

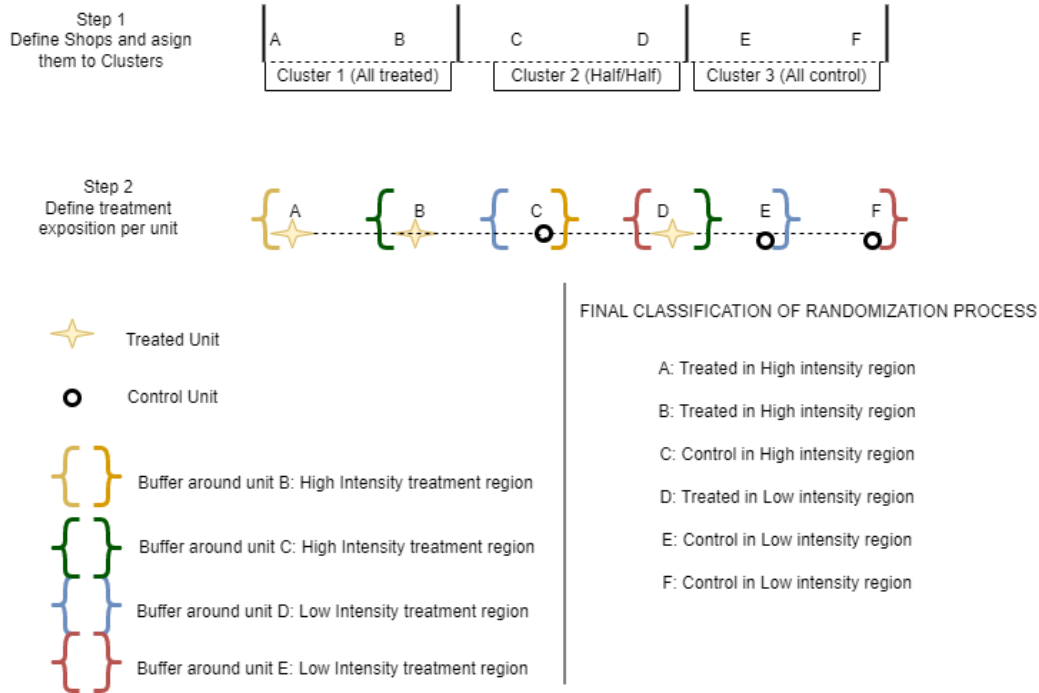
The role of local promoters in helping
microentrepreneurs engage in digital
business training. The case of
Exptienda

Supplementary Material

A Timeline adjustments due to COVID

Colombia's strict lockdown started in late March 2020 and gradually started to end by early May 2020. Between April and May, we conducted a telephonic survey to determine which businesses of the original sample survived the strict lockdown. With this information, we designed the randomisation of the sample for the intervention, scheduled to be carried on in the second half of 2020. The first outbreak peaked in August 2020, and after it, there was relative normality in economic activity. Yet, the intervention was postponed due to the start of a second outbreak that peaked in January 2021. While mobility and economic restrictions were not imposed, the intervention would have posed a risk to both the field workers and the entrepreneurs. Finally, when the new case numbers of infected people stabilised and the vaccination program ran massively throughout the country, we started the fieldwork in April 2021. The intervention finished at the start of the third outbreak, in the middle of massive strikes that affected some of the main cities of the country, but at this stage, it consisted of telephonic follow-ups.

H

Fig. A1 Diagram of the experimental design

Notes: This figure illustrates with a simple example the randomisation procedure. In Step 1, it is defined how each of the stores is assigned to the clusters. In Step 2, depending on the cluster, the type of treatment is determined at the individual level as follows: The star represents the treated unit and the circle for the control unit. Subsequently, in Step 3, buffers are created around each of the units. The colours yellow, green, blue and red correspond to the reference buffer of each of the units. Finally, on the right side, the kind of randomisation classification each of the units ends up with is presented.

- *Treated in high intensity (TH)*: microestablishments A and B.
- *Treated in low intensity (TL)*: microestablishment D.
- *Control in high intensity (CH)*: microestablishment C.
- *Control in low intensity (CL)*: microestablishments E and F.

B Costs and comparison with other studies

Table B1 Detailed costs of intervention

Activity	Cost (USD)
Diagnosis of business consulting needs	32,573.28
Qualitative research and pilot	57,003.25
Training program content development	32,573.28
Mobile application development maintenance	40,716.61
Total Fixed costs	162,866.44
Total variable costs (10 cities)	3,123.03
Total costs	165,989.48
Per capita fixed cost (644 treated units)	252.89
Per capita variable cost (644 treated units)	4.85

Table B2 Related experimental studies

Author	Cost (USD) per unit	Type	Treatment on	Effect
Davies et al. (2024)	50 to 56	Business training program over Zoom in nine 2-hour sessions over 4 weeks	Business practices	0.054*** (0.013)
Estefan et al. (2023)	440	Digital training, mobile application with reproducible video capsules	Business practices	0.050*** (0.015)
Attanazio et al. (2019)	22	Financial education via a tablet-based application	Financial knowledge	0.201** (0.033)
			Keeps written accounts	0.032 (0.020)
			Formal savings	0.030** (0.013)
Campos et al. (2017)	756	Personal initiative training	Business practices	0.054*** (0.007)
			Access to finance index	0.147*** (0.040)
de Mel et al. (2014)	126 to 131	Five day course	Profits	0.024 (0.075)
			Capital stock	-0.067 (0.062)
Anderson et al. (2014)	900	80 hours- 2 months	Business practices	0.260***
Karlan and Valdivia (2011)		22 weekly business training sessions	Formality	0.01 (0.011)
			Business knowledge	0.08 (0.055)

C Qualitative analysis

Fig. C1 Qualitative survey

Topical Guide	
TOPICS TO BE ADDRESSED	GUIDING QUESTIONS
1. Rapport	1.1. Moderator's presentation 1.2. Explain purpose of the interview and duration 1.3. Presentation of the shopkeeper (age, family composition, number of employees)
2. Covid-19 Context	2.1. How do you see your business 5 years from now? 2.2. How did the pandemic affect your business? 2.3. What were the main changes you had to make as a result of the pandemic? 2.4. What role does technology play in your business?
3. Deployment	3.1. How did you hear about the Expertienda (App) / Con-Hector training? 3.2. What did they tell you when they invited you to download the App or interact with the WhatsApp chat? 3.3. What motivated you to download the App or interact with the WhatsApp chat? (users) 3.3. Why were you not motivated to download the App or interact with the WhatsApp chat (non-users)?
4. Interaction with Expertienda	Questions for Expertienda users only: 4.1. How did the application go? 4.2. What did you like most about the application? 4.3. What do you remember about the application? 4.4. How long did it take you to complete the training? 4.5. At what times (day/times) did you conduct the training? 4.6. At some points did you have problems or were you unable to move forward? 4.7. What did you like least about the application? 4.8. Do you currently have the application downloaded? 4.9. Have you shared it with anyone else? 4.10. Have you recommended it to anyone? 4.12. Do you currently use the application? 4.13. In a few words: what was the main contribution of Expertienda to your business? Questions for Con-Hector users only: 4.1. How did you do with the WhatsApp chat? 4.2. What did you like most about the chat? 4.3. What do you remember about the chat? 4.4. What type of information do you most value having received through the chat?
5. Changes	Questions for Expertienda users only: 5.1. What is the content or message you remember most from the training? 5.2. Is there anything new you have started doing as a result of the training? 5.3. Have you considered any changes in your business as a result of the training? 5.4. Do you have any marketing and sales strategies that you have recently incorporated into your business? 5.5. Do you have a customer loyalty strategy that you have recently incorporated? 5.6. Do you have any strategies for managing your business that you have recently incorporated? 5.7. Do you have a strategy for managing your business finances that you have recently incorporated?
6. Suggestions	6.1. What suggestions do you have to improve our tools? 6.2. How would you like to be contacted in the future?

D Additional tables and analyses

Table D1 Variables description

Variable	Description
Owner has tertiary education	Describes the range of the education level of the microentrepreneurs, one if microentrepreneur holding tertiary education degrees (either professional or vocational), and zero otherwise
Female	One if the microentrepreneurs is a woman and zero otherwise
Located in a commercial zone	One if the microentrepreneur business is located in a commercial zone and zero otherwise
Internet use	One if firm uses internet or zero if not to carry out your economic activities related to your business
Number of Workers	Besides you, how many people on average have worked at this establishment in the last 12 months or in the months of operation?
Total depth of commercial space	How big is this business? Depth in metres
Total width of commercial space	How big is this business? Width in metres
Owner born in the same municipality	One if microentrepreneur born in the same municipality which operates the business and zero otherwise
How many clients (observed)	Number of customers observed on the day of the visit to conduct the survey
Computed profits	It refers to the monthly profits in US dollars
Some investment 2 years	One if the business was painted, making changes to furniture or other interior elements, among other activities, and zero otherwise.
How many employees	Number of employees observed on the day of the visit to conduct the survey
Has Social Networks	One if microentrepreneur has social networks like Whatsapp, facebook, among other, and zero otherwise
The shop has a sign with its name	One if the business has a sign with its name, and zero otherwise

Table D2 Intervention impact on take-up without controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Exptienda registered user		More than 5 minutes using the app		Heard of Exptienda	
Treated	0.0427*** (0.00874)		0.0258*** (0.00691)		0.124*** (0.0435)	
TH: treated in high intensity		0.0413*** (0.0102)		0.0235*** (0.00785)		0.137** (0.0634)
TL: treated in low intensity		0.0322* (0.0179)		0.0248 (0.0156)		0.116 (0.0787)
CH: non-treated in high intensity		-0.00865* (0.00499)		-0.00475 (0.00353)		0.0147 (0.0540)
Heard of Exptienda						
Observations	994	994	994	994	228	228
R squared	0.0399	0.0404	0.0228	0.0229	0.104	0.104
Dependent variable average	0.0332	0.0332	0.0191	0.0191	0.101	0.101
Dependent variable std. dev.	0.179	0.179	0.137	0.137	0.302	0.302

Note: Columns 1, 3 and 5 presents the regression coefficient for the treatment variable without controls variables. Columns 2, 4 and 6 present the coefficients for the categorization of treated in the high-treatment area (TH), treated in the low-treatment area (TL), and non-treated in the high-treatment area (CH), without control variables. Standard errors in parentheses. Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

Table D3 Intervention impact on take-up on the reinterviewed sample

	(1)	(2)	(3)	(4)	(5)	(6)
	Exptienda registered user		More than 5 minutes using the app		Heard of Exptienda	
Treated	0.0895*** (0.0265)		0.0670*** (0.0242)		0.110** (0.0491)	
TH: treated in high intensity		0.0667** (0.0308)		0.0492* (0.0295)		0.115* (0.0687)
TL: treated in low intensity		0.0641 (0.0539)		0.0693 (0.0537)		0.100 (0.0740)
CH: non-treated in high intensity		-0.0447* (0.0265)		-0.0241 (0.0231)		0.00219 (0.0544)
Owner has tertiary education=1	0.0331 (0.0516)	0.0313 (0.0518)	-0.0491 (0.0304)	-0.0499 (0.0309)	0.0326 (0.0539)	0.0325 (0.0543)
Owner age group=2	-0.0793 (0.0693)	-0.0768 (0.0755)	-0.0528 (0.0452)	-0.0444 (0.0548)	0.0493 (0.0802)	0.0442 (0.0779)
Owner age group=3	-0.00263 (0.0764)	0.00183 (0.0846)	-0.0415 (0.0461)	-0.0313 (0.0597)	0.0678 (0.0790)	0.0621 (0.0760)
Owner age group=4	0.0442 (0.0919)	0.0499 (0.0976)	-0.0441 (0.0569)	-0.0337 (0.0674)	0.148 (0.0931)	0.142 (0.0939)
Female Owner	-0.0172 (0.0359)	-0.0189 (0.0357)	-0.0252 (0.0268)	-0.0248 (0.0265)	0.0580 (0.0425)	0.0571 (0.0430)
Use internet for business	0.0807 (0.0493)	0.0814 (0.0497)	0.0807** (0.0398)	0.0813** (0.0401)	-0.0284 (0.0465)	-0.0286 (0.0468)
Located in a commercial zone	0.0413 (0.0414)	0.0413 (0.0418)	0.00769 (0.0260)	0.00667 (0.0264)	-0.0487 (0.0524)	-0.0479 (0.0530)
Formality index	-0.0416 (0.0617)	-0.0441 (0.0621)	0.0218 (0.0372)	0.0196 (0.0375)	-0.0644 (0.0886)	-0.0637 (0.0885)
Business practices index	0.0965 (0.0636)	0.0952 (0.0650)	0.0364 (0.0531)	0.0385 (0.0550)	0.0270 (0.0833)	0.0251 (0.0839)
Financial inclusion index	0.0417 (0.119)	0.0449 (0.120)	0.0584 (0.0652)	0.0592 (0.0663)	0.204* (0.110)	0.204* (0.110)
Owner has experience as entrepreneur	-0.0756 (0.0551)	-0.0745 (0.0553)	0.00528 (0.0418)	0.00667 (0.0419)	-0.0353 (0.0537)	-0.0359 (0.0543)
Observations	228	228	228	228	228	228
R squared	0.154	0.156	0.146	0.148	0.151	0.151
Dependent variable average	0.0746	0.0746	0.0395	0.0395	0.101	0.101
Dependent variable std. dev.	0.263	0.263	0.195	0.195	0.302	0.302

Note: Columns 1, 3 and 5 presents the regression coefficient for the treatment variable as well as controls variables such as gender, education, age, internet, localization, formalization, Business practices, financial inclusion, experience as entrepreneur, and fixed effects of activity and city.

Columns 2, 4 and 6 present the coefficients for the categorization of treated in the high-treatment area (TH), treated in the low-treatment area (TL), and non-treated in the high-treatment area (CH), with the same control variables. Standard errors in parentheses.

Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

Table D4 Intervention impact on take-up: Interactions by sex, internet use, age, education and business practices

	(1) Exptienda registration	(2) More than 5 minutes	(3) Exptienda registration	(4) More than 5 minutes	(5) Exptienda registration	(6) More than 5 minutes	(7) Exptienda registration	(8) More than 5 minutes	(9) Exptienda registration	(10) More than 5 minutes
Treated	0.0461*** (0.0136)	0.0334*** (0.0115)	0.0297** (0.0116)	0.0105 (0.00814)	0.0413*** (0.00956)	0.0278*** (0.00795)	0.0424*** (0.0109)	0.0322*** (0.00882)	0.0159 (0.0163)	0.0118 (0.0125)
Female Owner × Treated	-0.0109 (0.0185)	-0.0177 (0.0144)								
Use internet for business × Treated			0.0199 (0.0174)	0.0252* (0.0137)						
Young × Treated					-0.00668 (0.0215)	-0.0210 (0.0141)				
Owner has tertiary education × Treated							-0.00729 (0.0180)	-0.0250* (0.0132)		
Business practices index × Treated									0.0418 (0.0273)	0.0201 (0.0204)
Observations	994	994	994	994	994	994	994	994	994	994
R squared	0.0560	0.0483	0.0565	0.0493	0.0558	0.0483	0.0559	0.0491	0.0569	0.0478
Dependent variable average	0.0332	0.0191	0.0332	0.0191	0.0332	0.0191	0.0332	0.0191	0.0332	0.0191
Dependent variable std. dev.	0.179	0.137	0.179	0.137	0.179	0.137	0.179	0.137	0.179	0.137

Note: Columns 1, 3 and 5 presents the regression coefficient for the treatment variable as well as controls variables such as gender, education, age, internet, localization, formalization, Business practices, financial inclusion, experience as entrepreneur, and fixed effects of activity and city.

Columns 2, 4 and 6 present the coefficients for the categorization of treated in the high-treatment area (TH), treated in the low-treatment area (TL), and non-treated in the high-treatment area (CH), with the same control variables. Clustered standard errors ('cluster' level) in parentheses. Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

Table D5 ITT of the *Exptienda* intervention without Barranquilla y Bucaramanga

Outcome variable	(1) Mean	(2) N Obs/ Cluster	(3) Treatment	(4) TH	(5) TL	(6) CH
Score Total	0.41	195	0.042 (0.031)	0.033 (0.048)	-0.032 (0.049)	-0.036 (0.051)
Score Dim 1. Formal sector	0.42	195	0.086* (0.049)	0.037 (0.071)	0.017 (0.069)	-0.089 (0.078)
Score Dim 2. Business practices	0.53	195	0.008 (0.057)	0.052 (0.083)	-0.061 (0.097)	0.037 (0.084)
Score Dim 3. Financial inclusion	0.30	195	0.032 (0.033)	0.010 (0.054)	-0.053 (0.067)	-0.057 (0.064)
How many clients (observed)	4.98	195	-0.870 (0.959)	-3.275** (1.543)	-3.895** (1.496)	-4.206*** (1.505)
Computed profits (10 USD)	71.77	195	-68.363 (94.208)	54.810 (50.046)	-3.768 (49.309)	186.311 (189.337)
Use internet for business	0.48	195	0.153* (0.082)	0.182 (0.153)	0.105 (0.166)	0.023 (0.162)
Some investment 2 years	0.60	195	0.026 (0.088)	-0.024 (0.112)	-0.251* (0.128)	-0.156 (0.123)
How many employees (observed)	1.38	189	0.028 (0.110)	-0.254 (0.162)	-0.249 (0.229)	-0.328 (0.222)
Has Social Networks	0.03	195	0.007 (0.025)	-0.019 (0.037)	-0.023 (0.043)	-0.018 (0.046)
The shop has a sign with its name	0.82	195	0.024 (0.067)	-0.021 (0.061)	0.087 (0.060)	0.039 (0.057)

Note: Column 1 presents the mean of each outcome of interest (each row) for non treated units.

Column 2 presents the number of observations and of clusters included (determined by the specific dependent variable). Column 3 presents the coefficient for the treatment variable in regression that also includes the observed length and depth of the premises, and fixed effects of activity and city. Finally, columns 4 to 6 present the coefficients for the categorisation of treated in high-treatment area (TH), treated in low-treatment area (TL), and non-treated in high-treatment area (CH) (the base is non-treated in low-treatment area (CL)), with the same control variables. Clustered standard errors in parentheses. Significance level: * 0.1 ** 0.05 *** 0.01.

Table D6 Instrumenting *Exptienda* usage with treatment assignment without Barranquilla and Bucaramanga

Outcome variable	(1) Mean	(2) N Obs/ Cluster	(3) Registered user	(4) Kleibergen-Paap rk Wald F
Score Total	0.41	195 83	0.326 (0.262)	12.17
Score Dim 1. Formal sector	0.42	195 83	0.676 (0.427)	12.17
Score Dim 2. Managment practices	0.53	195 83	0.061 (0.418)	12.17
Score Dim 3. Financial inclusion	0.30	195 83	0.252 (0.267)	12.17
How many clients (observed)	4.98	195 83	-6.798 (6.960)	12.17
Computed profits (10 USD)	71.77	195 83	-534.286 (635.813)	12.17
Use internet for business	0.48	195 83	1.197 (0.691)	12.17
Some investment 2 years	0.60	195 83	0.201 (0.646)	12.17
How many employees (observed)	1.38	189 83	0.207 (0.770)	12.56
Has Social Networks	0.03	195 83	0.055 (0.187)	12.17
The shop has a sign with its name	0.82	195 83	0.188 (0.498)	12.17

Note: Column 1 presents the mean of each outcome of interest (each row) for non treated units. Column 2 presents the number of observations and of clusters included (determined by the specific dependent variable). Column 3 presents the coefficient for the shop being in a high treatment area relative to be in a low treatment one in a regression that also includes the observed length and depth of the premises, and fixed effects of activity and city. Finally, Clustered standard errors in parentheses. Significance level: * 0.1 ** 0.05 *** 0.01.

Table D7 ITT effects of the *Exptienda* intervention on the variables included in the index outcomes

Outcome variable	(1) Mean	(2) N Obs/ Cluster	(3) Treatment	(4) TH	(5) TL	(6) CH
FO1: Self perception of formality	1.79	228	-0.116 (0.136)	0.076 (0.197)	0.066 (0.256)	0.358 (0.222)
FO2: Accounting records	2.15	228	-0.046 (0.108)	-0.175 (0.149)	0.051 (0.162)	-0.146 (0.179)
FO3: Commercial Registry	0.66	228	0.091 (0.078)	0.091 (0.105)	-0.051 (0.121)	-0.060 (0.122)
FO4: Insured Workers	0.32	173	0.158* (0.086)	0.210** (0.105)	0.283* (0.151)	0.129 (0.132)
FO5: Tax registry	1.72	228	-0.246 (0.261)	0.234 (0.284)	0.107 (0.268)	0.848** (0.354)
FO6: Operating Permit	0.40	228	0.028 (0.070)	-0.009 (0.089)	0.046 (0.131)	-0.045 (0.113)
MP1: How much cash it has on hand	0.73	228	0.044 (0.070)	0.051 (0.084)	-0.119 (0.097)	-0.059 (0.080)
MP2: Records all sales and purchases	0.65	228	0.024 (0.071)	0.051 (0.086)	-0.188 (0.123)	-0.052 (0.101)
MP3: Visited a competitor's business to learn their prices	0.37	228	-0.016 (0.082)	0.007 (0.117)	0.134 (0.127)	0.098 (0.126)
MP4: Attract customers with special offers	0.56	228	-0.004 (0.072)	0.098 (0.104)	-0.038 (0.120)	0.134 (0.109)
MP5: It tried to negotiate with a provider for lower prices for your raw materials	0.51	228	-0.082 (0.091)	-0.009 (0.134)	-0.095 (0.159)	0.100 (0.136)
FI1: There is an exclusive savings account for this business	0.27	228	-0.076 (0.056)	-0.026 (0.091)	-0.072 (0.111)	0.074 (0.116)
FI2: Bank loan or credit was requested and accepted with traditional banks (eg BBVA)	1.64	40	0.374 (0.535)	-0.088 (1.084)	-0.640 (1.275)	-0.816 (1.178)
FI3: The firm currently has any insurance for family or business	0.11	228	0.136** (0.057)	0.180** (0.086)	-0.059 (0.071)	-0.021 (0.079)
FI4: Firm knows an electronic wallet	0.71	228	0.128** (0.054)	0.119 (0.073)	0.011 (0.105)	-0.063 (0.105)
FI5: Firm has ever used an electronic wallet	0.56	228	0.052 (0.064)	0.072 (0.100)	-0.128 (0.123)	-0.048 (0.125)
FI6: Firm has a loan	0.07	553	-0.011 (0.025)	0.013 (0.026)	0.007 (0.041)	0.051 (0.038)

Note: Column 1 presents the mean of each outcome of interest (each row) for non treated units. Column 3 presents the coefficient for the treatment variable in regression that also includes the observed length and depth of the premises, and fixed effects of activity and city. Columns 4 to 6 presents the coefficients for the categorisation of treated in high-treatment area (TH), treated in low-treatment area (TL), and non-treated in high-treatment area (CH) (the base is non-treated in low-treatment area (CL)), with the same control variables. Finally, column 2 presents the number of observations and of clusters included (determined by the specific dependent variable).

Clustered standard errors in parentheses. Significance level: * 0.1 ** 0.05 *** 0.01.

Table D8 ITT effects of the *Exptienda* intervention on the variables included in the index outcomes without Barranquilla and Bucaramanga

Outcome variable	(1) Mean	(2) N Obs/ Cluster	(3) Treatment	(4) TT	(5) TN	(6) NT
Self perception of formality	1.77	195	-0.068	0.246	0.240	0.521**
		83	(0.147)	(0.226)	(0.287)	(0.241)
Accounting records	2.28	195	-0.104	-0.152	0.038	-0.019
		83	(0.111)	(0.183)	(0.189)	(0.223)
Commercial Registry	0.58	195	0.132	0.080	-0.040	-0.124
		83	(0.091)	(0.139)	(0.159)	(0.161)
Insured Workers	0.35	145	0.158	0.203	0.292*	0.107
		71	(0.097)	(0.124)	(0.169)	(0.160)
Tax registry	1.87	195	-0.363	0.288	0.187	1.052**
		83	(0.309)	(0.337)	(0.331)	(0.425)
Operating Permit	0.33	195	0.053	-0.015	0.077	-0.082
		83	(0.076)	(0.107)	(0.159)	(0.136)
How much cash it has on hand	0.67	195	0.070	0.067	-0.167	-0.080
		83	(0.080)	(0.097)	(0.118)	(0.099)
Records all sales and purchases	0.57	195	0.072	0.088	-0.194	-0.064
		83	(0.076)	(0.101)	(0.141)	(0.125)
Visited competitors to learn their prices	0.43	195	-0.084	-0.081	0.098	0.061
		83	(0.087)	(0.142)	(0.153)	(0.161)
Attract customers with special offers	0.50	195	0.021	0.112	-0.049	0.100
		83	(0.081)	(0.127)	(0.142)	(0.139)
Negotiate with a provider for lower prices for your raw materials	0.48	195	-0.040	0.072	0.007	0.165
		83	(0.102)	(0.158)	(0.182)	(0.164)
There is an exclusive savings account for this business	0.23	195	-0.101*	-0.193*	-0.198	-0.156
		83	(0.056)	(0.109)	(0.131)	(0.138)
Bank Loan	1.67	34	0.264	0.078	-0.590	-0.342
		27	(0.576)	(1.984)	(1.779)	(2.157)
The firm has any insurance for Family or business	0.12	195	0.112*	0.078	-0.124	-0.122
		83	(0.061)	(0.103)	(0.097)	(0.100)
Electronic wallet knowledge	0.67	195	0.137**	0.099	0.016	-0.090
		83	(0.059)	(0.090)	(0.123)	(0.130)
Electronic wallet use	0.52	195	0.053	0.011	-0.168	-0.128
		83	(0.069)	(0.119)	(0.150)	(0.154)
Has a loan	0.06	435	-0.002	0.029	0.039	0.066
		104	(0.030)	(0.029)	(0.051)	(0.040)

Note: Column 1 presents the mean of each outcome of interest (each row) for non-treated units. Column 3 presents the coefficient for the treatment variable in regression that also includes the observed length and depth of the premises and fixed effects of activity and city. Columns 4 to 6 present the coefficients for the categorisation of treated in the high-treatment area (TT), treated in the low-treatment area (TN), and non-treated in the high-treatment area (NT) (the base is non-treated in the low-treatment area (NN)), with the same control variables. Finally, column 2 presents the number of observations and clusters included (determined by the specific dependent variable). Clustered standard errors in parentheses. Significance level: * 0.1 ** 0.05 *** 0.01.