variable	MCO	IV
Financial Attitudes		
AbilityToCoverNeedsWithoutLoan	0.124 (0.056)**	-0.106 (0.157)
AcceptsPayments_BankTransfer	-0.091 (0.052)*	0.057 (0.143)
AcceptsPayments_Others	0.035 (0.021)*	0.001 (0.058)
InCapabilityCoverExpenses	0.061 (0.055)	-0.259 (0.154)*
FinancialIgnorance	0.197 (0.099)**	0.055 (0.272)
KnowledgeOfCompoundInterest	0.022 (0.041)	0.24 (0.116)**
Paymentdefault	0.168 (0.091)*	-0.515 (0.259)**
UseOfDigitalWallets	-0.096 (0.038)**	-0.06 (0.104)
Financial Behavior		
CreditDemand	0.026 (0.056)	-0.288 (0.156)*
NoFinancialPlaning	0.129 (0.074)*	-0.001 (0.204)
Savings_Other	-0.107 (0.048)**	0.019 (0.133)
Savings_OtherBusinesses	-0.028 (0.036)	-0.242 (0.101)**
UseFinancialProducts_DigitalWallets	-0.092 (0.041)**	-0.066 (0.109)
UseFinancialProducts_SavingsAccount	-0.045 (0.037)	-0.199 (0.106)*
Organizational Capabilities		
HoldingFinancialProducts_SavingsAccount	0.015 (0.053)	0.246 (0.149)*
HoldingInsurance_Microinsurance	-0.034 (0.019)*	0.035 (0.053)
MonthsToRestoreNormalSituation	-0.423 (0.135)***	0.152 (0.376)
Observations Mean	**765**	

Note: This table presents the results obtained by the MCO and IV models (Equation 2). The majority of the variables are binomials indicating if the firm fulfills the condition framed by the name of the variable (equal to 1) or not (equal to 0). Nevertheless, Financial ignorance, payment default, no financial planning and months to restore normal situation are categorical variables logically ordered, in a way in which for example the greater the category in months to restore normal situation the greater the time needed by the firm to accomplish a normal situation after a external shock. Consequently, when y_i is binomial the $\hat{\beta}_j$ revels the average variation, after being treated, in the linear probability of meeting the condition framed by the specific variable. In turn, when y_i is categorical the interpretation is the average shift in category, due to treatment. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

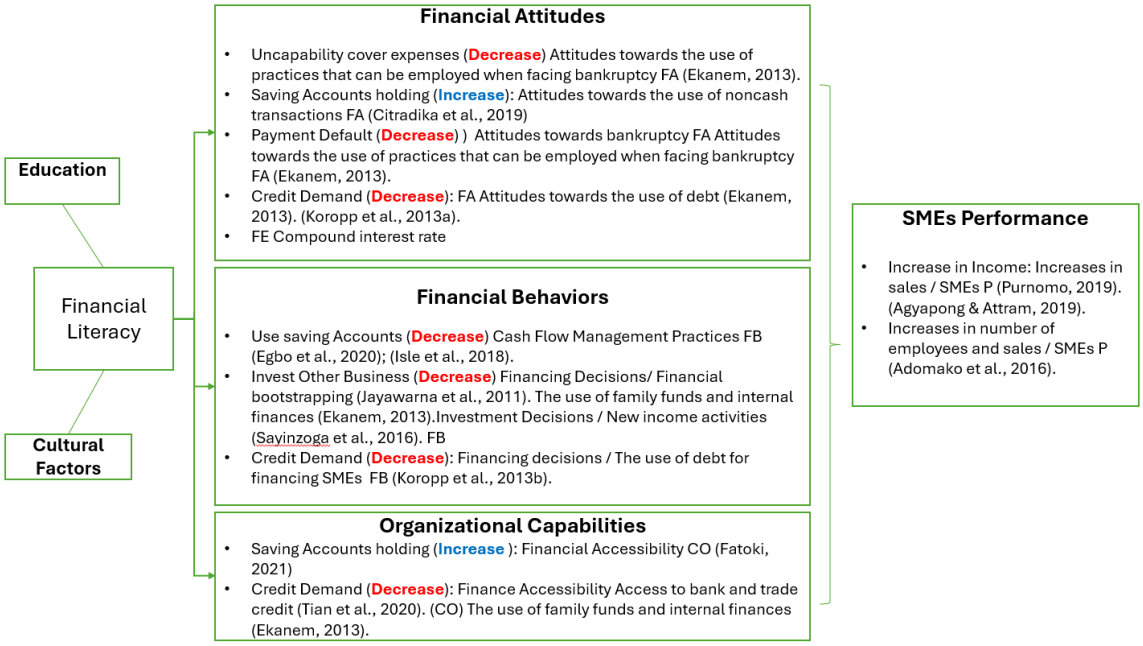

Figure 3: Info-graphics of Table 3 based on the financial literature framework presented by Graña-Alvarez et al., 2024.

5.3 Heterogeneities: Gender, Sector and Size

Statistically evidence was found to affirm that the course didn't have the same impact over all types of people, sectors and company sizes. Regarding to **Gender**, presented in Table 4. When it comes to financial attitude just the woman presented statiscally significat estimations, which suggest a reduction in the likelihood of covering expenses with the earned income (42.1 pp) and average negative shift in payment default category (0.69), compared to control; in spite of that the estimation showed a 28.8 increase in woman's likelihood of understanding compound interest. In the other hand, In terms of financial behavior man presented increases in their likelihood of saving money on an account (40 pp) and a lowering in their likelihood of using saving accounts (29.6 pp), which is logic to think when create a bank account has never been this easy but using it implies much more knowledge and trust. Woman, in turn, presented a drop in their likelihood of demand credit(57.1 pp) and invest in other business as a method to save money (38.7 pp), compared to no treated woman. Finally, the course showed a 25.4 pp expand in the mans likelihood of holding a micro-credit, impacting man business organizational capabilities.

In terms of **Sector** (Table 5), the evidence suggests that manufacture was the most impacted sector in financial attitude matters, showing a climb in the likelihood of accept digital transfers (77.2 pp) and use digital wallets (36 pp), while services presented a drop in their likelihood of being incapable to cover expenses with their income (52.2 pp). Financial behavior was the broader impacted area, according to the estimations, which points at services as the most influenced sector showing improvements in credit demand, use of checking accounts and savings; while manufacture sector showed an overall improvements in savings, including an ease in the risk faced by their savings (lower cryptocurrencies); in commerce we observed a decrease likelihood of using credit products and savings, compensated for a positive impact on the likelihood of using of financial products.

Regarding organizational capabilities, in manufacture showed, due the treatment, a decrease likelihood of holding responsibility insurance and a rise likelihood in holding saving accounts and financial products in general. Meanwhile in commerce, the estimations pointed towards a decrease in the likelihood of holding credit products and an average positive increasing average shift in the time needed to recover from a negative shock. Finally, in financial performance, commerce presented an average decrease in their category of "other expenses" pointing towards a more efficient use of the income and manufacture showed a drop in the average shift in the category of company size, also pointing as a better self understanding of the capacity of the firm.

Lastly, when it comes to **Company Size** (Table 6) in terms of financial attitude Pymes (Small and medium enterprises) showed an average drop in the likelihood of having the capability of cover expenses with their income and accepting payments invoices (15 or 30 days), for its part micro enterprises (the smallest) showed a negative average shift in their payment default category. However, on financial behavior a highly significant lowering in the likelihood of demanding credit by the micro firms along with a drop in the likelihood of higher risk savings like cryptocurrencies and investing on other business. Notwithstanding, for pymes it was estimated a step up in the likelihood, due to the treatment, of covering expenses with income and of using financial products, along with

a decrease in the probability of using digital wallets, which indicates the dichotomy between holding financial products but not using them. Finally, there where two main significant estimations in micro enterprises: a higher likelihood of holding saving accounts for (Organizational capabilities) and a drop in the average shift on company size category (Financial performance), due to the treatment.

6 Discussion

In regards of financial attitude, we observed an improvement in financial planning, due to the upgrade on the capability to cover expenses with a monthly income and the compliance or timeliness in obligations payment.

An step up of knowledge about how interest works, impacted financial attitude, and influenced financial behavior by decreasin credit demand.

In line with the better understanding of interest comes the valuation of money at a present time, and how it should be invested ideally to grow the owned business intead of investing on other businesses.

The increase on the number of employees expresses the acquired behavior in which one seeks the grow their personal business in order to earn more income

When it comes to formality, a deeper research shall be conducted. Nevertheless we observed a increase holding of financial products, specifically in saving accounts, however the use of the same product showed a drop, which may suggest that there may not be significant constraints to be included to the financial system, but ones ability and understanding of the products, which is related with cognitive bias of trust or a lack of training.

Gender: In terms of woman, their increase understanding of compound interest led them to a decrease in credit demand. Therefore, their financial attitude influenced their behavior in this regard.

Woman showed a improvement on their timeliness to pay their obligations, which is related with their prioritization in their use of income, also expressed in the decrease

saving by invest on other businesses.

In terms of improvements in financial behavior, the data show an increase in savings account ownership among men. However, in line with the general findings, the use of savings accounts decreased. Further research is needed to investigate this finding, as it suggests the presence of cognitive bias or lack of training. One striking finding related to the heterogeneities for men is the increased use of microcredit.

Sector: Services endorsed the main findings by showing an improvement on the capability to cover expenses with their own income, and a drop in the demand of credit, along with a decrease in investing in other businesses. Suggesting that this sector in general improved their planning capacity and their responsible use of debt.

Manufacture, on its part, reinforce what we found on the main results by framing an increase likelihood of using saving accounts, while at the same time a decline in the use of the same product. Which may point to the fact that having access to a bank account has never been this easy, but the lack of training and trust on how to use them and why are they helpful still insufficient.

Interesting enough, commerce presented boosted their savings with cash mainly, which puts forward the challenge of informality that needs to be addressed in this sector. Business Size: The most significant findings, when reviewing the results of heterogeneities by size in detail, are reported by micro-enterprises. These include important improvements in the culture of debt payment, reduced reliance on credit, and a tendency to avoid saving in favor of investing in other types of businesses. Notably, these businesses show the lowest use of products like savings accounts, despite an increase in their ownership. It is important to highlight that small and medium-sized enterprises demonstrate an improved ability to cover business expenses, an increased use of financial products in general, and signs of formalization.

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7 Appendix

7.1 Initial Data Balance.

7.2 Differential impacts by Gender.

Table 4: Heterogeneities by Gender

	IV Models	
Variable	**Man**	**Woman**
Financial Atittude		
AbilityToCoverNeedsWithoutLoan	0.142 (0.214)	-0.421 (0.229)*
KnowledgeOfCompoundInterest	0.212 (0.165)	0.288 (0.163)*
Paymentdefault	-0.296 (0.347)	-0.699 (0.384)*
Financial Behavior		
CreditDemand	-0.05 (0.212)	-0.571 (0.236)**
Savings_Account	0.4 (0.183)**	-0.023 (0.192)
Savings_OtherBusinesses	-0.11 (0.137)	-0.387 (0.15)**
UseFinancialProducts_SavingsAccount	-0.296 (0.154)*	-0.097 (0.147)
Organizational Capabilities		
HoldingFinancialProducts_Microcredit	0.254 (0.14)*	-0.145 (0.134)
Observation Mean	**341**	**394**

Note: This table presents IV estimations (Equation 2). Each column defines the population evaluated (Man or Woman). The majority of the variables are binomials indicating if the firm fulfills the condition framed by the name of the variable (equal to 1) or not (equal to 0). Nevertheless, payment default is a categorical variables logically ordered, 1 if all the bills were payed on time, 2 if the majority, 3 if few and 4 if none were payed on time. Consequently, when y_i is binomial the $\hat{\beta}_j$ revels the average variation, after being treated, in the linear probability of meeting the condition framed by the specific variable. In turn, when y_i is categorical the interpretation is the average shift in category, due to treatment. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

7.3 Differential impacts by Sector.

Table 5: Heterogeneities by Sector

Variable	IV Models		
	Commerce	**Manufacture**	**Services**
Financial Attitude			
InCapabilityCoverExpenses	-0.284 (0.253)	0.375 (0.399)	-0.522 (0.233)**
DigitalTransferPayments	-0.09 (0.253)	0.772 (0.394)*	-0.19 (0.23)
UseOfDigitalWallets	-0.08 (0.175)	0.36 (0.19)*	-0.161 (0.17)
Financial Behavior			
CreditDemand	-0.373 (0.259)	-0.125 (0.394)	-0.386 (0.232)*
CreditProducts	-0.44 (0.225)*	-0.169 (0.363)	0.205 (0.217)
DepositProducts	-0.073 (0.185)	0.45 (0.216)**	0.129 (0.162)
NumberOfAssociates	-1.926 (5.295)	0.189 (1.455)	-1.098 (0.636)*
Savings	-0.369 (0.154)**	-0.204 (0.318)	0.167 (0.146)
Savings_Cash	-0.343 (0.176)*	0.14 (0.264)	0.214 (0.166)
Savings_Chain	-0.102 (0.092)	0.333 (0.189)*	-0.014 (0.1)
Savings_CryptoCurrency	-0.07 (0.087)	-0.27 (0.161)*	-0.077 (0.075)
Savings_none	0.07 (0.128)	0.39 (0.289)	-0.307 (0.152)**
Savings_OtherBusinesses	-0.282 (0.173)	-0.026 (0.234)	-0.28 (0.151)*
UseFinancialP_CheckingAccount	0.006 (0.589)	-1 (1.427)	1.56 (0.821)*
UseFinancialProducts_SavingsAccount	-0.262 (0.231)	-0.545 (0.302)*	-0.078 (0.137)
UseOfFinancialProducts	0.512 (0.28)*	0.429 (0.368)	-0.031 (0.208)
Organizational Capabilities			
Holding_ResponsibilityInsurance	0.005 (0.141)	-0.45 (0.216)**	-0.075 (0.084)
HoldingFinancialProducts	-0.136 (0.181)	0.36 (0.19)*	0.081 (0.146)
HoldingFinancialProducts_Credit	-0.549 (0.215)**	-0.329 (0.348)	0.16 (0.205)
HoldingFinancialProducts_None	0.143 (0.17)	-0.27 (0.161)*	-0.053 (0.144)
HoldingFinancialProducts_SavingsAccount	-0.067 (0.245)	0.772 (0.379)**	0.225 (0.212)
MonthsToRestoreNormalSituation	1.198 (0.669)*	-0.423 (0.855)	-0.45 (0.522)
Financial Performance			
OtherExpenses2024	-1.5 (0.844)*	-0.741 (0.882)	0.43 (0.612)
CompanySize	-0.338 (0.344)	-0.615 (0.357)*	-0.207 (0.255)
Observation Means	**256**	**74**	**245**

Note: This table presents IV estimations (Equation 2). Each column defines the sector evaluated (Commerce, Manufacture and Services). The majority of the variables are binomials indicating if the firm fulfills the condition framed by the name of the variable (equal to 1) or not (equal to 0). Nevertheless, Company size and months to restore normal situation are categorical variables logically ordered, in a way in which for example the greater the category in months to restore normal situation the greater the time needed by the firm to accomplish a normal situation after a external shock. Likewise Other expenses and Number of associates are numerical variables. Consequently, when y_i is binomial the $\hat{\beta}_j$ revels the average variation, after being treated, in the linear probability of meeting the condition framed by the specific variable. In turn, when y_i is categorical the interpretation is the average shift in category, due to treatment. Lastly, when y_i is numerical the interpretation would be the average change in y_i after being treated. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

7.4 Differential impacts by Business Size.

Table 6: Heterogeneities by business size.

Variable	IV Models	
	Micro	**Pymes**
Financial Attitude		
AcceptsPayments_Invoices15-30days	-0.145 (0.169)	-0.49 (0.279)*
InCapabilityCoverExpenses	-0.195 (0.181)	-0.565 (0.302)*
Paymentdefault	-0.599 (0.301)**	0.144 (0.508)
Financial Behavior		
CoversExpensesWithIncome	-0.059 (0.134)	0.462 (0.236)*
CreditDemand	-0.506 (0.19)***	0.079 (0.288)
Savings_CryptoCurrency	-0.111 (0.063)*	-0.075 (0.105)
Savings_DigitalWallet	0.203 (0.131)	-0.316 (0.181)*
Savings_OtherBusinesses	-0.249 (0.113)**	-0.206 (0.218)
UseFinancialProducts_SavingsAccount	-0.284 (0.154)*	-0.084 (0.144)
UseOfFinancialProducts	0.061 (0.182)	0.562 (0.26)**
Organizational Capabilities		
HoldingFinancialProducts_SavingsAccount	0.313 (0.18)*	-0.164 (0.281)
Financial Performance		
CompanySize_2024	-0.172 (0.101)*	-0.154 (0.456)
Observations mean	**403**	**163**

Note: This table presents IV estimations (Equation 2). Each column defines the business size (Man or Woman). The majority of the variables are binomials indicating if the firm fulfills the condition framed by the name of the variable (equal to 1) or not (equal to 0). Nevertheless, Company Size and payment default are categorical variables logically ordered, for example payment-default is equal to 1 if all the bills were payed on time, 2 if the majority, 3 if few and 4 if none. Consequently, when y_i is binomial the $\hat{\beta}_j$ revels the average variation, after being treated, in the linear probability of meeting the condition framed by the specific variable. In turn, when y_i is categorical the interpretation is the average shift in category, due to treatment. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

7.5 Balance of the sample before the treatment.

Table 7: Sample balance before the treatment (Chi2 - Test)

Variable	ITT_0	ITT_1	Chi-squared (p-value)
Financial product mix per employee	0.197309	0.208617	0.833
Financial knowledge	0.100897	0.111111	0.356
Knowledge of interest rates	0.013453	0.009070	0.559
Risk behavior	0.184270	0.170068	0.202
Long-term planning	0.067797	0.075426	0.011**
Daily financial actions	0.055690	0.065693	0.146
High-risk projects	0.251816	0.265207	0.961
Expense review	0.087167	0.077859	0.709
Instinct-based decisions	0.295400	0.272506	0.521

Note: This table presents the proportions corresponding to the value 1 for each variable, segmented by assignment to the treatment group (ITT = 0 or ITT = 1). The last column reports the p-values from a χ^2 test. Finally, *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Sample balance before the treatment (t - Test)

Variable	ITT_0	ITT_1	t-test (P value)
Other training courses	0.455357	0.424036	0.347
Ownership of financial product 1	0.390135	0.297052	0.003***
Ownership of financial product 2	0.556054	0.594104	0.252
Ownership of financial product 3	0.156951	0.201814	0.082*
Ownership of financial product 4	0.365471	0.340136	0.43
Ownership of financial product 5	0.112108	0.072562	0.042**
Ownership of financial product 6	0.199552	0.201814	0.933
Ownership of financial product 7	0.024664	0.027211	0.812
Ownership of financial product 8	0.123318	0.149660	0.254
Use of financial product 1	0.643498	0.641723	0.956
Use of financial product 2	0.154709	0.204082	0.056*
Use of financial product 3	0.360987	0.337868	0.471
Use of financial product 4	0.026906	0.029478	0.817
Use of financial product 5	0.181614	0.183673	0.937
Accepted payments 1	0.876404	0.904762	0.177
Accepted payments 2	0.123596	0.142857	0.400
Accepted payments 3	0.741573	0.748299	0.819
Accepted payments 4	0.233708	0.231293	0.932
Accepted payments 5	0.417978	0.401361	0.616
Accepted payments 6	0.231461	0.224490	0.805
Accepted payments 7	0.200000	0.197279	0.919
Accepted payments 8	0.177528	0.170068	0.770
Accepted payments 9	0.033708	0.052154	0.176
Credit demand 1	0.331839	0.317460	0.648
Credit demand 2	0.118834	0.129252	0.638
Credit demand 3	0.004484	0.002268	0.569
Credit demand 4	0.035874	0.036281	0.974
Credit demand 5	0.047085	0.049887	0.846
Credit demand 6	0.141256	0.176871	0.147
Credit demand 7	0.475336	0.428571	0.162
Credit demand 8	0.017937	0.054422	0.004***
Use of credit 1	0.417040	0.434091	0.608
Use of credit 2	0.053812	0.070455	0.306
Use of credit 3	0.044843	0.050000	0.718
Use of credit 4	0.082960	0.075000	0.661
Use of credit 5	0.116592	0.104545	0.568
Use of credit 6	0.047085	0.059091	0.426
Use of credit 7	0.426009	0.388636	0.258
Use of credit 8	0.051570	0.063636	0.442
Business accounts 1	0.500000	0.498866	0.973
Business accounts 2	0.325112	0.331066	0.850
Business accounts 3	0.053812	0.052154	0.912
Business accounts 4	0.204036	0.235828	0.254
Business accounts 5	0.105381	0.102041	0.871
Business accounts 6	0.035874	0.038549	0.834
Savings 1	0.432735	0.446712	0.675
Savings 2	0.248879	0.213152	0.207
Savings 3	0.242152	0.238095	0.888
Savings 4	0.127803	0.102041	0.229
Savings 5	0.033632	0.031746	0.875
Savings 6	0.132287	0.106576	0.238
Savings 7	0.017937	0.043084	0.030**
Savings 8	0.170404	0.160998	0.707
Savings 9	0.020179	0.004535	0.035**
Savings 10	0.011211	0.015873	0.549
Savings 11	0.230942	0.278912	0.101
Savings 12	0.141256	0.129252	0.602
Assets 2021	2.52E+08	1.21E+08	0.120
Employees 2021	2.71521	1.598639	0.336
Revenues 2021	2.24E+08	1.4E+08	0.330

Note: This table presents the mean of each variable, segmented by assignment to the treatment group (ITT = 0 or ITT = 1). The last column reports the p-values from a t-test. Finally, *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.