Reproduction of The Miracle of Microfinance by Abhijit Banerjee, Esther Duflo, Rachel Glennerster Cynthia Kinnan (2015)

Jordan Trinh* Josh Kang† David Khashabi‡
Darren Lee§

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Member Name	Participation	Reason (If necessary)
Jordan Trinh	25%	
Josh Kang	25%	
Darren Lee	25%	
David Khashabi	25%	

Abstract

We replicate Banerjee et al. (2015)'s randomized evaluation of Spandana's group-lending program in 104 Hyderabad slum clusters and reproduce every coefficient in the published tables and figures at both the first endline (15-18 months) and second endline (36 months). We first reproduce each of the paper's figures (2-5) outlining how treatment effects informal borrowing, business profits for households who have an old business, business profits on households who have new business, and business profit using a full sample of business owners. We then reproduce each table in the paper (1-7). The tables reflect the Stata files provided to us by OPENICPSR created by Cynthia Kinnan of Northwestern University. They do not exactly mirror the tables on the paper, but are consistent with the magnitude and directions of the original findings. We compute the outcomes of multiple endogenous variables with the exogenous (treatment) variable being whether or not a Spandana branch was assigned at the neighborhood level and display our findings in the following paper. In general, we find that access to microfinance modestly increased borrowing and durable goods spending but had limited impacts on average business profits, consumption, or human development outcomes. Gains were concentrated among households with pre-existing businesses, suggesting that microfinance may facilitate expansion for a subset of high-performing entrepreneurs rather than broadly alleviating poverty.

*University of California, Berkeley; email: tordanjrinh@berkeley.edu
†University of California, Berkeley; email: joshdkang@berkeley.edu.edu
‡University of California, Berkeley; email: khashabi@berkeley.edu
§University of California, Berkeley; email: darrenlee@berkeley.edu

1 Introduction

The paper written by Abhijit Banerjee, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan (2015) evaluates the causal impact of microfinance on household and business outcomes in low-income urban neighborhoods of Hyderabad, India. It investigates whether greater access to microcredit generates business creation, increases profits, raises household consumption, or improves social outcomes such as health, education, and women's empowerment. Microfinance is seen as a tool for economic growth, but evidence on its effectiveness is fairly limited in regards to the average household. This experiment uses a RCT (randomized controlled trial) across 104 slums, with half being assigned to treatment via early access to Spandana's microfinance services. The study suggests that microfinance has modest but targeted effects. In treated neighborhoods, access to any MFI loan increased by 8.4 percentage points and Spandana borrowing by 12.7 percentage points. Informal borrowing fell by 5.2 percentage points, indicating partial substitution from expensive informal loans to microcredit. Business creation did not significantly increase, but existing businesses at the highest percentiles of business profits saw substantial gains. Their profits rose by 2,105 rupees per month among the top 15 percent. Average nondurable consumption remained stable, but spending on durable goods increased by 19.7 rupees per capita per month, and spending on temptation goods such as alcohol and tobacco declined. The original paper finds no evidence that access to microfinance significantly improved indicators of health, education, or women's empowerment indicators. Instead, loans were typically spent on durable goods purchases and business investment by more profitable entrepreneurs. We have conducted a reproduction using the same statistical procedures and datasets as the original study. The data come from two main sources: Endline 1 survey (collected 15–18 months after treatment) and Endline 2 survey (approximately three years later). Our reproduction focuses on replicating the main tables and figures presented in the paper using Python, via re-implementing the initial ITT regression.

2 Reproducibility

We did not find any outstanding coding errors. The only, and very minor, change that was made was the usage of the variable "adults" in our summary statistics tables (1A and 1B) as this variable was named "adult" in the main endlines and baseline datasets.

3 Replication

In this project, we conduct a computational replication of Banerjee et al. (2015), attempting to reproduce the main tables and figures from their study using the original dataset but written in Python instead of the authors' original Stata scripts. This type of replication tests whether the published findings can be re-implemented and reproduced. Although our primary goal was computational replication, our work also provides some insight into robustness replicability, particularly dealing with estimation consistency.

First, by re-estimating all primary regressions, including the ITT effects and quantile regressions, we confirmed that the reported coefficients, standard errors, and p-values were not dependent on the implementation strategy, adding confidence to the original regression results. Second, while recreating the paper's figures involving bootstrapped estimates, we reduced the number of bootstrap replications from 500 to 100 in order to avoid overly long computational times. Even with the reduction, the qualitative shape and direction of the effects remained consistent, demonstrating that the main visual findings are not overly sensitive to the number of bootstrap draws. Third, we reproduced results from both Endline 1 and Endline 2. The consistency (or lack thereof) of treatment effects over time—particularly the diminished significance by Endline 2—acts as a form of robustness check on the persistence of microfinance effects.

Regression Models Used in Replication

ITT Regression Model

$$Y_{ia} = \alpha + \beta \cdot \text{Treatment}_a + \gamma' X_a + \varepsilon_{ia} \tag{1}$$

- **Table 2**: Y_{ia} includes credit related variables such as Spandana loan acceptance, any MFI loan, bank loan, informal borrowing, multiple different loan amounts, and credit index.

- **Table 3**: Y_{ia} includes asset stock, investment, business expenses, profits, whether the household has a business, the number of businesses, business openings, business closings, and index of z-scores across all business-related outcomes (all households).

- **Table 3B**: Uses the same specification, limited to households with *old* businesses. Y_{ia} includes business revenues, profit, inputs, employees, and an index combining these outcomes.

- **Table 3C**: Same model, limited to *new* businesses. Y_{ia} includes revenues, profits, assets, employees, and index of business outcomes.

- **Table 4**: Y_{ia} includes self-employment profit, daily labor/salaried income, and a standardized index of both.

- **Table 5**: Y_{ia} includes hours worked by household heads, children aged 16–20, and labor index values.

- **Table 6**: Y_{ia} includes monthly per capita expenditures on durables, nondurables, food, health, education, temptation goods, festivals, and the asset index.

- **Table 7**: Y_{ia} includes school enrollment (girls and boys), work hours, women's employment index, percentage of female-run businesses, and social capital index.

Quantile Regression Model

$$Q_Y(\tau \mid \text{Treatment}_a, X_a) = \alpha(\tau) + \beta(\tau) \cdot \text{Treatment}_a + \gamma(\tau)' X_a \tag{2}$$

- **Figure 2**: $Q_Y(\tau)$ is self-employment profits at each quantile τ, across all business owners.
- **Figure 3**: Same specification applied to households with old businesses only.
- **Figure 4**: Same specification applied to households with new businesses only.
- **Figure 5**: Same model, with quantile treatment effects stratified by business size (small vs. large at baseline).

4 Additional Findings

4.1 Figures (2 - 5)

Figure 2 plots the quantile treatment effects on the influence that microfinances play in relation to informal borrowing. Since the average treatment effect from OLS is near zero, it suggests that the intervention had no significant effect on informal borrowing. In the lower quantiles between the 10th to 40th percentile, treatment effects are negative and statistically significant, indicating that microfinance reduced reliance on informal credit sources such as moneylenders or loans across low borrowing households. In the higher quantiles, the effects become positive but are not statistically significant, indicating that more credit active households have used microfinance alongside informal borrowing. Overall, the results indicate that while the program had little effect on average, it did significantly reduce informal borrowing for most credit constrained households.

Figure 3 focuses on households that have already owned a business before the introduction to the program. The OLS estimate is positive and statistically significant, indicating that microfinance increased profits on average. The quantile treatment effects reveal that this effect is most concentrated at the top of the distribution.

For lower profit businesses around the 30th percentile or lower, the treatment effects are close to zero or slightly negative. In the higher quantiles the treatment effects become strongly positively correlated and statistically significant. This indicated that microfinance was most beneficial among the more highly performing businesses, which could have been possible since they were better equipped to use that additional capital more effectively. These results show that while microfinances improve businesses in all different quantiles, the benefits reap the most rewards in the most successful businesses.

Figure 4 examines households that started a business around the time of the introduction of the program. The OLS estimate is negative, indicating that on average, access to microfinance reduced business profits within this group. Quantile treatment effects confirm this data with its distribution among most quantiles. From the 10th percentile onwards, the estimated treatment effects remain negative and even grow in magnitude toward the upper tail of the distribution which are additionally statistically significant. These results suggest that new business owners may lack experience and face various risks such as startup risks, and struggle to turn microfinance into profit. This highlights that access to credit alone may not be enough for new business owners to thrive, and that additional training support or business development may be required.

Figure 5 shows the long term impact of microfinance for all business owners at endline 2. The OLS is moderately positive, which suggests a small average gain/profit. The quantile treatment effects show a clear upward trend in treatment effects across the distribution. Within the lower percentiles, effects are negative or near zero. In around the top 30th percentile the distribution shows increasingly positive effects, exceeding 5,000 INR in the top decile. This suggests over time some businesses (most likely those with higher performance or growth potential) used microfinance to scale and increase their profits. Meanwhile, less successful businesses saw little benefit, indicating that long term gains from microfinances are concentrated among the most productive firms

4.2 Table 1A

Table 1A presents baseline summary statistics for the households in treatment and control slums before Spandana began operations. Across a wide range of characteristics such as size, age structure, head's education, access to credit (formal and informal borrowing), existing business activity (incidence, revenues, investment, employment, hours worked), and monthly consumption, we see that the means in the control group closely match those in the treatment group. The treatment and control differences in each outcome are small and statistically insignificant (with all p-values greater than 0.10), suggesting that random assignment produced balanced, unbiased, samples. In other words, before the microfinance intervention, treated and comparison neighborhoods looked basically the same.

4.3 Table 1B

Table 1B compares the control-group means and standard deviations for a broad set of household outcomes in Endline 1 (EL1) versus Endline 2 (EL2), and reports the EL2–EL1 difference (with clustered SE). In EL1, average household size was 5.64 members (SD 2.15) and rose to 6.27 (SD 2.55) by EL2, a highly significant increase of 0.62 pp ($p < 0.01$). Formal credit access from Spandana jumped from 5.1

4.4 Table 2

Table 2 presents ITT estimates of treatment on credit access and loan amounts at EL1 (Panel A) and EL2 (Panel B). In EL1, having a Spandana branch in one's slum increased the probability of taking a loan from Spandana by 12.7 pp (SE 0.02, $p < 0.01$), raised "any MFI" borrowing by 8.4 pp (SE 0.03, $p < 0.01$), and cut informal borrowing by 5.2 pp (SE 0.02, $p < 0.05$). The average Spandana loan amount rose by 1,334 (SE 230, $p < 0.01$), and the composite credit-index moved up 0.106 SD (SE 0.029, $p < 0.01$). By EL2 these effects attenuated: Spandana borrowing was up 6.3 pp ($p < 0.01$), but "any MFI" and informal impacts were no longer significant, and loan amounts beyond Spandana showed little change. This pattern highlights

a short-lived surge in formal microcredit uptake, partially crowding out informal loans, with most effects dissipating by three years post-treatment .

4.5 Table 3

Table 3 estimates treatment effects on business outcomes for the full sample of households at EL1 (Panel A) and EL2 (Panel B). At EL1, there is a marginally significant rise in business investment—391 (SE 213, $p < 0.10$)—but no clear change in asset stock, revenues, or profits (profits +354, SE 314, $p = 0.26$). The index of z-scores across all business measures increases by 0.036 SD (SE 0.019, $p < 0.10$). By EL2, treatment areas exhibit significantly higher asset stocks (+1,261, SE 530, $p < 0.05$), but still no statistically robust effects on profits or revenues, and the business index is indistinguishable from zero ($p = 0.42$). Overall, access to microcredit gave a small, transient boost to investment and assets among all households, without generating broad gains in business profitability .

4.6 Table 3B

Focusing on households already running a business before Spandana's arrival, Table 3B shows more pronounced effects at EL1 (Panel A) than EL2 (Panel B). Among these "old-business" households, treatment raises average monthly profits by 2,105 (SE 1,100, $p < 0.10$) and lifts the business-outcome index by 0.090 SD (SE 0.041, $p < 0.05$), though it does not significantly change assets, revenue, or expenses. By EL2, none of the coefficients remain statistically distinguishable from zero, with profit changes falling to +839 ($p = 0.38$) and the index flat at –0.007 SD ($p = 0.79$). These results suggest that microcredit provided a short-lived liquidity boost that existing entrepreneurs could channel into profits, but that this advantage did not persist three years out

4.7 Table 3C

Table 3C examines the subset of households that launched a new business in the year prior to EL1. Here, treatment effects are uniformly negative but imprecise: assets fall by 873 (SE 2,201, p = 0.69), investment by 706 (SE 1,324, p = 0.59), and revenues by 8,167 (SE 7,314, p = 0.26). Monthly profits drop by 3,548 (SE 3,813, p = 0.35). There is weak evidence of reduced employment (–0.195 employees, SE 0.112, p $<$ 0.10) and a –0.081 SD decline in the new-business index (SE 0.045, p $<$ 0.10). In short, credit access did not help—and may even have hindered—the profitability and scale of very young firms

4.8 Table 4

In Table 4, the authors assess whether introducing Spandana microcredit branches into randomly selected Hyderabad slums led to changes in household income. Specifically, they estimate ITT regressions for three outcomes: monthly business profits from self-employment, wage or salaried income outside employment, and a combined income index as a standardized average of the two. These regressions control for six baseline area characteristics and cluster standard errors at the neighborhood level. The analysis is conducted at two points. The first being Endline 1 (15–18 months after treatment) and the second being Endline 2 (36 months later) to examine whether income effects arise or persist with longer exposure to microfinance.

At Endline 1, households in treated slums report 354 rupees higher monthly profits on average, but this increase is not statistically significant given the large standard error and a control mean of 745 rupees. Wage income drops by 526 rupees, which was also statistically insignificant. The combined income index shifts slightly downward (–0.05 standard deviations), showing no meaningful change. At Endline 2, business profits rise further to 542 rupees, but still remain statistically insignificant. Wage income nearly converges between treatment and control groups, and the income index shows a negligible increase. Overall, the evidence suggests that access to group-lending credit did not significantly increase household income,

neither in the short term of Endline 1 or after three years at Endline 2.

4.9 Table 5

Table 5 looks in to how easier access to microcredit through the opening of a Spandana branch affected household labor allocation across self-employment, wage work, and total hours worked. At Endline 1 (15–18 months), households in treated slums slightly reallocated their labor. Household heads and spouses increased their total work by 3.18 hours per week, driven mostly by a 2.71 hour rise in self-employment, suggesting a minor shift into business activity. Teen girls reduced their weekly labor by 2.08 hours, a statistically significant drop that eases concerns about microcredit pushing children into work. In contrast, there were no significant effects on teen boys' labor or total weekly household hours worked, and overall wage work remained unchanged.

At Endline 2 (36 months later), these changes had faded. None of the labor supply measures, including adult business hours and teen girl work, were significantly different between treatment and control groups. The composite labor index showed no lasting shifts as well. These results suggest that while microcredit may cause a short term reallocation of labor, especially within the household's own business, the effect is not persistent. In the end, we find that microfinance did not lead to long term increases in work effort or significant structural changes in how households earn income.

4.10 Table 6

Table 6 shows us that access to microfinance did not significantly change overall monthly consumption but led to minor shifts in spending patterns at Endline 1. Treated households increased their durable goods spending by approximately 19.73 rupees per capita per month and reduced their spending on temptation goods by about 8.79 rupees, with both statistically significant at the 10 percent level. Festival spending also declined slightly. By Endline 2, however, these effects faded and no

significant differences in consumption remained. These results suggest that microfinance primarily enabled consumption smoothing rather than substantially raising living standards.

4.11 Table 7

Table 7 outlines that having access to microfinance produced limited effects on human development outcomes across both survey endlines. At Endline 1, treatment areas saw a small but statistically significant increase of 1.4 percentage points in new female business creation, suggesting some short-term entrepreneurial activity among women. However, there were no significant impacts on children's school enrollment or work hours overall. By Endline 2, the initial gains in female entrepreneurship disappeared, and boys' work hours declined slightly by about half an hour per capita, possibly indicating modest reductions in child labor. Broader measures of women's empowerment and social engagement showed no significant changes at either endline, suggesting that access to credit alone did not meaningfully shift household or gender dynamics.

5 Conclusion

Reproducing *The Miracle of Microfinance* was a challenging but ultimately achievable task. While replicating the paper's tables and figures was doable, it demanded significant additional research and self-taught understanding of econometric concepts, particularly regarding intent-to-treat effects and quantile regression models. Our reproduced tables and graphs closely match those reported in the original study, although small numerical deviations exist—especially in the figures—due to reducing the number of bootstrap draws from 500 to 100 in order to improve computational efficiency. Despite these slight differences, the overall findings remain consistent. This study highlights the implications microfinance, illustrating that access to credit alone is not a universal solution for poverty alleviation or economic growth. Instead, it shows that while microfinance can enable some households to

smooth consumption and generate business investment among a select group of high performing entrepreneurs, it has limited average impacts on overall business creation, household consumption, and social outcomes for the broader population. These findings highlight the need for realistic expectations about microfinance and suggest that other intervention such as financial training or savings programs may be necessary to fully unlock credit's potential.

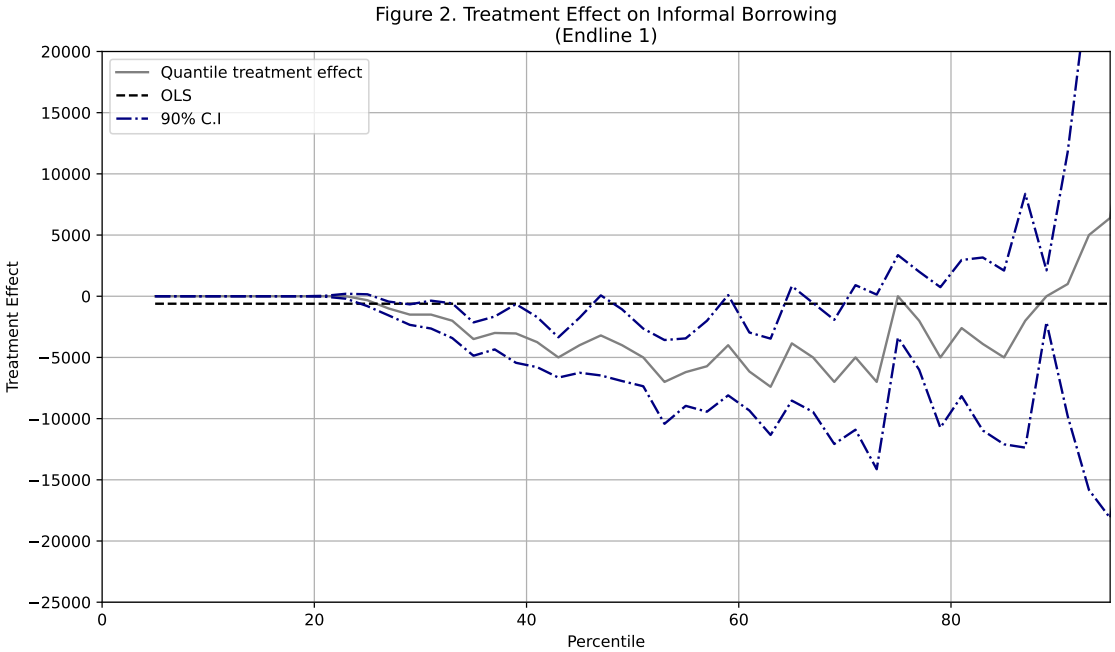
References

[1] Abhijit Banerjee, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan. The Miracle of Microfinance? Evidence from a Randomized Evaluation. American Economic Journal: Applied Economics, 7(1):22–53, 2015.

[2] Abhijit Banerjee, Esther Duflo, Rachel Glennerster, and Cynthia Kinnan. Replication data for: The Miracle of Microfinance? Evidence from a Randomized Evaluation. Nashville, TN: American Economic Association [publisher], 2015. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2019-10-12. https://doi.org/10.3886/E113599V1.

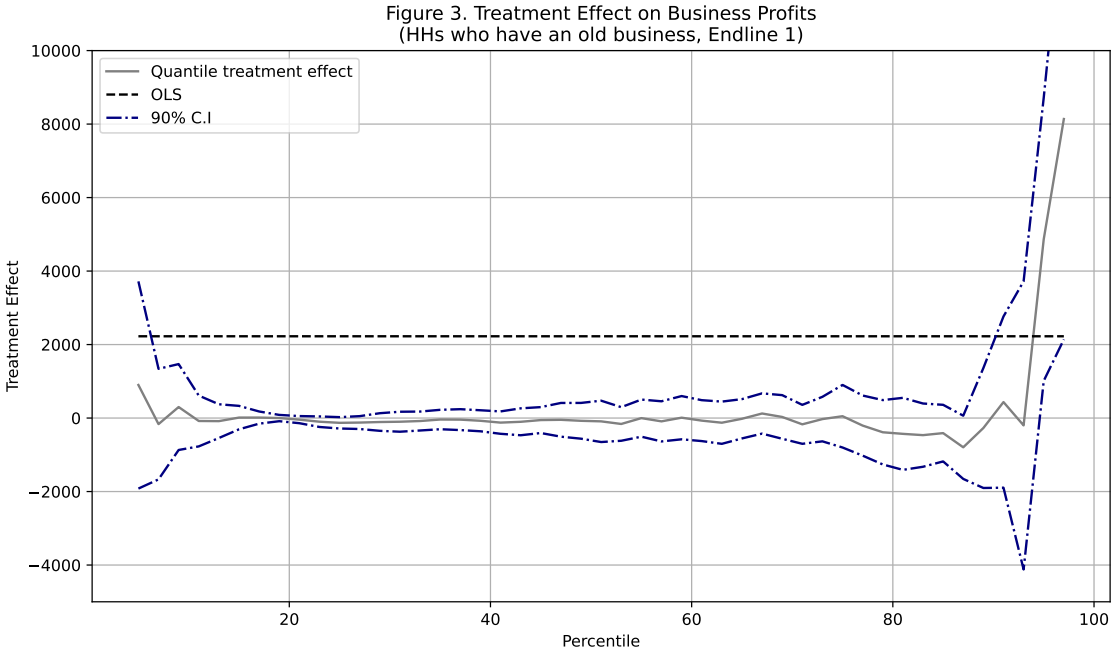
6 Figures

Figure 2



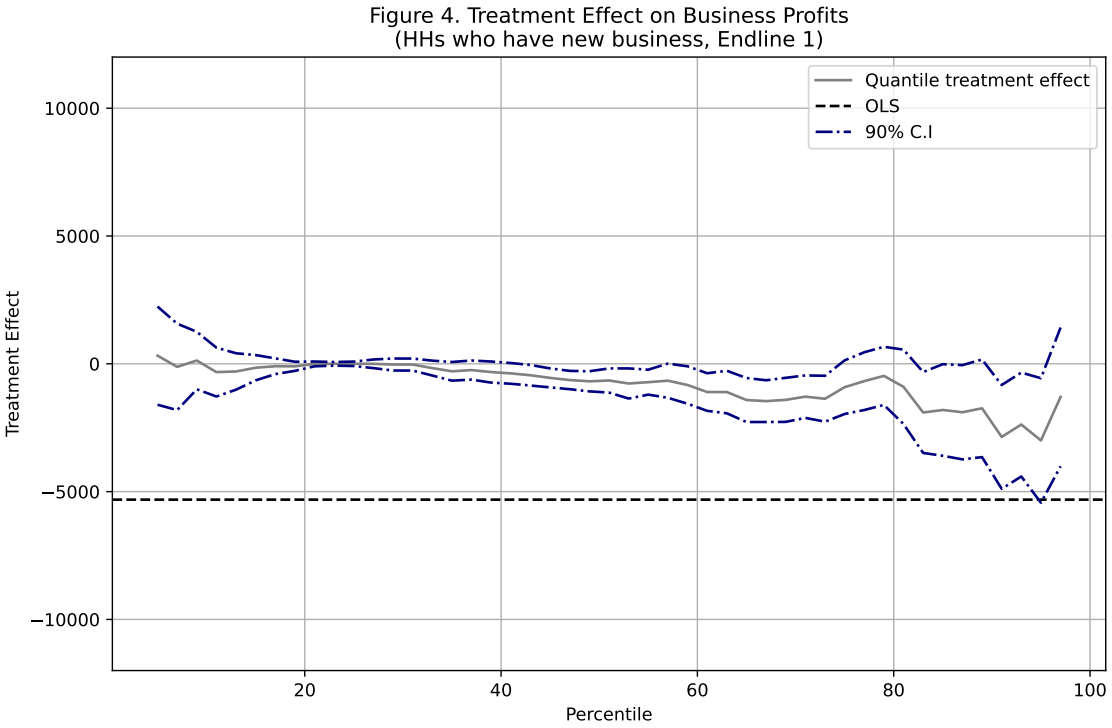
Notes: Confidence intervals are cluster-boostrapped at the neighborhood level. For quantiles 0.05 to 0.20, confidence intervals not reported because the quantile does not vary sufficiently across neighborhoods to bootstrap standard errors.

Figure 3



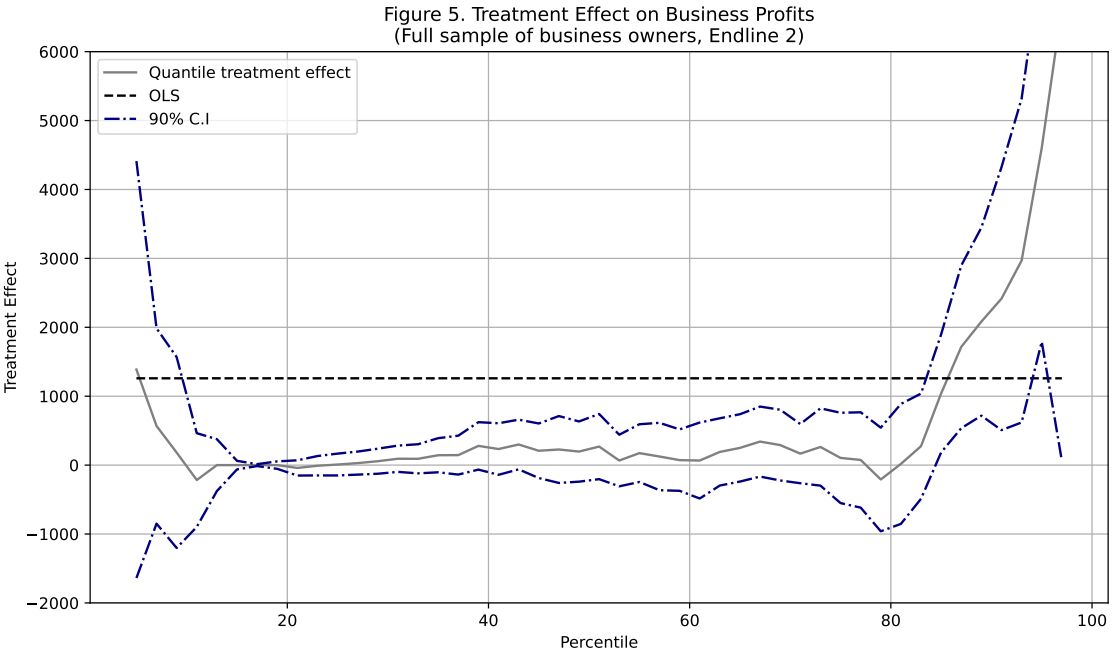
Notes: Confidence intervals are cluster-bootstrapped at the neighborhood level.

Figure 4



Notes: New businesses started less than one year before the survey. Confidence intervals are cluster-bootstrapped at the neighborhood level.

Figure 5



7 Tables

Table 1A-Baseline Summary Statistics

Variable	Obs	Control mean	Control sd	Coeff.	p-value
hh_size	1220	5.04	1.67	0.10	0.30
adults	1220	3.44	1.47	-0.01	0.87
children	1220	1.60	1.23	0.10	0.10
male_head	1216	0.91	0.29	-0.01	0.38
head_age	1216	41.15	10.84	-0.24	0.68
head_noeduc	1216	0.37	0.48	-0.01	0.79
spandana	1213	0.00	0.00	0.01	0.20
othermfi	1213	0.01	0.10	0.01	0.45
bank	1213	0.04	0.19	0.00	0.86
informal	1213	0.63	0.48	0.00	0.96
anyloan	1213	0.68	0.47	0.00	0.94
spandana_amt	1213	0.00	0.00	68.97	0.19
othermfi_amt	1213	201.15	2742.36	170.36	0.57
bank_amt	1213	7 438.17	173 268.34	-5 419.70	0.28
informal_amt	1213	28 460.02	65 312.16	-570.46	0.86
anyloan_amt	1213	37 892.00	191 291.57	-5 878.56	0.34
total_biz	1220	0.32	0.68	-0.02	0.58
female_biz	1220	0.15	0.40	-0.01	0.75
female_biz_pct	295	0.45	0.50	-0.01	0.90
bizrev	295	15 990.64	53 488.75	4 501.23	0.54
bizexpense	295	3 617.06	26 144.04	640.55	0.75
bizinvestment	295	384.71	3 156.82	14.48	0.96
bizemployees	295	0.17	0.83	0.25	0.15
hours_weekbiz	295	76.32	66.05	-4.59	0.41
bizrev_allHH	1220	3 866.59	27 146.79	903.65	0.63
bizexpense_allHH	1220	874.62	12 932.54	116.50	0.81
bizinvestment_allHH	1220	93.02	1 559.05	-0.10	1.00
bizemployees_allHH	1220	0.04	0.41	0.06	0.17
hours_weekbiz_allHH	1220	18.45	46.05	-1.80	0.40
total_exp_mo	1220	4 888.02	4 074.37	269.68	0.23
nondurable_exp_mo	1220	4 734.32	3 839.82	251.82	0.23
durables_exp_mo	1220	153.55	584.54	17.86	0.53
home_durable_index	1220	1.45	0.88	0.03	0.67

Notes: Standard errors of differences clustered at the area level. Unit of observation: household.

Table 1B: Endline 1 and 2 Summary Statistics

Variable	Obs_el1	Ctl_mean_el1	Ctl_sd_el1	Obs_el2	Ctl_mean_el2	Ctl_sd_el2	Diff	*p*-value
hhsize	3264	5.64	2.15	2943	6.27	2.55	0.62	0.00
adults	3264	3.89	1.75	2943	4.04	1.85	0.15	0.00
children	3264	1.74	1.31	2943	1.76	1.32	0.03	0.24
male_head	3261	0.90	0.31	2938	0.81	0.39	-0.08	0.00
head_age	3257	41.15	10.22	2940	42.26	10.15	1.11	0.00
head_noeduc	3256	0.31	0.46	2940	0.29	0.46	-0.02	0.02
spandana	3247	0.05	0.22	2943	0.11	0.32	0.06	0.00
othermfi	3183	0.15	0.36	2943	0.27	0.44	0.12	0.00
anybank	3247	0.08	0.27	2943	0.07	0.26	-0.01	0.48
anyinformal	3247	0.76	0.43	2943	0.60	0.49	-0.16	0.00
anyloan	3264	0.87	0.34	2943	0.90	0.29	0.04	0.00
spandana_amt	3247	597.44	2907.49	2943	1566.64	5618.34	969.20	0.00
othermfi_amt	3200	1806.03	5917.84	2943	4775.06	10735.60	2969.03	0.00
bank_amt	3247	8422.43	101952.81	2943	6126.52	40307.63	-2295.91	0.21
informal_amt	3247	41044.62	78032.52	2943	32355.99	76704.16	-8688.64	0.00
anyloan_amt	3264	59836.26	133692.60	2943	88631.46	144634.29	28795.19	0.00
total_biz	3236	0.50	0.85	2943	0.56	0.79	0.06	0.00
female_biz_allHH	3209	0.18	0.49	2943	0.23	0.52	0.05	0.00
female_biz_pct	1104	0.38	0.45	1231	0.40	0.45	0.03	0.08
bizrev	1039	14700.01	56350.04	1218	14065.57	23712.70	-634.45	0.72
bizexpense	1071	12030.02	51530.85	1218	12568.39	30483.24	538.37	0.77
bizinvestment	1127	785.49	6805.93	1231	2331.05	14645.27	1545.56	0.00
bizemployees	1103	0.38	1.64	1231	0.56	2.94	0.18	0.06
hours_week_biz	1103	100.03	69.87	1231	88.47	60.16	-11.56	0.00
bizrev_allHH	3145	4856.38	33108.47	2930	5847.05	16784.04	990.67	0.10
bizexpense_allHH	3177	4055.45	30445.99	2930	5224.68	20603.00	1169.23	0.08
bizinvestment_allHH	3231	280.07	4037.97	2943	1007.32	9622.61	727.25	0.00
bizemployees_allHH	3209	0.13	0.98	2943	0.24	1.92	0.11	0.01
hours_week_biz_allHH	3209	34.38	62.73	2943	37.00	58.46	2.62	0.05
total_exp_mo	3248	6375.24	4906.49	2943	8787.07	6547.07	2411.83	0.00
nondurable_exp_mo	3230	5831.31	4212.46	2943	8050.46	5779.85	2219.15	0.00
durables_exp_mo	3230	550.79	1623.46	2941	719.89	1536.46	169.11	0.00
home_durable_index	3254	2.37	0.86	2943	2.66	0.83	0.29	0.00

Notes: Summary statistics are for comparison areas only. Standard errors of differences clustered at the area level. Monetary amounts are in 2007 rupees.

Table 2-Credit

Panel A: Endline 1

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
spandana_1	0.127*** (0.020)	0.05	0.22	6811	0.00
othermfi_1	-0.012 (0.024)	0.15	0.36	6657	0.63
anymfi_1	0.083*** (0.027)	0.18	0.39	6811	0.00
anybank_1	0.003 (0.012)	0.08	0.27	6811	0.81
anyinformal_1	-0.052** (0.021)	0.76	0.43	6811	0.02
anyloan_1	-0.022 (0.014)	0.87	0.34	6862	0.10
everlate_1	-0.060** (0.026)	0.62	0.49	6475	0.02
mfi_loan_cycles_1	0.084** (0.041)	0.33	0.69	6816	0.04
spandana_amt_1	1333.772*** (229.681)	597.44	2907.49	6811	0.00
othermfi_amt_1	-93.668 (336.298)	1806.03	5917.84	6708	0.78
anymfi_amt_1	1285.694*** (439.433)	2373.78	6651.52	6811	0.00
bank_amt_1	74.957 (2163.016)	8422.43	101952.81	6811	0.97
informal_amt_1	-1068.984 (2519.661)	41044.62	78032.52	6811	0.67
anyloan_amt_1	2856.236 (4548.265)	59836.26	133692.60	6862	0.53
credit_index_1	0.106*** (0.029)	0.00	0.46	6862	0.00

Panel B: Endline 2

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
spandana_2	0.063*** (0.018)	0.11	0.32	6142	0.00
othermfi_2	-0.039 (0.026)	0.27	0.44	6142	0.14
anymfi_2	0.002 (0.029)	0.33	0.47	6142	0.94
anybank_2	0.001 (0.009)	0.07	0.26	6142	0.93
anyinformal_2	0.002 (0.018)	0.60	0.49	6142	0.90
anyloan_2	0.000 (0.010)	0.90	0.29	6142	0.98
everlate_2	0.007 (0.021)	0.60	0.49	6142	0.74
mfi_loan_cycles_2	0.085 (0.067)	0.72	1.10	5926	0.20
spandana_amt_2	979.412*** (286.586)	1566.64	5618.34	6142	0.00
othermfi_amt_2	-217.103 (627.579)	4775.06	10735.60	6142	0.73
anymfi_amt_2	798.570 (669.015)	5544.16	11347.59	6142	0.23
bank_amt_2	-1180.783 (1085.622)	6126.52	40307.63	6142	0.28
informal_amt_2	158.294 (2939.685)	32355.99	76704.16	6142	0.96
anyloan_amt_2	2554.018 (6155.602)	88631.46	144634.29	6142	0.68
credit_index_2	0.029 (0.025)	-0.00	0.46	6142	0.25

Notes: Table presents coefficient of a "treatment" dummy in a regression of each varaible on treatment Iwith control variables listed in the test). Results are weighted to account for oversampling of Spandana borrowers. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3-Self-Employment Activities: Revenues, Assets, and Profits (All households)

Panel A: Endline 1

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
bizassets_1	597.510 (383.518)	2497.55	10802.36	6800	0.12
bizinvestment_1	390.853* (212.695)	280.07	4038.04	6800	0.07
bizrev_1	926.592 (1182.463)	4856.38	33108.37	6608	0.43
bizexpense_1	254.664 (1056.330)	4055.45	30446.18	6685	0.81
bizprofit_1	354.338 (313.531)	744.90	10694.51	6239	0.26
any_biz_1	0.008 (0.021)	0.35	0.48	6810	0.70
total_biz_1	0.018 (0.038)	0.50	0.85	6810	0.64
any_new_biz_1	0.009 (0.006)	0.05	0.21	6757	0.14
biz_stop_1	0.002 (0.008)	0.04	0.19	2352	0.80
newbiz_1	0.015** (0.007)	0.05	0.25	6757	0.04
female_biz_new_1	0.014*** (0.005)	0.03	0.17	6762	0.01
biz_index_all_1	0.036* (0.019)	0.00	0.47	6810	0.06

Panel B: Endline 2

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
bizassets_2	1260.792** (529.814)	5002.79	14422.84	6142	0.02
bizinvestment_2	-133.688 (206.581)	1007.32	9622.57	6142	0.52
bizrev_2	266.109 (526.470)	5847.05	16784.00	6116	0.61
bizexpense_2	-530.422 (546.714)	5224.68	20602.83	6116	0.33
bizprofit_2	541.995 (371.709)	953.13	11279.75	6090	0.14
any_biz_2	0.023 (0.023)	0.42	0.49	6142	0.33
total_biz_2	0.045 (0.040)	0.56	0.79	6142	0.26
any_new_biz_2	-0.000 (0.010)	0.08	0.28	6142	0.99
biz_stop_2	-0.000 (0.006)	0.05	0.23	6142	0.97
newbiz_2	0.003 (0.013)	0.09	0.33	6142	0.83
female_biz_new_2	-0.005 (0.006)	0.05	0.23	6142	0.45
biz_index_all_2	0.015 (0.019)	0.00	0.51	6142	0.42

Notes: Table presents coefficient of a "treatment" dummy in a regression of each varaible on treatment Iwith control variables listed in the test). Results are weighted to account for oversampling of Spandana borrowers. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3B—Self-Employment Activities: Revenues, Assets and Profits (Households with Old Businesses)

Panel A: Endline 1

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
bizassets_1	897.632 (1062.772)	6757.32	17212.60	2083	0.40
bizinvestment_1	1119.416 (698.071)	677.89	5359.79	2083	0.11
bizrev_1	5266.227 (3720.661)	14504.64	47674.32	1955	0.16
bizexpense_1	1640.231 (3256.508)	12325.42	50699.92	2020	0.62
bizprofit_1	2105.439* (1099.960)	2037.86	12392.41	1624	0.06
bizemployees_1	-0.053 (0.082)	0.41	1.73	2088	0.52
biz_index_old_1	0.090** (0.041)	-0.00	0.47	2088	0.03

Panel B: Endline 2

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
bizassets_2	1682.026 (1412.432)	10301.05	20564.15	1878	0.23
bizinvestment_2	-948.624 (587.964)	2292.12	16136.92	1878	0.11
bizrev_2	343.309 (1262.962)	12563.96	23017.89	1859	0.79
bizexpense_2	-2644.306* (1491.004)	12418.35	33271.64	1862	0.08
bizprofit_2	839.203 (944.994)	1948.24	17961.45	1844	0.38
bizemployees_2	-0.124 (0.100)	0.46	2.66	1878	0.22
biz_index_old_2	-0.007 (0.026)	-0.00	0.52	1878	0.79

Notes: Table presents coefficient of a "treatment" dummy in a regression of each variable on treatment with control variables listed in the test). Results are weighted to account for oversampling of Spandana borrowers. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3C—Self-Employment Activities: Revenues, Assets, and Profits (Households with New Businesses, EL1 Only)

Variable	Coef (SE)	$\text{Mean}_{\text{ctrl}}$	SD_{ctrl}	N	p-value
bizassets_1	-872.616 (2200.692)	8410.86	24129.79	356	0.69
bizinvestment_1	-705.549 (1324.094)	2418.09	13759.74	356	0.59
bizrev_1	-8166.723 (7313.812)	17423.03	91781.67	332	0.26
bizexpense_1	-5012.906 (4048.930)	12114.00	53020.10	339	0.22
bizprofit_1	-3547.546 (3813.119)	6081.09	43517.23	270	0.35
bizemployees_1	-0.195* (0.112)	0.29	1.32	356	0.08
biz_index_new_1	-0.081* (0.044)	0.00	0.57	356	0.07

Notes: Table presents coefficient of a "treatment" dummy in a regression of each varaible on treatment Iwith control variables listed in the test). Results are weighted to account for oversampling of Spandana borrowers. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4—Income

	Variable	Obs	Ctl_mean	Ctl_sd	Coef	SE	R^2	*p*-value
Endline 1	**bizprofit_1**	2970	744.90	10694.57	354.34	313.53	0.00	0.26
	wages_nonbiz_1	3248	2988.03	3915.40	-526.35	358.19	0.04	0.14
	income_index_1	3249	-0.00	0.69	-0.05	0.05	0.02	0.28
Endline 2	**bizprofit_2**	2912	953.13	11279.84	542.00	371.71	0.00	0.14
	wages_nonbiz_2	2943	5514.02	5627.40	-140.91	212.22	0.01	0.51
	income_index_2	2943	0.00	0.70	0.01	0.03	0.01	0.66

Notes: Table presents coefficient of a "treatment" dummy in a regression of each varaible on treatment Iwith control variables listed in the test). Results are weighted to account for oversampling of Spandana borrowers. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 5-Time Worked by Household Members

Panel A: Endline 1

variable	coef(se)	r2	mn1	sd1	N	pval
hours_week_1	0.739 (2.245)	0.00	92.38	61.58	6827	0.74
hours_week_biz_1	2.466 (2.361)	0.00	34.38	62.73	6762	0.30
hours_week_outside_1	-2.033 (2.741)	0.00	58.01	62.17	6762	0.46
hours_girl1620_week_1	-2.076** (1.046)	0.01	7.94	20.38	2174	0.05
hours_boy1620_week_1	-0.026 (2.065)	0.00	25.12	35.83	1866	0.99
hours_headspouse_week_1	3.176** (1.421)	0.00	57.79	35.90	6827	0.02
hours_headspouse_biz_1	2.710* (1.474)	0.01	25.83	34.57	6827	0.07
hours_headspouse_outside_1	0.466 (1.418)	0.00	31.96	34.36	6827	0.74
labor_index_1	0.006 (0.018)	0.00	-0.00	0.45	6849	0.72

Panel B: Endline 2

variable	coef(se)	r2	mn2	sd2	N	pval
hours_week_2	-1.238 (1.544)	0.01	83.34	56.80	6142	0.42
hours_week_biz_2	1.713 (2.162)	0.00	37.00	58.46	6142	0.43
hours_week_outside_2	-2.951 (2.490)	0.00	46.34	56.91	6142	0.24
hours_girl1620_week_2	0.440 (0.948)	0.01	5.83	16.27	1789	0.64
hours_boy1620_week_2	-1.387 (1.521)	0.01	20.95	30.58	1665	0.36
hours_headspouse_week_2	0.991 (1.176)	0.00	51.31	35.36	6142	0.40
hours_headspouse_biz_2	1.703 (1.583)	0.01	25.38	33.41	6142	0.28
hours_headspouse_outside_2	-0.712 (1.488)	0.00	25.93	31.38	6142	0.63
labor_index_2	-0.006 (0.013)	0.01	-0.00	0.45	6142	0.67

Notes: Total hours includes self-employment and outside activities. It does not include housework hours. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 6-Consumption (Per capita, per month)

variable	coef(se)	r2	mn1	sd1	N	pval
total_exp_mo_pc_1	10.243 (37.217)	0.01	1419.23	978.30	6827	0.78
durables_exp_mo_pc_1	19.734* (11.353)	0.00	116.17	332.56	6781	0.08
nondurable_exp_mo_pc_1	-6.495 (31.808)	0.02	1304.79	852.40	6781	0.84
food_exp_mo_pc_1	-12.110 (12.058)	0.01	524.67	264.91	6827	0.32
health_exp_mo_pc_1	-3.700 (11.514)	0.00	140.25	455.74	6827	0.75
educ_exp_mo_pc_1	-2.061 (9.865)	0.02	167.72	237.56	5415	0.83
temptation_exp_mo_pc_1	-8.785* (4.915)	0.00	84.29	130.40	6827	0.07
festival_exp_mo_pc_1	-14.158* (8.094)	0.03	69.49	103.96	6827	0.08
home_durable_index_1	-0.051 (0.057)	0.04	2.37	0.86	6841	0.37

variable	coef(se)	r2	mn2	sd2	N	pval
total_exp_mo_pc_2	-48.826 (51.535)	0.01	1914.28	1354.90	6142	0.34
durables_exp_mo_pc_2	0.419 (9.876)	0.00	155.50	331.67	6140	0.97
nondurable_exp_mo_pc_2	-45.449 (46.918)	0.01	1755.17	1209.49	6142	0.33
food_exp_mo_pc_2	-15.203 (21.134)	0.00	820.33	538.25	6142	0.47
health_exp_mo_pc_2	-22.545 (17.496)	0.00	221.23	637.85	6141	0.20
educ_exp_mo_pc_2	12.160 (15.189)	0.01	246.83	351.45	4910	0.42
temptation_exp_mo_pc_2	-10.074 (6.610)	0.01	117.70	182.36	6142	0.13
festival_exp_mo_pc_2	6.166 (4.116)	0.01	107.65	116.13	6103	0.13
home_durable_index_2	-0.013 (0.043)	0.02	2.66	0.83	6142	0.77

Notes: Temptation goods include alcohol, tobacco, betel leaves, gambling, and food consumed outside the home.
*** p < 0.01, ** p < 0.05, * p < 0.1.

Table 7-Social Effects

Panel A: Endline 1

variable	coef(se)	r2	mn1	sd1	N	pval
girl515_school_1	-0.016 (0.013)	0.00	0.92	0.26	3035	0.22
boy515_school_1	-0.012 (0.011)	0.01	0.92	0.26	3073	0.27
girl515_workhrs_pc_1	-0.028 (0.202)	0.01	0.59	5.16	3035	0.89
boy515_workhrs_pc_1	0.613 (0.743)	0.00	0.58	27.46	3073	0.41
girl1620_school_1	-0.037 (0.024)	0.02	0.34	0.45	2174	0.12
boy1620_school_1	-0.007 (0.028)	0.02	0.43	0.48	1866	0.80
women_emp_index_1	0.007 (0.023)	0.00	-0.00	0.46	6862	0.77
female_biz_new_1	0.014*** (0.005)	0.00	0.03	0.17	6762	0.01
social_index_1	-0.008 (0.010)	0.01	0.00	0.29	6862	0.42

Panel B: Endline 2

variable	coef(se)	r2	mn2	sd2	N	pval
girl515_school_2	0.015 (0.011)	0.01	0.92	0.25	2755	0.20
boy515_school_2	0.007 (0.011)	0.01	0.93	0.25	2746	0.48
girl515_workhrs_pc_2	0.092 (0.133)	0.00	0.29	3.37	2755	0.49
boy515_workhrs_pc_2	-0.531** (0.269)	0.00	1.38	8.04	2746	0.05
girl1620_school_2	0.021 (0.024)	0.01	0.33	0.45	1789	0.37
boy1620_school_2	-0.021 (0.027)	0.01	0.47	0.48	1665	0.43
women_emp_index_2	-0.011 (0.020)	0.01	-0.00	0.54	6142	0.59
female_biz_pct_2	-0.044** (0.022)	0.00	0.40	0.45	2644	0.05
female_biz_new_2	-0.005 (0.006)	0.00	0.05	0.23	6142	0.45
social_index_2	0.005 (0.009)	0.00	-0.00	0.28	6142	0.62

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.