Asset-based Microfinance for Microenterprises: Evidence from Pakistan

Appendix for Online Publication

Faisal Bari[*] ⓡ
Kashif Malik[†] ⓡ
Muhammad Meki[‡] ⓡ
Simon Quinn[§] ⓡ

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[*]**Lahore University of Management Sciences**: bari@lums.edu.pk.
[†]**Lahore University of Management Sciences**: kashif.malik@lums.edu.pk.
[‡]**University of Oxford**; Department of International Development, and Oxford Centre for Islamic Studies: muhammad.meki@qeh.ox.ac.uk.
[§]**Imperial College London**: simon.quinn@imperial.ac.uk.

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A Further details on contract structure

In this section, we provide two examples for the payment structure under the flexible-repayment contract, again using an initial asset value of $1,000.

Table A.1: CONTRACT STRUCTURE: FLEXIBLE-REPAYMENT CONTRACT

MONTH	PAYMENT EXAMPLE 1				PAYMENT EXAMPLE 2			
	MFI OWNERSHIP	RENT	OWNERSHIP	TOTAL	MFI OWNERSHIP	RENT	OWNERSHIP	TOTAL
1	90.0%	9.00	25.00	34.00	90%	9.00	100.00	109.00
2	87.5%	8.75	25.00	33.75	80%	8.00	100.00	108.00
3	85.0%	8.50	25.00	33.50	70%	7.00	100.00	107.00
4	82.0%	8.25	25.00	33.25	60%	6.00	100.00	106.00
5	80.0%	8.00	25.00	33.00	50%	5.00	100.00	105.00
6	77.5%	7.75	25.00	32.75	40%	4.00	100.00	104.00
7	75.0%	7.50	25.00	32.50	30%	3.00	100.00	103.00
8	72.5%	7.25	25.00	32.25	20%	2.00	100.00	102.00
9	70.0%	7.00	25.00	32.00	10%	1.00	100.00	101.00
10	67.5%	6.75	25.00	31.75	·	·	·	·
11	65.0%	6.50	25.00	31.50	·	·	·	·
12	62.5%	6.25	25.00	31.25	·	·	·	·
13	60.0%	6.00	25.00	31.00	·	·	·	·
14	57.5%	5.75	25.00	30.75	·	·	·	·
15	55.0%	5.50	25.00	30.50	·	·	·	·
16	52.5%	5.25	25.00	30.25	·	·	·	·
17	50.0%	5.00	25.00	30.00	·	·	·	·
18	47.5%	4.75	25.00	29.75	·	·	·	·
TOTAL		123.75	450.00	573.75		45.00	900.00	945.00

Note: This table provides an example of the required payment structure under the flexible-repayment contract for an asset costing $1,000, where the client has paid $100 to initially purchase 10% of the asset. A nominal annual rental rate of 12% implies monthly rent of 1% of the asset's value, which is $100. In addition to the rent, the client is also obliged to purchase 2.5% of the MFI's ownership share each month, based on the initial asset value of $1,000, which implies an amount of $25. The two example provide different potential repayment schedules, based on the client (i) paying the absolute minimum; (ii) paying more and ending the contract early.

The first example illustrates the absolute minimum repayment requirement for the client, which is $25 per month. Since the MFI's ownership share decreases more gradually than it does under the fixed-repayment contract, the cumulative rental payments are higher than under the comparable fixed-repayment contract. The second example presents a case where the client repays more than required every month ($100), which results in a more rapidly decreasing ownership share for the MFI (and lower rental payments), and the contract ending at the end of the ninth month.

Both contracts were designed to be consistent with locally accepted financial norms. In modern legal terms, it resembles a 'hire-purchase' contract, which shares features with both 'rent-to-own' structures (a more commonly used term in the United States) as well as lease agreements. The exact difference between these terms is less relevant in our context, given the informal nature of most microenterprises, which are

often not registered for taxes and do not file standardised accounts. As an example of the accounting and tax implications of different contractual features for formal firms, in an 'operating lease' the monthly payment is equivalent to rent and treated as a standard business expense; in contrast, a 'financial lease', which contains an option for ownership transfer of the asset, is treated like a loan and the lessee can reduce their taxable income by claiming both interest rate and depreciation expenses. For details of the nuanced difference between hire-purchase and rent-to-own agreements, see https://www.investopedia.com/terms/h/hire-purchase.asp.

B Procedure for assignment to treatment

Following the collection of workshop data, and before the visits were conducted, all clients were randomised into three different groups: (i) a control group, who had access to the interest-free loan of $475; (ii) a group that were only offered the fixed-repayment contract; and (iii) a group that were offered the flexible-repayment contract, which would subsequently be explained to them. Randomisation was stratified on microenterprise type, performance and gender, using matched sextuplets:

(i) First, the sample was split into three groups: (a) rickshaw drivers (this was the most popular business sector at baseline, at around 20%); (b) males in all non-rickshaw sectors; and (c) females in non-rickshaw sectors;

(ii) Within each of the three groups, individuals were ordered by the three-month average of their business profits, as collected in the survey;

(iii) Groups of matched sextuplets were then formed, with two individuals being randomly allocated into the three treatment groups in each sextuplet.

Forming matched sextuplets is consistent with the recommendation by Athey and Imbens (2017), who suggest stratifying as much as possible so that each stratum contains at least two treated and two control units. They argue that although using paired designs has some benefits in terms of expected precision, these tend to be small, and do not outweigh the significant costs.

C Comparison of experimental sample with first-time borrowers

We compare the characteristics of our sample of graduated borrowers to administrative dataset from the MFI for all of their first-time borrowers during the implementation period of our study (2017 and 2018).

Table A.2: **Comparison of graduted borrower sample with the MFI's first-time borrowers**

Variable	(1) First-time borrowers Mean/SE	(2) Graduated borrowers Mean/SE	(3) Total Mean/SE
Female	0.41	0.08	0.40
	(0.00)	(0.01)	(0.00)
Age	36.78	37.90	36.80
	(0.06)	(0.37)	(0.06)
Primary school	0.63	0.31	0.62
	(0.00)	(0.02)	(0.00)
Secondary school	0.30	0.55	0.30
	(0.00)	(0.02)	(0.00)
Post-secondary education	0.07	0.14	0.08
	(0.00)	(0.01)	(0.00)
Sector: services	0.22	0.07	0.21
	(0.00)	(0.01)	(0.00)
Sector: retail	0.21	0.10	0.21
	(0.00)	(0.01)	(0.00)
Sector: manufacturing	0.18	0.11	0.18
	(0.00)	(0.01)	(0.00)
Sector: food	0.12	0.10	0.12
	(0.00)	(0.01)	(0.00)
Sector: transportation	0.06	0.21	0.06
	(0.00)	(0.01)	(0.00)
Sector: tailoring	0.06	0.20	0.06
	(0.00)	(0.01)	(0.00)
Sector: construction	0.06	0.09	0.06
	(0.00)	(0.01)	(0.00)
Individuals	29933	757	30690

Notes: We compare the characteristics of our sample of graduated borrowers to administrative data from the MFI for all of their first-time borrowers in the same geographic region of Pakistan (Punjab) during the implementation period of our study (2017 and 2018). Education refers to the highest level of education attained, with each individual falling into one of three categories: (i) maximum educational attainment of primary school or less (0 to 5 years of schooling); (ii) maximum educational attainment of middle- or secondary-school (5 to 10 years of schooling); (iii) post-secondary educational attainment (11 years or more of schooling).

D Descriptive statistics and randomisation balance

Table A.3: **Summary statistics**

Variable	(1) Control Mean/SE	(2) Treatment: fixed Mean/SE	(3) Treatment: flexible Mean/SE	(4) Total Mean/SE	Normalized difference (1)-(2)	(1)-(3)	(2)-(3)
Age	37.10	37.97	38.65	37.90	-0.09	-0.15	-0.07
	(0.65)	(0.61)	(0.67)	(0.37)			
Female	0.06	0.10	0.09	0.08	-0.15	-0.13	0.03
	(0.01)	(0.02)	(0.02)	(0.01)			
Household size	6.11	6.35	6.49	6.31	-0.08	-0.16	-0.05
	(0.15)	(0.21)	(0.16)	(0.10)			
Household earners	1.91	1.93	2.05	1.96	-0.02	-0.14	-0.10
	(0.07)	(0.08)	(0.07)	(0.04)			
Distance to MFI office (minutes)	16.14	15.00	14.72	15.29	0.06	0.08	0.02
	(1.28)	(0.91)	(1.00)	(0.62)			
Business experience (years)	9.31	9.75	9.78	9.61	-0.06	-0.06	-0.00
	(0.49)	(0.47)	(0.56)	(0.29)			
Number of businesses managed	1.22	1.19	1.25	1.22	0.06	-0.05	-0.11
	(0.03)	(0.03)	(0.03)	(0.02)			
Business sector: transportation	0.21	0.21	0.20	0.21	-0.00	0.02	0.03
	(0.03)	(0.03)	(0.03)	(0.01)			
Business revenue	728.19	734.06	721.17	727.90	-0.01	0.01	0.02
	(49.10)	(46.93)	(49.31)	(27.93)			
Business profits	234.95	252.10	249.48	245.49	-0.10	-0.09	0.02
	(9.97)	(10.52)	(9.79)	(5.84)			
Number of employees	0.94	0.85	1.00	0.93	0.06	-0.03	-0.10
	(0.11)	(0.09)	(0.10)	(0.06)			
Total fixed assets	851.44	943.67	967.15	920.35	-0.06	-0.07	-0.01
	(95.51)	(97.25)	(108.05)	(57.83)			
Current assets: cash	175.79	193.10	197.03	188.57	-0.06	-0.08	-0.01
	(16.40)	(17.70)	(18.46)	(10.11)			
Current assets: debt	137.10	116.21	128.07	127.07	0.06	0.02	-0.03
	(24.27)	(20.66)	(25.14)	(13.49)			
Current assets: inventories	320.43	320.00	311.10	317.25	0.00	0.02	0.02
	(40.51)	(37.98)	(35.86)	(22.03)			
Wage income	21.74	25.97	27.53	25.06	-0.06	-0.09	-0.02
	(3.97)	(4.37)	(4.21)	(2.42)			
Total household income	345.29	349.23	367.38	353.80	-0.02	-0.10	-0.09
	(13.42)	(13.36)	(13.46)	(7.74)			
Household consumption expenditure	200.69	219.79	213.75	211.42	-0.16	-0.11	0.05
	(7.01)	(7.85)	(7.50)	(4.31)			
Household savings	432.10	426.05	470.13	442.40	0.01	-0.04	-0.05
	(58.05)	(50.46)	(61.16)	(32.64)			
Household loans	37.80	34.50	43.53	38.54	0.04	-0.07	-0.12
	(4.65)	(4.65)	(5.15)	(2.78)			
Management practices index	0.00	0.03	0.05	0.02	-0.04	-0.06	-0.02
	(0.04)	(0.05)	(0.05)	(0.03)			
Risk aversion index	21.10	21.88	21.93	21.63	-0.09	-0.09	-0.01
	(0.57)	(0.58)	(0.58)	(0.33)			
Loss aversion index	5.88	6.26	5.95	6.03	-0.15	-0.03	0.12
	(0.16)	(0.17)	(0.17)	(0.10)			
Math score index	0.00	-0.03	0.01	-0.01	0.05	-0.01	-0.06
	(0.04)	(0.04)	(0.04)	(0.02)			
Education (years)	7.64	7.08	7.69	7.46	0.15	-0.01	-0.16
	(0.23)	(0.23)	(0.23)	(0.13)			
Individuals	254	257	246	757			

Notes: Treatment refers to assignment to either the fixed or flexible contract. Standard errors are clustered at the individual level. All flow variables are for the last month, and all currency values are in US$ equivalent based on the prevailing exchange rate during implementation of the projects (USD-Re of approximately 105). The normalized difference between treatment and control groups are computed as the difference in means divided by the square root of half of the sum of the variances. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We also conducted an omnibus balance test, using all of the variables specified in our pre-analysis plan. The test comfortably passes (p=0.344).

E Further details on borrowing

We expand on Table 2 by providing a more detailed breakdown of cash borrowing from Akhuwat administrative data, as well as cash borrowing from all sources, including for example loans from other MFIs or informal loans (which is obtained from the survey data).

Table A.4: **Impacts of treatment on all borrowing over time**

PANEL A: CASH LOANS FROM AKHUWAT (ADMINISTRATIVE DATA)

	(1) Took loan	(2) Took loan	(3) Took loan	(4) Took loan	(5) Loan amount	(6) Loan amount	(7) Loan amount	(8) Loan amount
Assignment	-0.04***	-0.08***	-0.11***	-0.16***	-14.39**	-26.07***	-34.23***	-49.17***
	(0.014)	(0.023)	(0.026)	(0.033)	(5.791)	(8.019)	(8.878)	(11.768)
Period	1 month	3 month	6 month	18 month	1 month	3 month	6 month	18 month
Control mean	0.05	0.13	0.17	0.31	17.51	40.46	53.88	100.97
Observations	757	757	757	757	757	757	757	757

PANEL B: CASH LOANS FROM ALL SOURCES (SURVEY DATA)

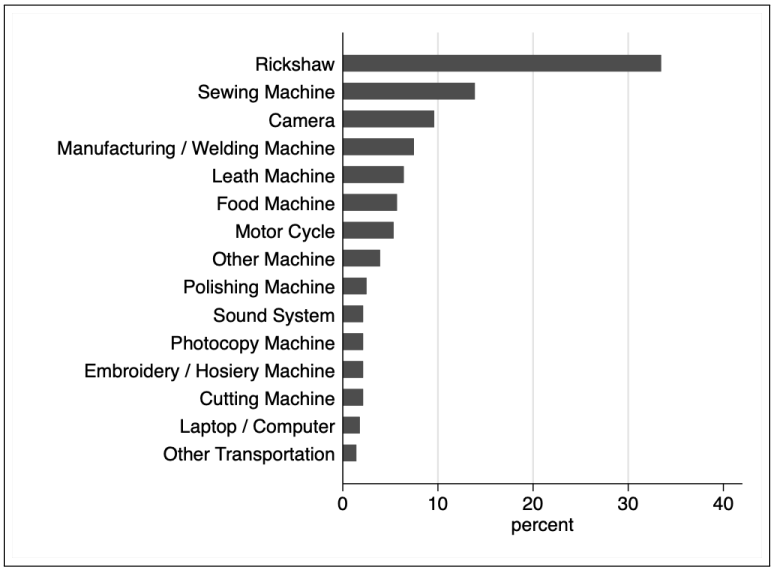
	(1) Akhuwat borrowing	(2) Akhuwat borrowing	(3) Akhuwat borrowing	(4) Akhuwat borrowing	(5) Akhuwat borrowing	(6) Total borrowing	(7) Total borrowing	(8) Total borrowing	(9) Total borrowing	(10) Total borrowing
Assignment	-38.97***	-39.85***	-20.62***	-10.96***	-3.73*	-38.97***	-39.85***	-20.62***	-10.96***	-3.73*
	(8.922)	(7.069)	(4.966)	(3.580)	(1.919)	(8.922)	(7.069)	(4.966)	(3.580)	(1.919)
Wave	1	2	3	4	5	1	2	3	4	5
Control mean (baseline)	33.90	33.90	33.90	33.90	33.90	33.90	33.90	33.90	33.90	33.90
Control mean (follow-up)	87.26	81.32	67.63	55.40	46.00	87.26	81.32	67.63	55.40	46.00
Observations	737	735	720	710	696	737	735	720	710	696

Note: Panel A provides a detailed breakdown of cash borrowing over time from Akhuwat administrative data. Column 2 (representing cash borrowing at the 3-month stage) corresponds to the short-run summary of borrowing reported in column 3 of 2 of the main paper. Panel B utilises survey data to show borrowing over time from all sources, including for example loans from other MFIs or informal loans. Note that there are indeed a few individuals who borrow from other MFIs and family / friends, but after winsorising the survey data the differences between total borrowing from Akhuwat and total borrowing from all sources are very small, hence the figures in columns 1 to 5 and columns 6 to 10 are identical. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

F Details of assets funded

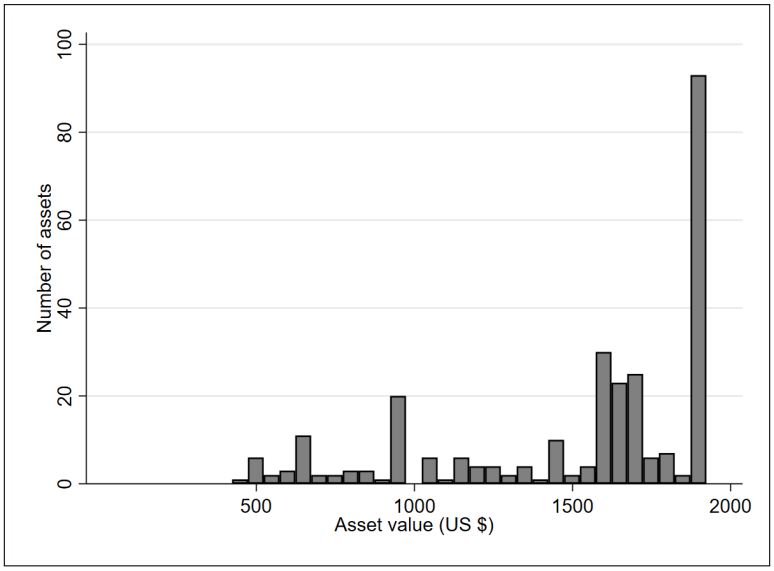
Below, we illustrate: (i) the different types of asset chosen by microenterprise owners; (ii) the distribution in the values of those assets.

Figure A.1: **Types of asset funded**



Note: This figure illustrates the different categories of asset chosen by the 281 clients who accepted a treatment contract.

Figure A.2: **Distribution of funded asset values**



Note: This figure illustrates the distribution in the value of assets financed for clients who took up one of our treatment contracts. Microenterprise owners were permitted to purchase an asset worth up to $1,900.

Below we present results from regressions that investigate the relationship between contract assignment and the value and type of asset chosen by microenterprise owners. The average value of asset financed for those assigned to the fixed-repayment contract was higher than the value for those assigned to the flexible-repayment contract, but the difference is not significant when controlling for stratification dummies (column 1 in the table; p-value = 0.233). Column 2 provides some suggestive evidence of more risk-averse individuals choosing higher asset values when offered the flexible contract. The remaining columns show that — for the five most popular assets — there is no clear difference by treatment assignment in the proportion of microenterprise owners choosing that asset.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Asset Value	Asset Value	Rickshaw	Sewing machine	Camera	Manufacturing / welding machine	Lathe machine
Assignment 2	59.80		-0.00	-0.00	0.06*	-0.00	-0.01
	(50.09)		(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
Assignment 1 * Medium risk aversion		-52.64					
		(90.12)					
Assignment 1 * High risk aversion		27.71					
		(89.29)					
Assignment 2 * Low risk aversion		-53.19					
		(96.23)					
Assignment 2 * Medium risk aversion		159.23**					
		(79.00)					
Assignment 2 * High risk aversion		72.79					
		(85.50)					
Assignment 1 mean	1471		0.17	0.09	0.03	0.04	0.04
Test: Assignment 1 equal		0.381					
Test: Assignment 2 equal		0.051					
Test: Tercile 2 equal		0.008					
Test: Tercile 3 equal		0.609					
Observations	281	281	281	281	281	281	281

Note: In column 2, we interact assignment with each of the three baseline risk terciles (where low, medium and high risk aversion refers to individuals who were in the bottom, middle and highest terciles of measured risk aversion using the baseline risk preference elicitation task). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

G Additional Intention-To-Treat regressions

Here we report the effect of treatment on wage employment (extensive and intensive margin).

Table A.5: **Treatment effects: Wage work**

	(1) Has a wage job	(2) Number of wage jobs	(3) Total wage hours	(4) Total wage income
Assignment	-0.07	-0.07	-3.62	-15.27
	(0.03)	(0.03)	(1.31)	(6.00)
	[0.01]***	[0.01]**	[0.01]***	[0.01]**
	{0.01}**	{0.01}**	{0.01}**	{0.01}**
Control mean (follow-up)	0.25	0.25	12.48	55.38
Observations	3,608	3,608	3,608	3,608

Note: In this table we report the *intent-to-treat* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini, Krieger, & Yekutieli, 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Here we report the effect of treatment on business cost categories.

Table A.6: **Treatment effects: Business costs**

	(1) Raw materials	(2) Wages	(3) Utility bills	(4) Rent: land	(5) Transport	(6) Rent: machines	(7) Repairs	(8) Phone	(9) Loan repayment
Assignment	-45.92	4.00	8.11	2.40	-0.23	-3.13	1.17	0.38	0.06
	(27.60)	(6.18)	(1.93)	(2.06)	(0.89)	(0.93)	(0.45)	(0.14)	(0.05)
	[0.10]*	[0.52]	[0.00]***	[0.24]	[0.80]	[0.00]***	[0.01]***	[0.01]***	[0.18]
	{0.11}	{0.35}	{0.00}***	{0.21}	{0.37}	{0.00}***	{0.02}**	{0.02}**	{0.18}
Control mean (follow-up)	271.97	58.85	37.96	20.86	10.81	7.62	5.36	3.73	0.10
Observations	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *intent-to-treat* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Below we report the effect of treatment on savings-related outcomes.

Table A.7: **Treatment effects: Attitudes about saving**

	(1) Savings problems	(2) Unecessary purchases	(3) Pressure to share	(4) Other: sav prob	(5) Other: unecess purch	(6) Good: money tracking	(7) Expect: better(1mth)	(8) Expect: better(1yr)
Assignment	-0.01	-0.02	0.01	-0.02	-0.01	0.00	-0.02	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
	[0.34]	[0.27]	[0.16]	[0.19]	[0.61]	[0.93]	[0.29]	[0.19]
	{0.83}	{0.83}	{0.83}	{0.83}	{0.83}	{0.83}	{0.83}	{0.83}
Control mean (follow-up)	0.35	0.18	0.12	0.30	0.20	0.49	0.46	0.48
Observations	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *intent-to-treat* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Here we report the effect of treatment on business management practices.

Table A.8: **Treatment effects: Microenterprise management practices**

	(1) Management: overall	(2) Management: marketing	(3) Management: buying / stock control	(4) Management: record keeping	(5) Management: financial planning
Assignment	0.04	0.08	0.13	0.01	-0.04
	(0.03)	(0.04)	(0.04)	(0.03)	(0.02)
	[0.25]	[0.05]*	[0.00]***	[0.65]	[0.13]
	{0.23}	{0.12}	{0.00}***	{0.35}	{0.15}
Control mean (follow-up)	0.00	0.00	0.00	0.00	0.00
Observations	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *intent-to-treat* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

H Local Average Treatment Effect estimations

In this section, we present equivalent local average treatment effect (LATE) estimates to the main ITT regressions, following our pre-analysis plan.[1] To obtain the LATE estimates, we instrument take-up with treatment, as follows:

$$y_{it} = \beta_0 + \beta_1 \cdot \mathtt{A}_i + \beta_2 \cdot y_{i0} + \phi_{s_i} + \varepsilon_{it};$$
$$A_i = \alpha_0 + \alpha_1 \cdot \mathtt{T}_i + \alpha_2 \cdot y_{i0} + \psi_{s_i} + \mu_i.$$

Table A.9: **Treatment effects: Primary business outcomes**

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees
Take-up	0.16	0.17	726.21	3.29	49.06	0.06
	(0.04)	(0.04)	(159.93)	(71.76)	(17.94)	(0.10)
	[0.00]***	[0.00]***	[0.00]***	[0.96]	[0.01]***	[0.54]
	{0.00}***	{0.00}***	{0.00}***	{0.47}	{0.00}***	{0.28}
Control mean (follow-up)	0.80	0.82	1003.34	689.65	249.31	0.56
Observations	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.10: **Treatment effects: Effect on business assets**

	(1) Total fixed assets	(2) Current assets: cash	(3) Current assets: accounts receivable	(4) Current assets: inventory
Take-up	793.59	4.86	-1.06	-53.85
	(116.27)	(3.20)	(2.65)	(62.36)
	[0.00]***	[0.13]	[0.69]	[0.39]
	{0.00}***	{0.24}	{0.53}	{0.35}
Control mean (follow-up)	660.19	31.38	9.93	250.77
Observations	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

[1] Available at www.socialscienceregistry.org/trials/3886.

Table A.11: **Treatment effects: Business costs**

	(1) Raw materials	(2) Wages	(3) Utility bills	(4) Rent: land	(5) Transport	(6) Rent: machines	(7) Repairs	(8) Phone	(9) Loan repayment
Take-up	-82.97	7.23	14.63	4.33	-0.41	-5.67	2.11	0.69	0.12
	(49.93)	(11.15)	(3.41)	(3.71)	(1.61)	(1.67)	(0.81)	(0.25)	(0.09)
	[0.10]*	[0.52]	[0.00]***	[0.24]	[0.80]	[0.00]***	[0.01]***	[0.01]***	[0.18]
	{0.11}	{0.35}	{0.00}***	{0.21}	{0.37}	{0.00}***	{0.02}**	{0.02}**	{0.18}
Control mean (follow-up)	271.97	58.85	37.96	20.86	10.81	7.62	5.36	3.73	0.10
Observations	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.12: **Treatment effects: Effect on the household**

	(1) Household income	(2) Household consumption expenditure	(3) Household savings	(4) Household assets
Take-up	56.96	23.53	29.76	36.92
	(22.72)	(6.15)	(34.71)	(25.52)
	[0.01]**	[0.00]***	[0.39]	[0.15]
	{0.01}**	{0.00}***	{0.19}	{0.08}*
Control mean (follow-up)	357.35	220.40	113.03	681.79
Observations	3,608	3,608	3,608	,410

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.13: **Treatment effects: Disaggregating household consumption**

	(1) Schooling	(2) Food	(3) Clothing: all	(4) Clothing: children	(5) Clothing: females	(6) Transportation	(7) Bills	(8) Phone	(9) Household items	(10) Health	(11) Temptation	(12) Special events
Take-up	10.30	4.74	2.80	0.51	1.60	1.00	1.22	0.22	3.45	0.16	0.02	0.07
	(2.35)	(1.63)	(3.31)	(1.32)	(1.69)	(0.30)	(0.56)	(0.16)	(2.51)	(0.55)	(0.20)	(0.52)
	[0.00]***	[0.00]***	[0.40]	[0.70]	[0.35]	[0.00]***	[0.03]**	[0.17]	[0.17]	[0.78]	[0.93]	[0.89]
	{0.00}***	{0.01}**	{0.52}	{0.87}	{0.52}	{0.01}***	{0.07}*	{0.29}	{0.29}	{0.87}	{0.87}	{0.87}
Control mean (follow-up)	22.05	52.80	34.71	10.18	14.45	0.73	24.54	4.06	67.54	2.24	1.31	7.30
Observations	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.14: **Treatment effects: Microenterprise management practices**

	(1) Management: overall	(2) Management: marketing	(3) Management: buying / stock control	(4) Management: record keeping	(5) Management: financial planning
Take-up	0.07	0.15	0.23	0.02	-0.07
	(0.06)	(0.08)	(0.07)	(0.05)	(0.04)
	[0.25]	[0.05]*	[0.00]***	[0.65]	[0.13]
	{0.23}	{0.12}	{0.00}***	{0.35}	{0.16}
Control mean (follow-up)	0.00	0.00	0.00	0.00	0.00
Observations	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.15: **Treatment effects: Wage work**

	(1) Has a wage job	(2) Number of wage jobs	(3) Total wage hours	(4) Total wage income
Take-up	-0.12	-0.12	-6.56	-27.68
	(0.05)	(0.05)	(2.36)	(10.87)
	[0.01]***	[0.01]**	[0.01]***	[0.01]**
	{0.01}**	{0.01}**	{0.01}**	{0.01}**
Control mean (follow-up)	0.25	0.25	12.48	55.38
Observations	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.16: **Treatment effects: Attitudes about saving**

	(1) Savings problems	(2) Unecessary purchases	(3) Pressure to share	(4) Other: sav prob	(5) Other: unecess purch	(6) Good: money tracking	(7) Expect: better(1mth)	(8) Expect: better(1yr)
Take-up	-0.02	-0.03	0.03	-0.03	-0.01	0.00	-0.04	-0.04
	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
	[0.34]	[0.27]	[0.16]	[0.19]	[0.61]	[0.93]	[0.29]	[0.19]
	{0.82}	{0.82}	{0.82}	{0.82}	{0.82}	{0.82}	{0.82}	{0.82}
Control mean (follow-up)	0.35	0.18	0.12	0.30	0.20	0.49	0.46	0.48
Observations	3,608	3,608	3,608	3,608	3,608	3,608	3,608	3,608

Note: In this table we report the *LATE* estimates of the combined treatment on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis, a p-value in brackets, and a q-value in curly braces. Standard errors allow for clustering at the level of the individual. q-values are obtained using the sharpened procedure of (Benjamini et al., 2006). We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

I Disaggregating by contract type

To estimate the separate ATE of treatment 1 and treatment 2, we estimate:

$$y_{it} = \beta_0 + \beta_1 \cdot \texttt{T1}_i + \beta_2 \cdot \texttt{T2}_i + \beta_3 \cdot y_{i0} + \tau_{s_i} + \varepsilon_{it}. \tag{A.1}$$

To estimate the separate LATE of treatment 1 and treatment 2, we instrument take-up with treatment as follows:

$$y_{it} = \beta_0 + \beta_1 \cdot \texttt{A1}_i + \beta_2 \cdot \texttt{A2}_i + \beta_3 \cdot y_{i0} + \tau_{s_i} + \varepsilon_{it} \tag{A.2}$$

$$\texttt{A1}_i = \gamma_0 + \gamma_1 \cdot \texttt{T1}_i + \gamma_2 \cdot \texttt{T2}_i + \gamma_3 \cdot y_{i0} + \phi_{s_i} + \mu_i \tag{A.3}$$

$$\texttt{A2}_i = \delta_0 + \delta_1 \cdot \texttt{T1}_i + \delta_2 \cdot \texttt{T2}_i + \delta_3 \cdot y_{i0} + \omega_{s_i} + \nu_i \tag{A.4}$$

Table A.17: **Treatment effects (ITT): Primary business outcomes**

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees
Assignment 1	0.09***	0.10***	429.78***	16.40	28.56**	0.03
	(0.028)	(0.028)	(105.218)	(45.279)	(11.251)	(0.065)
Assignment 2	0.09***	0.09***	371.42***	-13.41	25.23**	0.04
	(0.028)	(0.029)	(101.270)	(45.180)	(11.205)	(0.067)
Observations	3608	3608	3608	3608	3608	3608
Test: Assignment 1 = Assignment 2	0.881	0.904	0.566	0.494	0.751	0.946
Control mean (follow-up)	0.80	0.82	1003.34	689.65	249.31	0.56

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.18: **Treatment effects (ITT): Effect on business assets**

	(1) Total fixed assets	(2) Current assets: cash	(3) Current assets: accounts receivable	(4) Current assets: inventory
Assignment 1	480.92***	2.14	0.11	-39.44
	(81.318)	(1.948)	(1.709)	(37.397)
Assignment 2	393.30***	3.24	-1.31	-19.65
	(76.763)	(2.132)	(1.624)	(40.589)
Observations	3608	3608	3608	3608
Test: Assignment 1 = Assignment 2	0.297	0.584	0.373	0.585
Control mean (follow-up)	660.19	31.38	9.93	250.77

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.19: **Treatment effects (ITT): Microenterprise management practices**

	(1) Management: overall	(2) Management: marketing	(3) Management: buying / stock control	(4) Management: record keeping	(5) Management: financial planning
Assignment 1	0.01	0.09*	0.08*	-0.01	-0.06**
	(0.037)	(0.048)	(0.044)	(0.029)	(0.027)
Assignment 2	0.07*	0.08	0.17***	0.04	-0.01
	(0.038)	(0.049)	(0.043)	(0.029)	(0.029)
Observations	3608	3608	3608	3608	3608
Test: Assignment 1 = Assignment 2	0.085	0.775	0.039	0.064	0.072
Control mean (follow-up)	-0.00	0.00	0.00	-0.00	-0.00

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.20: **Treatment effects (ITT): Effect on the household**

	(1) Household income	(2) Household consumption expenditure	(3) Household savings	(4) Household loans	(5) Household assets
Assignment 1	27.30*	13.14***	-0.83	-20.11***	24.80
	(14.532)	(3.838)	(23.138)	(4.052)	(16.400)
Assignment 2	35.83**	12.76***	34.49	-25.64***	15.61
	(14.511)	(4.035)	(22.878)	(4.108)	(16.166))
Observations	3608	3608	3608	3608	1410
Test: Assignment 1 = Assignment 2	0.549	0.926	0.166	0.128	0.579
Control mean (follow-up)	357.35	220.40	113.03	46.05	681.79

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.21: **Treatment effects (ITT): Wage work**

	(1) Has a wage job	(2) Number of wage jobs	(3) Total wage hours	(4) Total wage income
Assignment 1	-0.07**	-0.07**	-3.93***	-17.62***
	(0.029)	(0.029)	(1.484)	(6.785)
Assignment 2	-0.06**	-0.06**	-3.31**	-12.79*
	(0.029)	(0.029)	(1.465)	(6.814)
Observations	3608	3608	3608	3608
Test: Assignment 1 = Assignment 2	0.678	0.678	0.650	0.451
Control mean (follow-up)	0.25	0.25	12.48	55.38

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.22: **Treatment effects (ITT): Attitudes about saving**

	(1) Savings problems	(2) Unecessary purchases	(3) Pressure to share	(4) Other: sav prob	(5) Other: unecess purch	(6) Good: money tracking	(7) Expect: better(1mth)	(8) Expect: better(1yr)
Assignment 1	-0.02	-0.03*	0.01	-0.02	-0.02	0.01	-0.05**	-0.02
	(0.017)	(0.015)	(0.012)	(0.016)	(0.018)	(0.022)	(0.023)	(0.020)
Assignment 2	-0.00	-0.00	0.02	-0.02	0.00	-0.02	0.01	-0.02
	(0.016)	(0.016)	(0.013)	(0.017)	(0.018)	(0.022)	(0.023)	(0.021)
Observations	3608	3608	3608	3608	3608	3608	3608	3608
Assignment 1 = Assignment 2	0.274	0.139	0.735	0.805	0.272	0.216	0.020	0.833
Control mean (follow-up)	0.35	0.18	0.12	0.30	0.20	0.49	0.46	0.48

Note: In this table we report the *intent-to-treat* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.23: **Treatment effects (LATE): Primary business outcomes**

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees
Take-up 1	0.17***	0.18***	812.19***	30.86	54.46**	0.06
	(0.052)	(0.052)	(195.210)	(85.374)	(21.159)	(0.123)
Take-up 2	0.15***	0.16***	614.80***	-32.62	42.14**	0.07
	(0.051)	(0.052)	(181.478)	(85.002)	(20.514)	(0.126)
Observations	3608	3608	3608	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.640	0.655	0.334	0.493	0.439	0.984
Control mean (follow-up)	0.80	0.82	1003.34	689.65	249.31	0.56

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.24: **Treatment effects (LATE): Effect on business assets**

	(1) Total fixed assets	(2) Current assets: cash	(3) Current assets: accounts receivable	(4) Current assets: inventory
Take-up 1	909.08***	4.05	0.20	-74.36
	(146.874)	(3.672)	(3.222)	(70.344)
Take-up 2	643.98***	5.90	-2.70	-27.21
	(132.682)	(4.007)	(3.038)	(76.187)
Observations	3608	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.097	0.659	0.394	0.536
Control mean (follow-up)	660.19	31.38	9.93	250.77

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.25: **Treatment effects (LATE): Microenterprise management practices**

	(1) Management: overall	(2) Management: marketing	(3) Management: buying / stock control	(4) Management: record keeping	(5) Management: financial planning
Take-up 1	0.02	0.17*	0.16*	-0.02	-0.11**
	(0.070)	(0.090)	(0.082)	(0.055)	(0.051)
Take-up 2	0.14*	0.12	0.32***	0.08	-0.01
	(0.070)	(0.093)	(0.082)	(0.055)	(0.054)
Observations	3608	3608	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.103	0.661	0.071	0.073	0.060
Control mean (follow-up)	-0.00	0.00	0.00	-0.00	-0.00

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.26: **Treatment effects (LATE): Effect on the household**

	(1) Household income	(2) Household consumption expenditure	(3) Household savings
Take-up 1	51.42*	24.94***	-1.51
	(27.099)	(7.281)	(43.600)
Take-up 2	64.15**	21.71***	70.37
	(26.888)	(7.701)	(44.504)
Observations	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.666	0.705	0.187
Control mean (follow-up)	357.35	220.40	113.03

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.27: **Treatment effects (LATE): Wage work**

	(1) Has a wage job	(2) Number of wage jobs	(3) Total wage hours	(4) Total wage income
Take-up 1	-0.13**	-0.13**	-7.41***	-33.29***
	(0.054)	(0.054)	(2.786)	(12.745)
Take-up 2	-0.10*	-0.10*	-5.46**	-20.38
	(0.054)	(0.054)	(2.715)	(12.716)
Observations	3608	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.535	0.536	0.494	0.335
Control mean (follow-up)	0.25	0.25	12.48	55.38

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

Table A.28: **Treatment effects (LATE): Attitudes about saving**

	(1) Savings problems	(2) Unecessary purchases	(3) Pressure to share	(4) Other: sav prob	(5) Other: unecess purch	(6) Good: money tracking	(7) Expect: better(1mth)	(8) Expect: better(1yr)
Take-up 1	-0.04	-0.05*	0.02	-0.04	-0.03	0.02	-0.09**	-0.04
	(0.032)	(0.029)	(0.023)	(0.030)	(0.034)	(0.041)	(0.045)	(0.037)
Take-up 2	-0.00	0.00	0.03	-0.03	0.01	-0.04	0.03	-0.04
	(0.030)	(0.031)	(0.024)	(0.032)	(0.034)	(0.042)	(0.045)	(0.040)
Observations	3608	3608	3608	3608	3608	3608	3608	3608
Test: Take-up 1 = Take-up 2	0.249	0.119	0.813	0.736	0.258	0.220	0.019	0.908
Control mean (follow-up)	0.35	0.18	0.12	0.30	0.20	0.49	0.46	0.48

Note: In this table we report the *local average treatment effect* estimates of the separated treatments on primary outcomes, obtained by least-squares estimation. Below each coefficient, we report a standard error in parenthesis. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

J Disaggregating by survey wave

Here we repeat our earlier ITT analysis, dis-aggregating by survey wave. Specifically, we show estimates individually for follow-up surveys at the three-month, six-month, 12-month, 18-month and 24-month points.

Table A.29: **Disaggregating results by survey wave: business outcomes**

PANEL A: THREE-MONTH FOLLOW-UP

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees	(7) Total fixed assets	(8) Current assets: cash	(9) Current assets: accounts receivable	(10) Current assets: inventory
Assignment	0.08***	0.11***	433.23***	-4.77	14.54	-0.00	454.65***	3.35	-0.23	-3.02
	(0.027)	(0.032)	(106.694)	(47.511)	(10.985)	(0.074)	(76.133)	(4.277)	(4.515)	(46.455)
Observations	737	737	737	737	737	737	737	737	737	737
Control mean (follow-up)	0.84	0.89	1149.01	674.54	238.25	0.60	710.79	44.31	18.39	303.40

PANEL B: SIX-MONTH FOLLOW-UP

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees	(7) Total fixed assets	(8) Current assets: cash	(9) Current assets: accounts receivable	(10) Current assets: inventory
Assignment	0.06**	0.08**	398.84***	10.17	17.54	0.02	445.06***	1.33	0.50	-43.68
	(0.027)	(0.031)	(108.976)	(46.285)	(11.814)	(0.072)	(77.848)	(2.730)	(3.247)	(48.169)
Observations	735	735	735	735	735	735	735	735	735	735
Control mean (follow-up)	0.84	0.86	1155.04	694.39	254.70	0.60	735.29	37.98	13.44	319.17

PANEL C: 12-MONTH FOLLOW-UP

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees	(7) Total fixed assets	(8) Current assets: cash	(9) Current assets: accounts receivable	(10) Current assets: inventory
Assignment	0.10***	0.09***	465.72***	-18.32	32.43***	0.01	503.90***	1.17	-4.64	-28.64
	(0.030)	(0.029)	(112.464)	(48.501)	(12.479)	(0.074)	(80.790)	(1.968)	(3.245)	(41.649)
Observations	720	720	720	720	720	720	720	720	720	720
Control mean (follow-up)	0.79	0.81	982.49	720.03	253.13	0.58	640.63	28.10	14.78	244.01

PANEL D: 18-MONTH FOLLOW-UP

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees	(7) Total fixed assets	(8) Current assets: cash	(9) Current assets: accounts receivable	(10) Current assets: inventory
Assignment	0.11***	0.10***	366.86***	16.25	34.82***	0.07	402.23***	4.57**	0.82	-26.42
	(0.031)	(0.031)	(108.238)	(47.979)	(12.187)	(0.074)	(85.846)	(1.949)	(0.929)	(36.308)
Observations	710	710	710	710	710	710	710	710	710	710
Control mean (follow-up)	0.77	0.78	914.67	691.46	250.81	0.53	635.36	23.85	2.14	200.32

PANEL D: 24-MONTH FOLLOW-UP

	(1) Runs a business	(2) Number of businesses	(3) Business total assets	(4) Business revenue	(5) Business profits	(6) Business employees	(7) Total fixed assets	(8) Current assets: cash	(9) Current assets: accounts receivable	(10) Current assets: inventory
Assignment	0.11***	0.10***	329.26***	7.38	37.14***	0.09	377.49***	3.30**	-0.02	-51.52
	(0.033)	(0.033)	(96.642)	(46.161)	(12.809)	(0.062)	(78.869)	(1.501)	(0.178)	(36.312)
Observations	696	696	696	696	696	696	696	696	696	696
Control mean (follow-up)	0.74	0.75	805.69	667.82	249.81	0.46	574.72	22.06	0.50	183.10

Table A.30: **Disaggregating results by survey wave: other outcomes**

PANEL A: THREE-MONTH FOLLOW-UP

	(1) Total household income	(2) Household consumption expenditure	(3) Total household savings
Assignment	13.96	10.12*	28.66
	(13.898)	(5.318)	(35.259)
Observations	737	737	737
Control mean (follow-up)	335.68	203.66	198.56

PANEL B: SIX-MONTH FOLLOW-UP

	(1) Total household income	(2) Household consumption expenditure	(3) Total household savings
Assignment	14.85	14.52***	-9.18
	(15.494)	(5.427)	(29.566)
Observations	735	735	735
Control mean (follow-up)	362.83	212.64	167.68

PANEL C: 12-MONTH FOLLOW-UP

	(1) Total household income	(2) Household consumption expenditure	(3) Total household savings
Assignment	37.21**	11.74**	30.50
	(16.303)	(5.223)	(28.450)
Observations	720	720	720
Control mean (follow-up)	367.45	217.68	107.20

PANEL D: 18-MONTH FOLLOW-UP

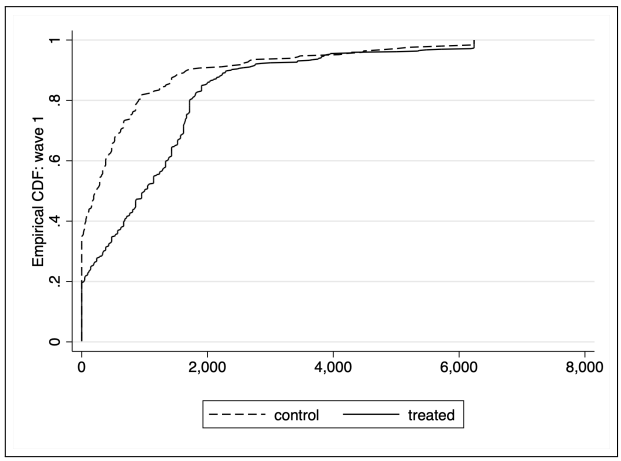
	(1) Total household income	(2) Household consumption expenditure	(3) Total household savings
Assignment	44.01***	17.87***	23.55
	(16.667)	(4.907)	(22.349)
Observations	710	710	710
Control mean (follow-up)	359.29	232.94	60.91

PANEL D: 24-MONTH FOLLOW-UP

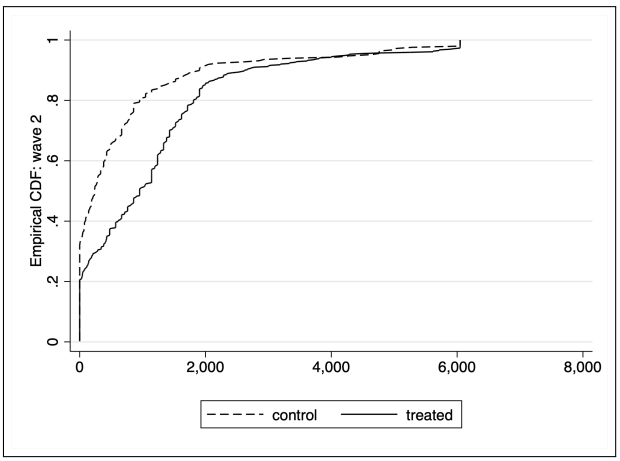
	(1) Total household income	(2) Household consumption expenditure	(3) Total household savings
Assignment	51.01***	9.52*	8.99
	(18.156)	(5.016)	(7.790)
Observations	696	696	696
Control mean (follow-up)	361.96	235.89	26.24

Figure A.3: **Empirical CDFs for total fixed assets, disaggregated by survey wave**

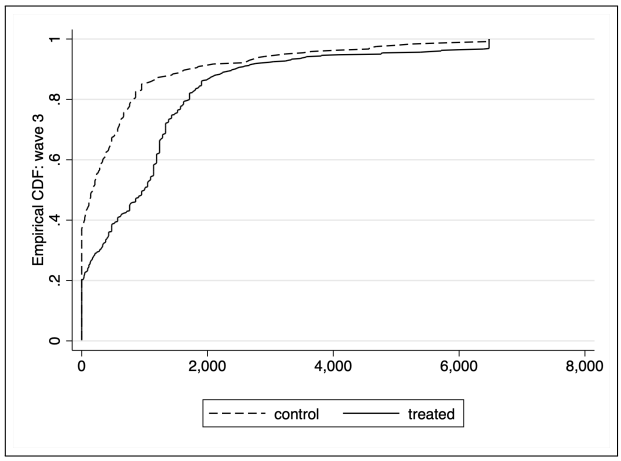
3-MONTH FOLLOW-UP



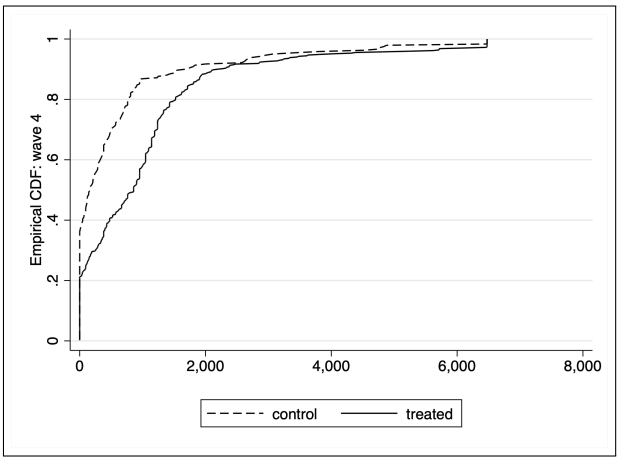
6-MONTH FOLLOW-UP



12-MONTH FOLLOW-UP



18-MONTH FOLLOW-UP



24-MONTH FOLLOW-UP

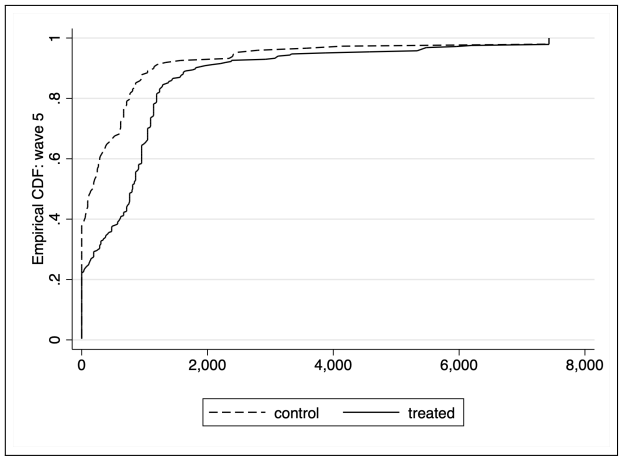
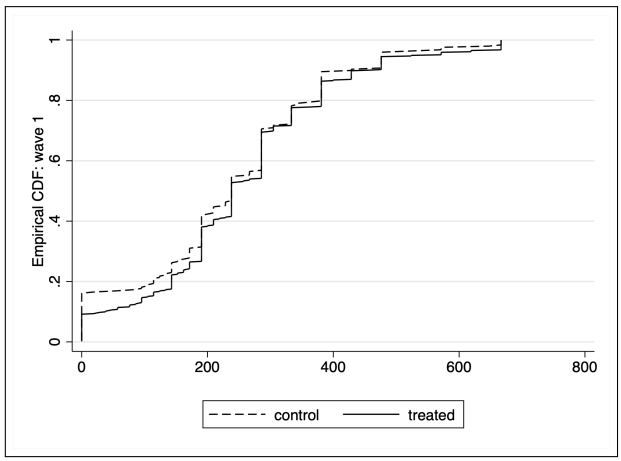
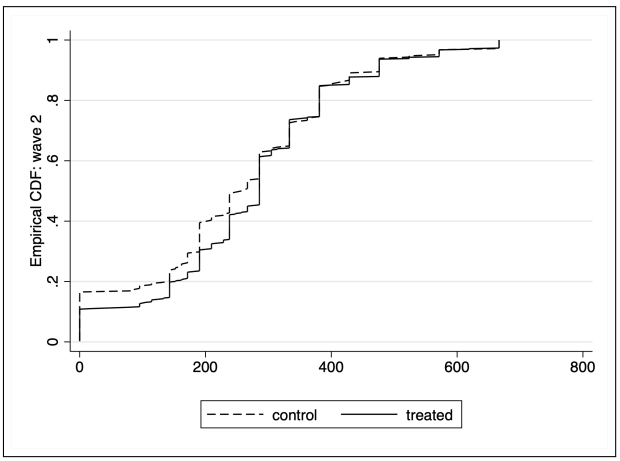


Figure A.4: **Empirical CDFs for business profits, disaggregated by survey wave**

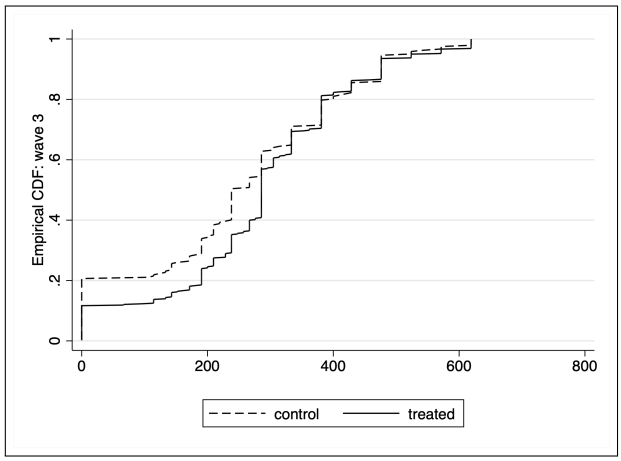
3-MONTH FOLLOW-UP



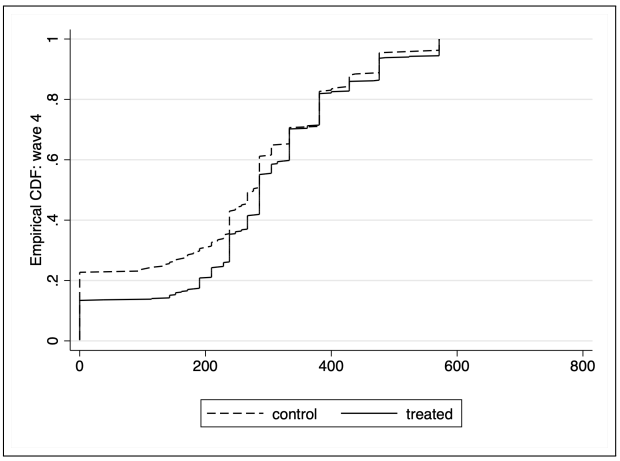
6-MONTH FOLLOW-UP



12-MONTH FOLLOW-UP



18-MONTH FOLLOW-UP



24-MONTH FOLLOW-UP

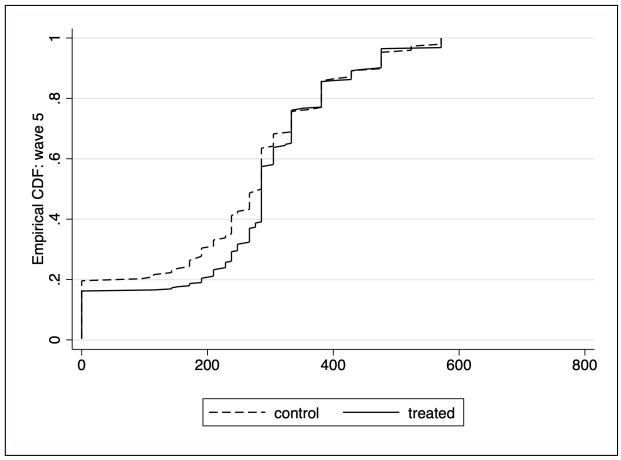


Figure A.5: **Empirical CDFs for household consumption, disaggregated by survey wave**

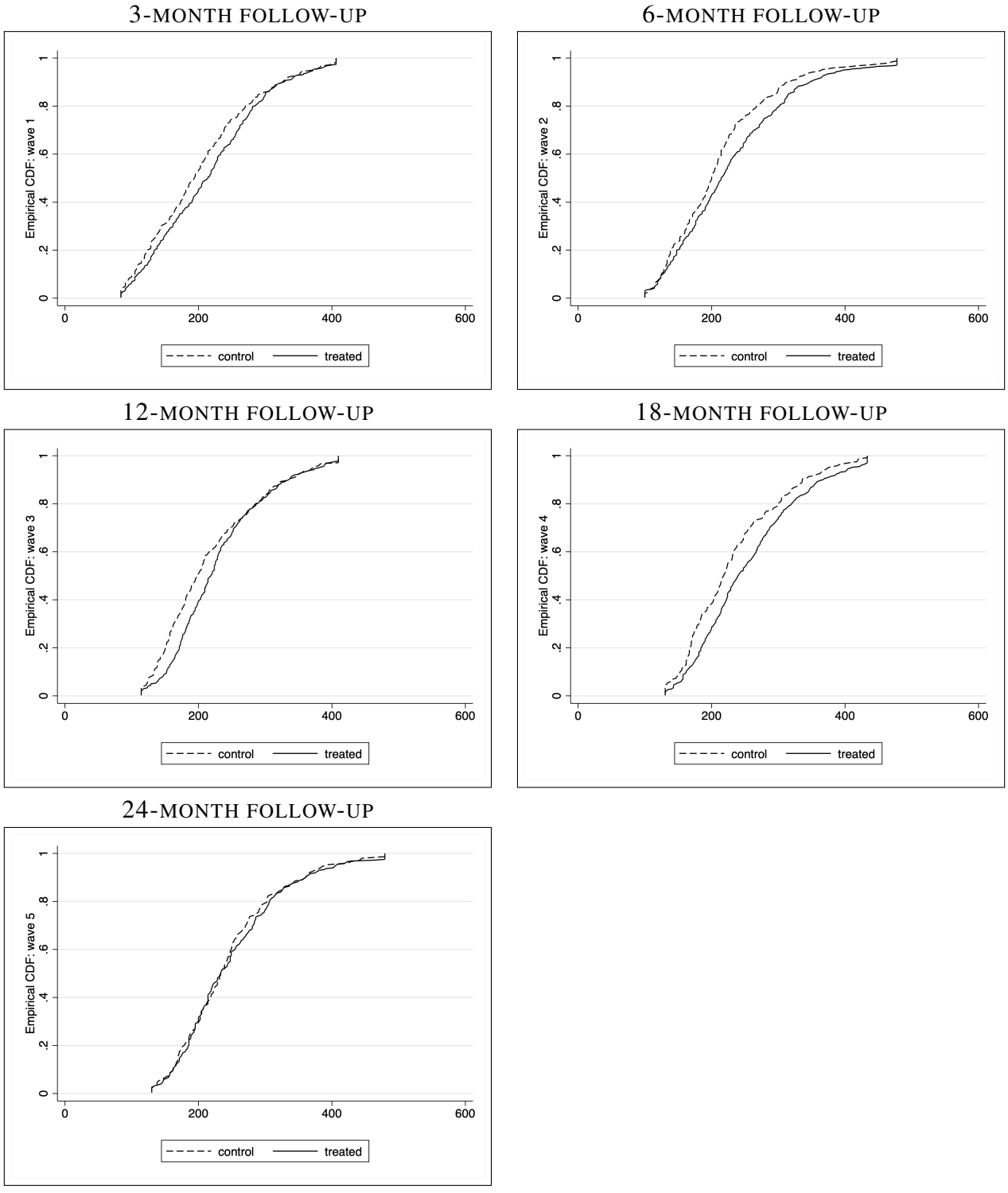
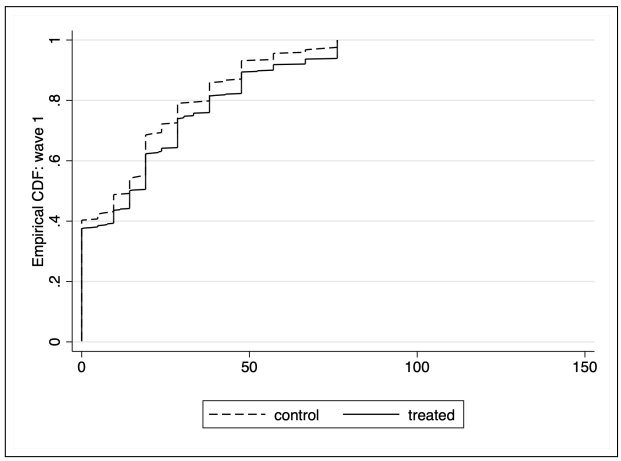
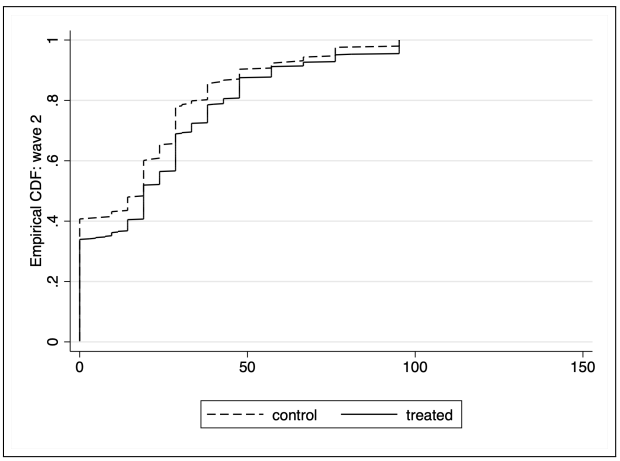


Figure A.6: **Empirical CDFs for schooling expenditure, disaggregated by survey wave**

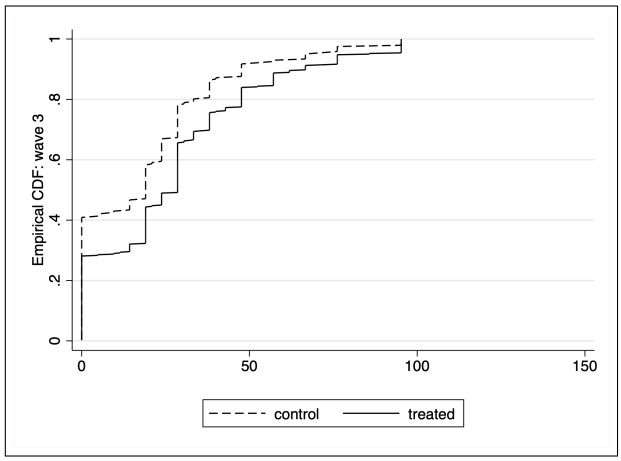
3-MONTH FOLLOW-UP



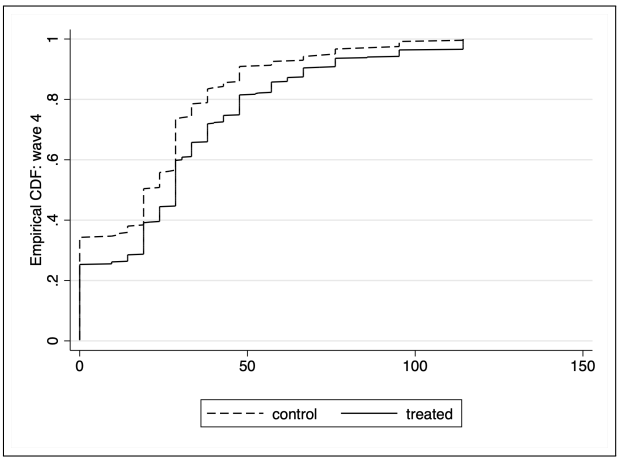
6-MONTH FOLLOW-UP



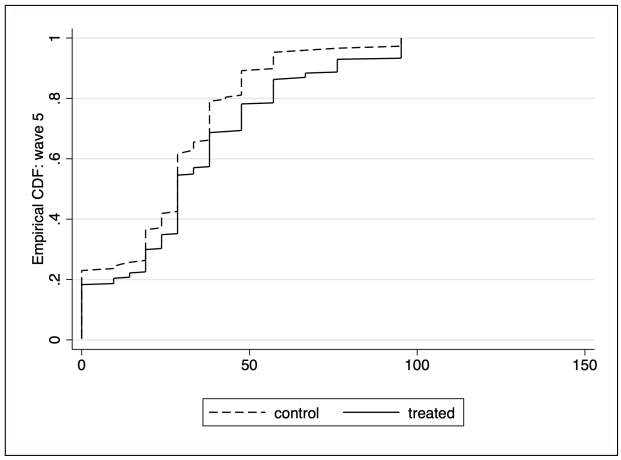
12-MONTH FOLLOW-UP



18-MONTH FOLLOW-UP



24-MONTH FOLLOW-UP



K Analysis of impacts on assets when considering depreciation

We recalculate the dynamic treatment effects on fixed assets from Table A.29 using an alternative measure of asset value, calculated in the spirit of an accounting-like 'book value'. This allows us to explore whether the observed pattern of treatment effects on assets over time is consistent with reasonable assumptions about asset depreciation.

Focusing on the impacts over time specifically on total fixed assets, we can see from column 2 of Table A.31 that the LATE effects on fixed assets at the six-month, 12-month, 18-month and 24-month points are \$799, \$912, \$729, and \$691, respectively. While the effects remain large across the survey waves, there is the possibility of some decrease in the impacts on assets towards the latter waves. We now explore how much of this decline may be explained by depreciation. To do this, we re-run the dynamic treatment effects using an alternative measure of asset value, calculated in the spirit of an accounting-like 'book value' of assets. This allows us to explore whether the observed pattern of effects on assets is consistent with reasonable assumptions about asset depreciation over time. Specifically, we take the asset value reported by microenterprises at each survey wave, which is their response to the survey question "How much would it cost you to replace the assets with ones in similar condition?", and we add back an individual-specific estimate of depreciation. The depreciation estimate is based on 20% annual depreciation, and a 25% 'showroom effect' (the loss of value of a new asset as soon as it leaves the store; note that, in the structural model, we refer to this as ϕ,, the 'partial irreversibility cost'). (This is the depreciation rate and partial irreversibility parameter that we use in the structural model, based on the incentivised belief-elicitation task described in Appendix Section O.10 .) Those depreciation rates are then applied for each individual based on the value of their new asset investment at baseline. (For treatment take-up clients, we use the administrative data from the MFI on the value of the asset purchased; for all other respondents, we infer new asset investment from survey data reports of the stock of assets between baseline and follow-up.) We thus effectively transform the reported market value of assets at each survey wave to a non-depreciated book value.

We then re-run all of the dynamic regressions using this new outcome variable – to see whether the aforementioned decline in treatment effects on assets is consistent with the assets simply depreciating. We confirm that this is indeed the case. Columns 1 and 2 of Panels A, B, C, D, and E of Table A.31 (representing the treatment effects using only data from the 6-month, 12-month, 18-month, and 24-month follow-up surveys, respectively) present the ITT and LATE estimates of dynamics effects on the existing fixed asset variable. In columns 3 and 4, we re-run ITT and LATE regressions using the new fixed asset variable. In column 4, we can see that a LATE regression where take-up is instrumented by assignment implies a treatment effect for take-up people of \$1349, \$1584, \$1409, and \$1517 at the 6-month, 12-month, 18-month, and 24-month points respectively, which is very close to the average value of assets purchased by clients in the interventions of approximately \$1500). In conclusion, these results are consistent with the possibly declining treatment effects on self-reported assets reflecting depreciation of the financed assets, under reasonable assumptions. This is also consistent with qualitative evidence that does not suggest much selling of assets by treatment clients – and which, in turn, is also consistent with the very high repayment rates on the asset finance contracts.

Table A.31: **Impact of treatment on asset valuations**

PANEL A: 6-MONTH FOLLOW-UP

	(1) Fixed assets: Market value	(2) Fixed assets: Market value	(3) Fixed assets: Book value	(4) Fixed assets: Book value
Assignment	445.06***		840.86***	
	(77.848)		(113.198)	
Take-up		799.35***		1349.00***
		(134.279)		(171.717)
Observations	735	737	640	643
Control mean	735.29		834.73	

PANEL B: 12-MONTH FOLLOW-UP

	(1) Fixed assets: Market value	(2) Fixed assets: Market value	(3) Fixed assets: Book value	(4) Fixed assets: Book value
Assignment	503.90***		975.77***	
	(80.790)		(126.716)	
Take-up		911.67***		1583.59***
		(140.607)		(193.669)
Observations	720	722	612	615
Control mean	640.63		753.60	

PANEL C: 18-MONTH FOLLOW-UP

	(1) Fixed assets: Market value	(2) Fixed assets: Market value	(3) Fixed assets: Book value	(4) Fixed assets: Book value
Assignment	402.23***		869.95***	
	(85.846)		(130.760)	
Take-up		728.81***		1409.17***
		(150.877)		(197.761)
Observations	710	712	589	592
Control mean	635.36		792.33	

PANEL D: 24-MONTH FOLLOW-UP

	(1) Fixed assets: Market value	(2) Fixed assets: Market value	(3) Fixed assets: Book value	(4) Fixed assets: Book value
Assignment	377.49***		936.18***	
	(78.869)		(132.337)	
Take-up		691.10***		1517.45***
		(140.572)		(198.974)
Observations	696	698	557	560
Control mean	574.72		740.75	

Note: Columns 1 and 2 show the dynamic treatment effect estimates on total fixed assets from ITT and LATE regressions. In columns 3 and 4, similar ITT and LATE regressions are presented, but using an alternative 'book value' of fxed assets. Specifically, we take the asset value reported by microenterprises at each survey wave, which is their response to the survey question *"How much it would cost you to replace the assets with ones in similar condition"*, and we add back an individual-specific estimate of depreciation. The depreciation estimate is based on 20% annual depreciation, and a 25% 'showroom effect' (the loss of value of a new asset as soon as it leaves the store; note that, in the structural model, we refer to this as ϕ, the 'partial irreversibility cost'). In the theoretical model, and to the depreciation rate we explicitly measure using an incentivised belief elicitation task with participants, described in Appendix Section O.10.) Those depreciation rates are then applied for each individual based on the value of their new asset investment at baseline. (For treatment take-up clients, we use the administrative data from the MFI on the value of the asset purchased; for all other respondents, we infer new asset investment from survey data reports of the stock of assets between baseline and follow-up). We thus effectively transform the reported market value of assets at each survey wave to a non-depreciated book value. * p < 0.10, ** p < 0.05, *** p < 0.01.

L Sectoral choice

We explore the dynamics of sectoral choice, focusing on the eight most popular business sectors, to see if there is a change in business activities over time. Panel A uses data from the three waves of follow-up survey in the first year after the intervention (after 3 months, 6 months, and 12 months), and Panel B uses follow-up surveys in the second post-intervention year (specifically, using data 18 at 24 months after intervention).

While we see some evidence that assignment to treatment increases the likelihood of switching into transportation (clearly one of the more asset-intensive sectors) compared to the level of switching in the control group, the increase in the first year is four percentage points; in the second year, it is quite close to this figure (at six percentage points). We also see a small decrease in the likelihood of working in the food sector, but there is not much of a difference in the first year (a reduction of two percentage points) and the second year (a reduction of three percentage points). We do not see much sectoral switching in any other sectors, or much in the way of a different likelihood of sectoral switching between the first and second year after treatment.

Table A.32: **Sectoral choice**

PANEL A: YEAR 1

	(1) Transportation	(2) Tailoring	(3) Manufacturing	(4) Food	(5) Retail	(6) Construction	(7) Services	(8) Photography
Assignment	0.04**	-0.01	0.00	-0.02*	-0.00	0.01	-0.01	-0.00
	(0.017)	(0.013)	(0.011)	(0.012)	(0.009)	(0.008)	(0.009)	(0.004)
Observations	1916	1916	1916	1916	1916	1916	1916	1916
Baseline mean	0.21	0.20	0.11	0.10	0.10	0.09	0.07	0.06

PANEL B: YEAR 2

	(1) Transportation	(2) Tailoring	(3) Manufacturing	(4) Food	(5) Retail	(6) Construction	(7) Services	(8) Photography
Assignment	0.06***	-0.02	0.00	-0.03**	-0.02	0.02**	-0.02	-0.00
	(0.024)	(0.017)	(0.015)	(0.013)	(0.014)	(0.011)	(0.011)	(0.005)
Observations	1156	1156	1156	1156	1156	1156	1156	1156
Baseline mean	0.21	0.20	0.11	0.10	0.10	0.09	0.07	0.06

Note: The dependent variable in each of the eight columns is a dummy for whether the microenterprise owners reports operating in one of the eight most popular business sectors: (i) transportation, primarily involving rickshaws as well as other transportation assets; (ii) tailoring and textile-related trades, including sewing of footwear and other fabric and garment related activities; (iii) various forms of manufacturing and related trades; (iv) food and drink businesses; (v) various types of retail shops and market traders; (vi) construction and related trade; (vii) various professional services, including telecommunications-related services; (viii) photography and other entertainment-related sectors. The proportion of respondents in each sector at baseline is reported in the rows below the results. Panel A uses data on reported business sectors from the three waves of follow-up survey in the first year after the intervention (after 3 months, 6 months, and 12 months), and Panel B uses data on reported business sectors from follow-up surveys in the second post-intervention year (specifically, using data 18 at 24 months after intervention). Assignment is a dummy for assignment to treatment (either of the two asset finance contracts). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

M Mediation analysis

We explore whether sectoral switching might explain some of our estimated positive effects on profits. We use the method of Acharya, Blackwell, and Sen (2016) to calculate the Average Controlled Direct Effect, using as a mediator a dummy variable for whether the respondent runs a rickshaw (the main asset in the most popular business sector in our sample, transportation).

Table A.33: **Average Controlled Direct Effects, with rickshaw as mediator**

AVERAGE TREATMENT EFFECTS

	(1) Business total assets	(2) Business profits	(3) Expenditure: raw materials	(4) Expenditure: utility bills	(5) Management: buying / stock control
Assignment	401.22***	26.93***	-45.92*	8.11***	0.13***
	(89.940)	(9.929)	(27.604)	(1.926)	(0.038)
N	3608	3608	3608	3608	3608

AVERAGE CONTROLLED DIRECT EFFECTS

	(1) Business total assets	(2) Business profits	(3) Expenditure: raw materials	(4) Expenditure: utility bills	(5) Management: buying / stock control
Assignment	408.48***	24.79**	-31.92	5.48***	0.13***
	(89.875)	(9.913)	(27.103)	(1.658)	(0.038)
Observations	3608	3608	3608	3608	3608
Explained by mediator (%)	-1.8	8.0	30.5	32.4	1.0

Note: This table uses the method of Acharya et al. (2016) to calculate the Average Controlled Direct Effect for several key experimental outcomes, using as a mediator a dummy variable for whether the respondent runs a rickshaw. We find that this mediator explains about 30% of the estimated ATE on raw materials and on bills; however, the mediator explains only about 8% of the estimated effect on profits, and only about 1% of the effect on management practices.

N Robustness to outliers

Here we consider outliers: we take the main treatment effects of interest from our previous analysis, and subject them to increasing degrees of winsorization.

Table A.34: **Robustness of main results to winsorizing**

PANEL A: WINSORIZING 2.5% TOP AND BOTTOM (ESTIMATES IN THE MAIN PAPER)

	(1) Number of businesses	(2) Business assets	(3) Fixed assets	(4) Business revenue	(5) Business profits	(6) Household loans	(7) Household consumption	(8) Expenditure: schooling	(9) Expenditure: food
Assignment	0.10***	401.22***	438.05***	1.82	26.93***	-22.81***	12.95***	5.70***	2.61***
	(0.025)	(89.940)	(67.147)	(39.654)	(9.929)	(3.653)	(3.374)	(1.297)	(0.900)
Control mean	0.82	1003.34	660.19	689.65	249.31	46.05	220.40	22.05	52.80
Effect size (%)	11.8	40.0	66.4	0.3	10.8	-49.5	5.9	25.8	4.9
Observations	3608	3608	3608	3608	3608	3608	3608	3608	3608

PANEL B: WINSORIZING 1% TOP AND BOTTOM

	(1) Number of businesses	(2) Business assets	(3) Fixed assets	(4) Business revenue	(5) Business profits	(6) Household loans	(7) Household consumption	(8) Expenditure: schooling	(9) Expenditure: food
Assignment	0.10***	420.07***	462.09***	-7.25	29.03***	-20.70***	13.27***	6.28***	2.63***
	(0.025)	(100.763)	(77.668)	(47.442)	(10.442)	(4.107)	(3.622)	(1.410)	(0.936)
Control mean	0.82	1042.31	698.94	716.96	251.60	48.33	221.65	22.33	52.94
Effect size (%)	12.2	40.3	66.1	-1.0	11.5	-42.8	6.0	28.1	5.0
Observations	3608	3608	3608	3608	3608	3608	3608	3608	3608

PANEL C: WINSORIZING 5% TOP AND BOTTOM

	(1) Number of businesses	(2) Business assets	(3) Fixed assets	(4) Business revenue	(5) Business profits	(6) Household loans	(7) Household consumption	(8) Expenditure: schooling	(9) Expenditure: food
Assignment	0.09***	394.70***	417.68***	10.04	26.57***	-21.18***	12.51***	5.17***	2.32***
	(0.025)	(77.442)	(54.897)	(34.095)	(9.566)	(3.257)	(3.184)	(1.208)	(0.818)
Control mean	0.81	939.08	593.54	654.61	246.19	42.05	219.53	21.69	52.58
Effect size (%)	11.6	42.0	70.4	1.5	10.8	-50.4	5.7	23.9	4.4
Observations	3608	3608	3608	3608	3608	3608	3608	3608	3608

PANEL D: WINSORIZING 10% TOP AND BOTTOM

	(1) Number of businesses	(2) Business assets	(3) Fixed assets	(4) Business revenue	(5) Business profits	(6) Household loans	(7) Household consumption	(8) Expenditure: schooling	(9) Expenditure: food
Assignment	0.08***	387.02***	402.32***	20.26	26.41***	-18.12***	11.48***	4.59***	2.08***
	(0.024)	(59.004)	(40.999)	(27.376)	(9.257)	(2.728)	(2.838)	(1.049)	(0.755)
Control mean	0.81	809.91	488.26	591.80	243.00	35.11	218.11	20.61	52.30
Effect size (%)	10.3	47.8	82.4	3.4	10.9	-51.6	5.3	22.3	4.0
Observations	3608	3608	3608	3608	3608	3608	3608	3608	3608

O Further details on the structural model

O.1 Introducing microfinance to the base model

Allowing for an unconditional loan: The introduction of the new state variable requires an amendment to the value function:

$$V_m(k_t, f_t, \varepsilon_t, \psi_t, x_t) = \begin{cases} \max_{k_{t+1}, f_{t+1}} \mathbb{E}_{(\varepsilon_{t+1}, \psi_{t+1}) \,|\, (\varepsilon_t, \psi_t)} \left[\dfrac{c_t^{1-1/\gamma}}{1-1/\gamma} + \beta \cdot V_m \left(k_{t+1}, f_{t+1}, \varepsilon_{t+1}, \psi_{t+1}, x_t + 1 \right) \right] & \text{if } x_t \leq X; \\ V_n(k_t, f_t, \varepsilon_t) & \text{if } x_t = X + 1. \end{cases} \tag{2'}$$

That is, we treat the household as maximising discounted future consumption over the duration of the loan cycle, where the continuation value (after the cycle ends) is defined by the no-contract value function V_n.

Allowing for the asset financing contract: Alternatively, suppose that the household receives the asset financing contract, excluding the flexible-repayment option, and with a uniform asset amount of $\tilde{F}$. We model this scenario by (i) keeping the amended value function in equation 2' (because, as in the standard loan case, the household needs to optimise based upon its position in the cycle), (ii) by reverting to the initial restriction $f_t \geq 0$ (because the asset-finance contract is implemented as a direct injection of fixed capital, rather than as a relaxation of the financial constraint), and (iii) by amending equation 4:

$$s_t = f_{t+1} - (1+r) \cdot f_t + \begin{cases} \tilde{F} \cdot \{1/3 + 0.04 \times [1 - 0.15 \times (x_t - 1)]\} & \text{if } x_t = 1; \\ \tilde{F} \cdot \{1/5 + 0.04 \times [1 - 0.15 \times (x_t - 1)]\} & \text{if } x_t > 1. \end{cases} \tag{4'}$$

Equation 4' adjusts the earlier law of motion for f_t, by taking from the household a repayment to the MFI: this comprises an ownership purchase payment as well as a rental payment – and, in the initial period, also requires a 10% deposit.[2]

O.2 First-stage GMM estimation

Denote the microenterprise value-added as y_{it}. Following Blundell and Bond (2000), define m_{it} as the residual from a 'ρ^2-differenced' production function in logs:

$$m_{it} \equiv \ln y_{it} - \left[\left(1 - \rho^2\right) \cdot a + \rho^2 \cdot \ln y_{i,t-1} + \alpha \cdot \ln k_{it} - \alpha\rho^2 \cdot \ln k_{i,t-1} \right]. \tag{A.5}$$

Then equations 2, 3 and 5 in the main paper together imply the following valid moment conditions:

$$\mathbb{E}\left(m_{it}\right) = 0; \tag{A.6}$$

$$\mathbb{E}\left(m_{it} \cdot \ln y_{i,t-1}\right) = 0; \tag{A.7}$$

$$\mathbb{E}\left(m_{it} \cdot \ln k_{i,t-1}\right) = 0; \quad \text{and} \tag{A.8}$$

$$\mathbb{E}\left(\sigma^2 - m_{it}^2\right) = 0. \tag{A.9}$$

Table A.35 shows the estimates obtained from our first-stage GMM estimation.

[2] The particular numbers used in equation 4' are specific to the particular implementation in our context – including the representation, discussed shortly, that each time period comprises three calendar months.

Table A.35: **Structural estimates: First-stage GMM estimates**

PARAMETER	ESTIMATE	(S.E.)
μ	5.93	(0.12)
ρ	0.62	(0.03)
α	0.16	(0.02)
σ	0.30	(0.01)

O.3 Discretization and interpolation

As discussed in the main paper, the state space for the no-contract model is $(k_t, f_t, \varepsilon_t, \psi_t)$. We discretize k_t using 59 points (using a log-linear grid from \$10 to \$100, and then a linear grid from \$200 to \$5000. We discretize f_t using 25 points (using a linear grid from the loan size to zero, and then to US\$3000). We discretize ε_t using 5 points, using the usual method of Tauchen (1986). We solve the model at each of these points, in which we further discretize k_{t+1} and f_{t+1} and interpolate by linear approximation after transforming according to the inverse marginal utility of consumption (Blundell, Costa Dias, Meghir, & Shaw, 2016; Carroll, 2020). The model is specified and solved in discrete time; we treat each quarter as a different time period (thus we use six time points to solve for the 18-month contract horizon).

As discussed in the paper, we solve for V_n (the no-contract case) by iterating to convergence on a Bellman equation. With the solution to V_n in hand, we then solve for the two separate microfinance cases using backward induction. We then use these solutions for simulation; we do this by forming three Markov matrcies (one for the no-contract case, one for the standard loan case, and one for the fixed-repayment case), and then drawing from those matrices. For the initial distribution, we use the baseline joint distribution of (k_t, f_t), and assume that this is independent of the initial distribution of ε_t. We use 2500 simulated observations, and we use the observed empirical take-up rates for both control and T1 groups.

O.4 Simulated moments

As discussed in the paper, we target Average Treatment Effects for fixed capital, microenterprise value-added and household consumption; we target these parameters at the three-month, six-month, 12-month, 18-month and 24-month follow-ups. This implies 15 moments in total. Denote by $\boldsymbol{s}$ the vector of the 15 targeted moments in the real data; denote by $\tilde{\boldsymbol{s}}(\boldsymbol{\theta})$ the equivalent vector in the simulated data. We weight each of these moments by the inverse of the standard error from a regression on the T1 dummy (in an ANCOVA specification, partialling out strata dummies). Denote by $\boldsymbol{\Omega}_s$ a diagonal matrix recording these variances. Our Indirect Inference loss function is therefore formed as follows:

$$(\boldsymbol{s} - \tilde{\boldsymbol{s}})' \cdot \boldsymbol{\Omega}_s^{-1} \cdot (\boldsymbol{s} - \tilde{\boldsymbol{s}}) \,. \tag{A.10}$$

O.5 Goodness of fit

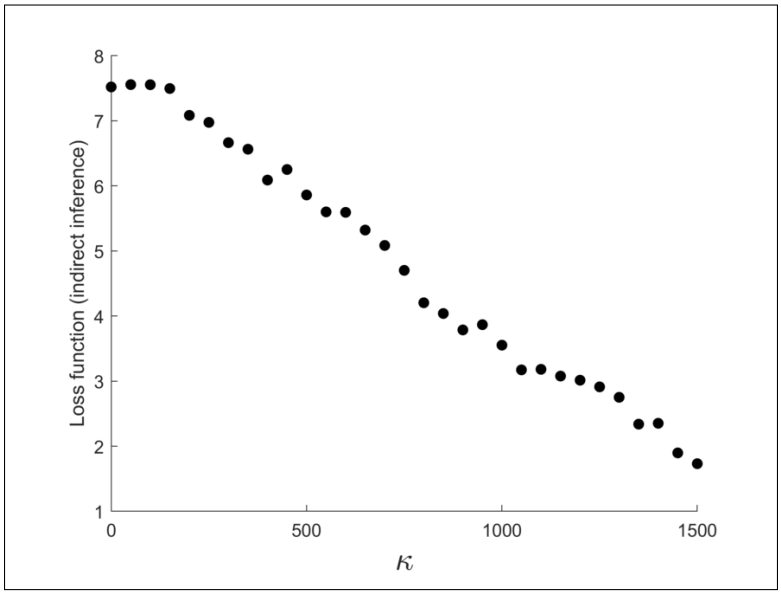
In Figure A.7, we show how the Indirect Inference loss function varies with κ. We find that our treatment effects are rationalised much more effectively by a model with large non-convex capital adjustment costs than a more standard model with no such costs. Based on this figure, we choose $\kappa = 1500$.

In Figure A.8, we show the real treatment effects (for fixed capital, value-added and consumption, at all follow-up waves), with a 95% confidence interval; we superimpose simulated treatment effects under model variants representing large non-convex capital adjustment costs ($\kappa = 1500$) and no such costs ($\kappa = 0$). The model with $\kappa = 1500$ replicates large and persistent treatment effects on both fixed capital and enterprise value-added. In contrast, the treatment effects cannot be replicated by the $\kappa = 0$ version of the model; in that version, the control group is able to catch up quickly, both in terms of fixed capital and value-added.

Figure A.9 shows the goodness-of-fit for a large number of untargeted moments, both for the preferred model version with large non-convex adjustment costs ($\kappa = 1500$) and for the case without such costs ($\kappa = 0$). Specifically, we compare model predictions to data for fixed capital (both in levels and in first differences), for value-added (in levels and in differences) for household consumption (in levels and in differences) and for financial assets (in levels); we do this both for control and treatment groups, at the three-month, six-month, 12-month, 18-month and 24-month marks, and we map the 25th, 50th and 75th percentiles. The figure shows that the model fit is much better under $\kappa = 1500$ than $\kappa = 0$. In particular, under $\kappa = 0$, the model predicts substantially more capital accumulation – both in control and treatment groups – than is actually observed.

In Figure A.10 we show the real and simulated moments for the control group; in Figure A.11, we show the same for treatment group 1. (In each case, we show the observed moment in black, with a 95% confidence interval, and show the simulated moment in red.) In particular, our model replicates three characteristics of the data very closely. First, we fit very closely the distribution of fixed capital. This is true both in levels and in first differences. We replicate the important feature that (as noted, for example, in Levinsohn and Petrin (2003)) a large share of firms do not adjust their fixed capital from one period to the next. Second, we fit closely the pass-through of fixed capital into microenterprise value-added; this is illustrated by the tight fit on the value-added moments, both in levels and in differences. Third, we replicate the key causal chain discussed in our experimental results: when we compare treatment to control, we find an increase in fixed capital, which causes an increase (of the relevant magnitude) across the distribution of value-added, which then leads to an increase in household consumption.

Figure A.7: **Model fit and non-convex adjustment costs**



Note: This figure shows the Indirect Inference loss as a function of the magnitude of the non-convex capital adjustment cost, κ.

Figure A.8: **Model fit: Targeted treatment parameters**

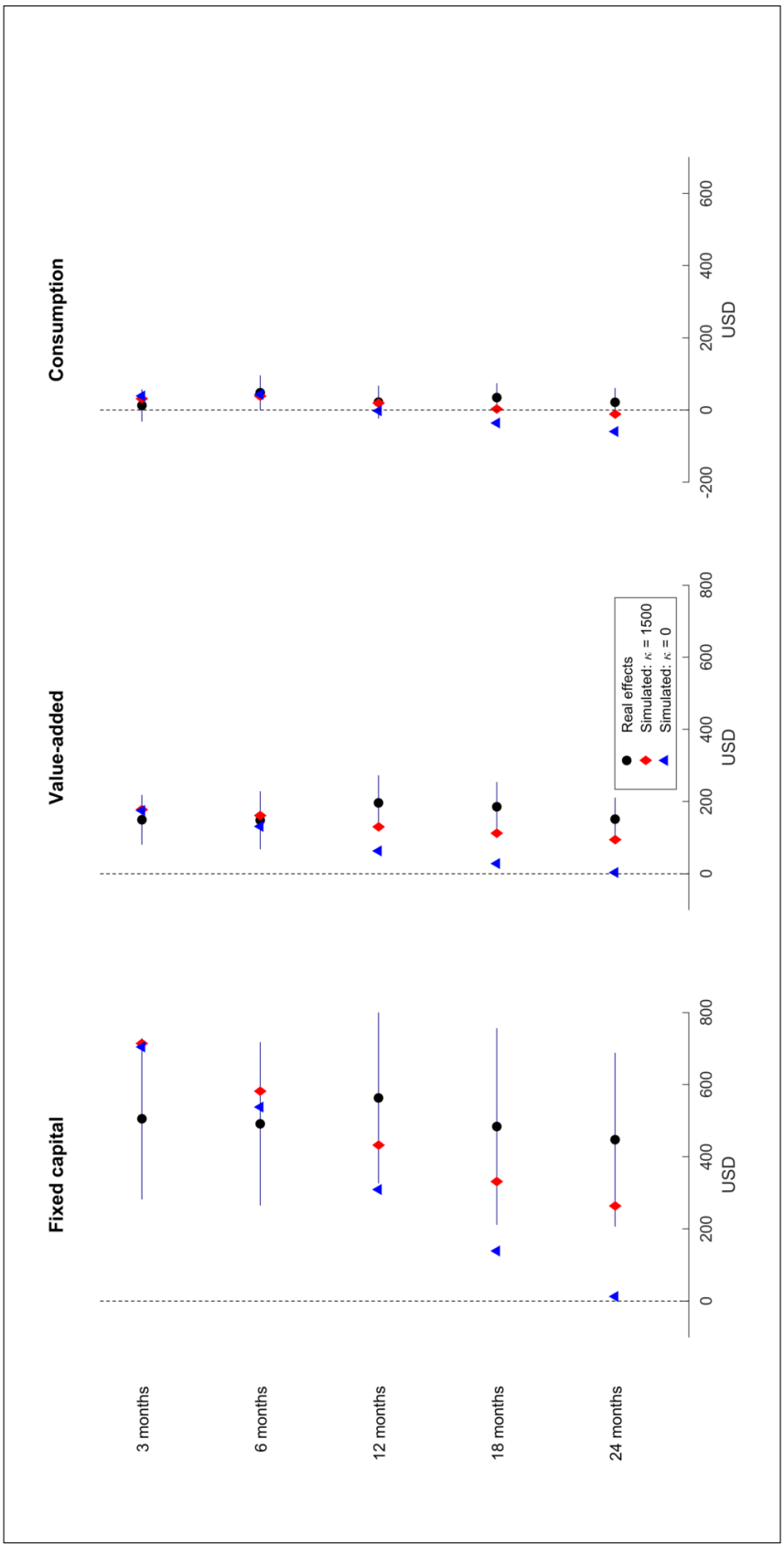
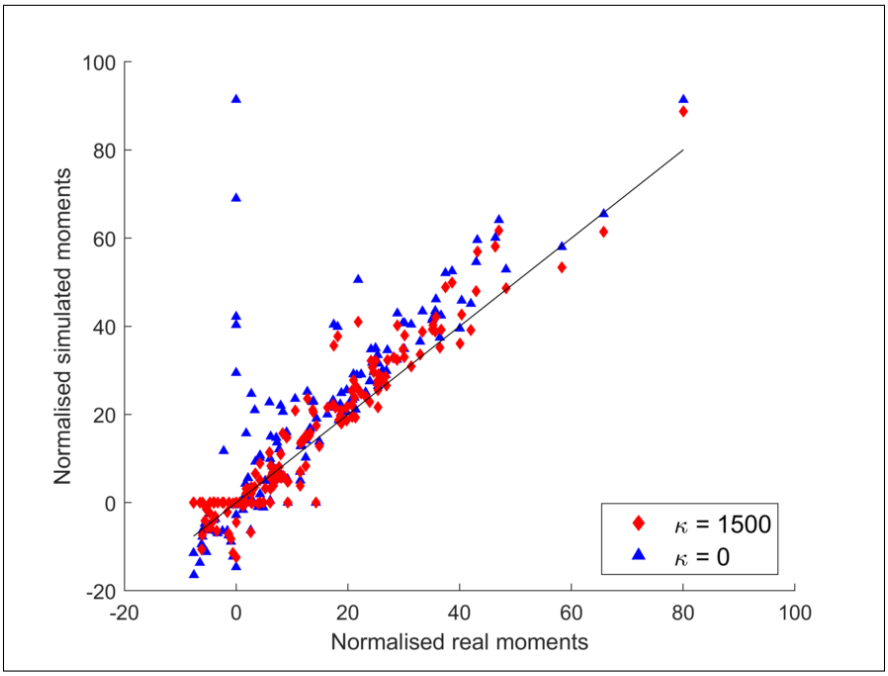


Figure A.9: **Model fit: Untargeted quantile parameters**



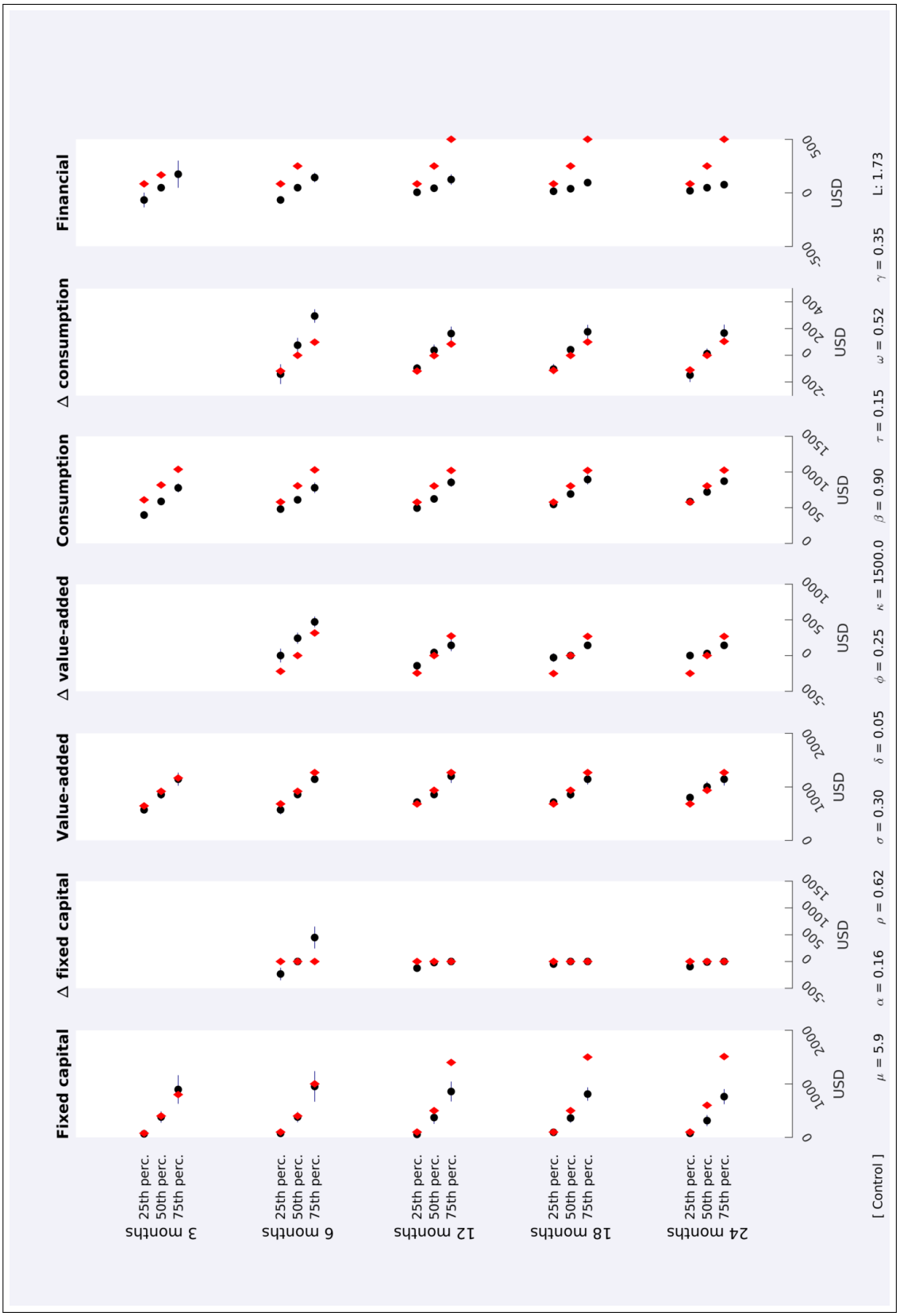
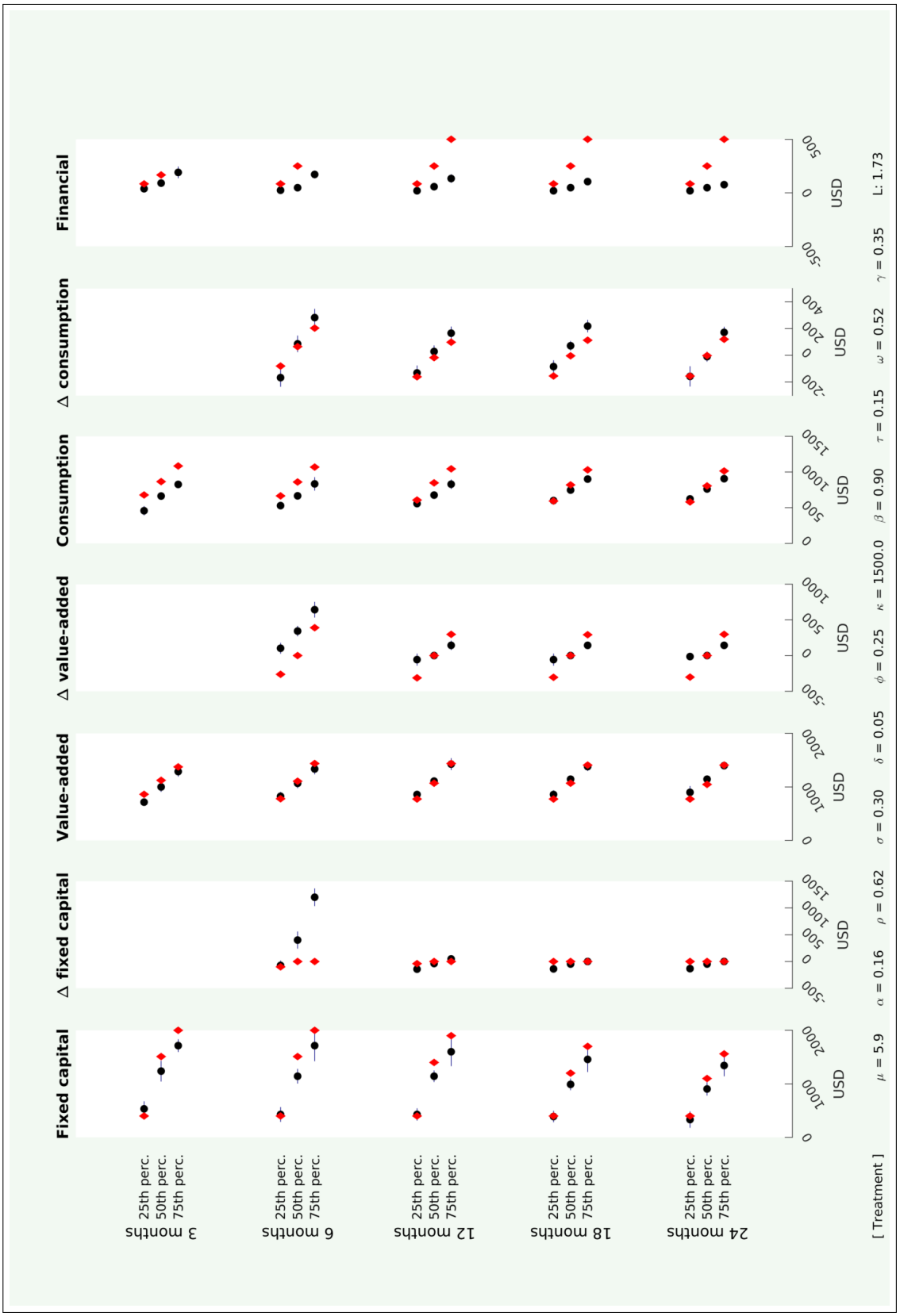


Figure A.10: **Model fit: Control group**

Figure A.11: **Model fit: Treatment group 1**



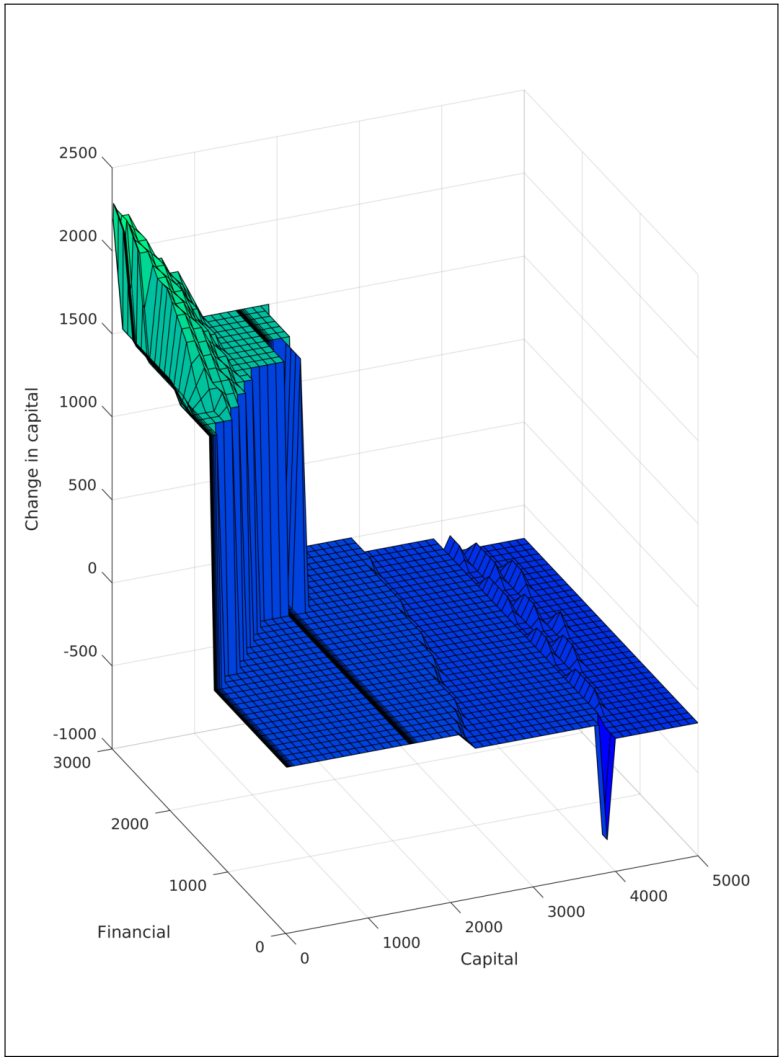
O.6 Policy functions and phase diagram

Figure A.12 shows policy functions, both for fixed capital k (in the left panel) and financial capital f (in the right panel). (We illustrate the policy functions for the no-credit case, in order to highlight the underlying tension between the choice of the two different forms of capital.) Given both the opportunity and the cash, households would willingly invest in fixed capital. However, large non-convex adjustment costs mean that these high returns to capital lie beyond the reach of most households; instead, those same households rationally consume their available cash.

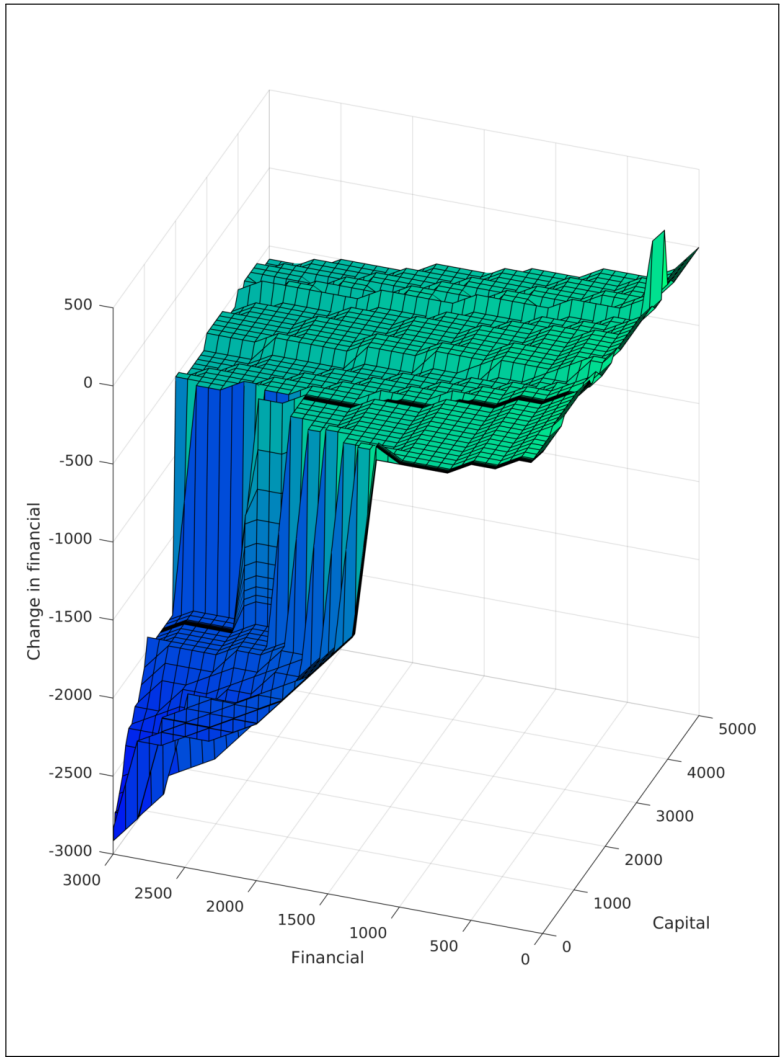
Figure A.13 shows a phase diagram in (k, f) space (illustrated for the no-contract case, and setting $(\varepsilon, \psi) = (0, 1)$). We illustrate period-to-period transitions with arrows, and use larger red dots to indicate fixed points (that is, points that *would* be fixed if $(\varepsilon, \psi) = (0, 1)$ forever). The diagram shows that the non-convex capital adjustment costs generate a wide range of stable points; these cover a range of values of k_{t+1}, and each involves $f_{t+1} \approx 0$.

Figure A.12: **Policy functions: Illiquid and liquid wealth**

POLICY FUNCTION: $k^*_{t+1}(k_t, f_t)$

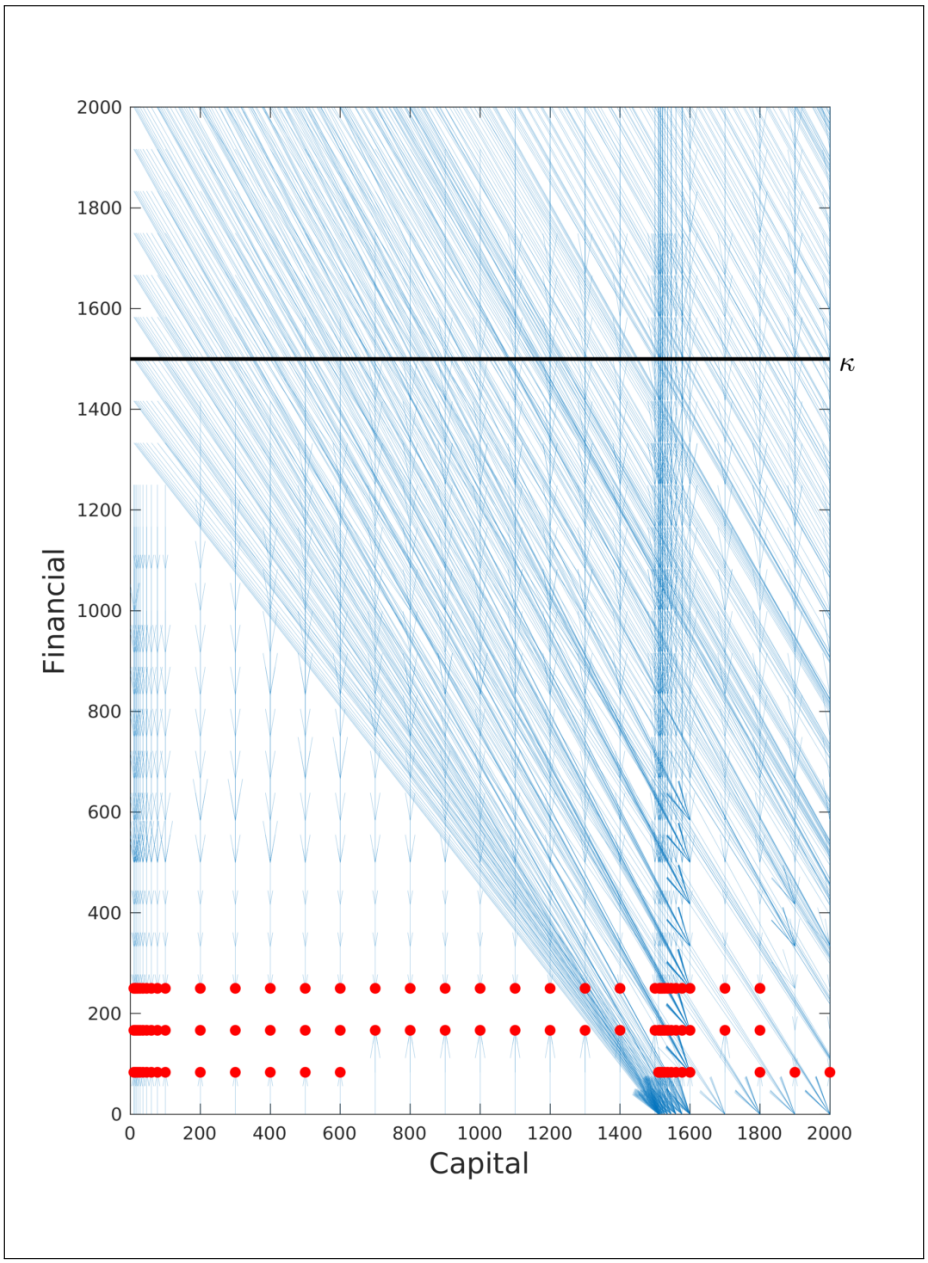


POLICY FUNCTION: $f^*_{t+1}(k_t, f_t)$



Note: This figure shows the policy functions for fixed capital (left panel, $k^*_{t+1}(k_t, f_t)$) and for financial capital (right panel, $f^*_{t+1}(k_t, f_t)$). We show these functions for the case $(\varepsilon, \psi) = (0, 1)$, and the case in which no credit is available.

Figure A.13: **Phase diagram in (k, f) space**



O.7 Counterfactual: Variation in the real interest rate

The first counterfactual analysis considers variation in the real interest rate. We show counterfactual 12-month treatment effects on fixed capital in the main paper. Appendix Figures A.14 and A.15 respectively show the counterfactual 12-month treatment effects on value-added and on consumption,.

Figure A.14: **12-month value-added effects under alternative real interest rates**

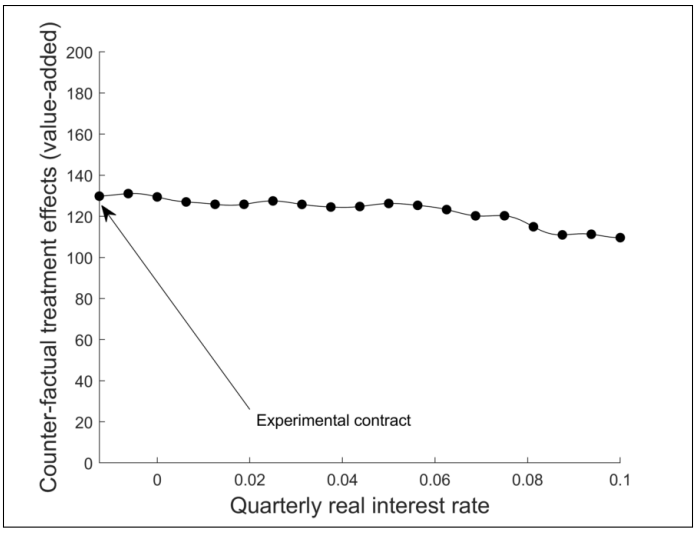
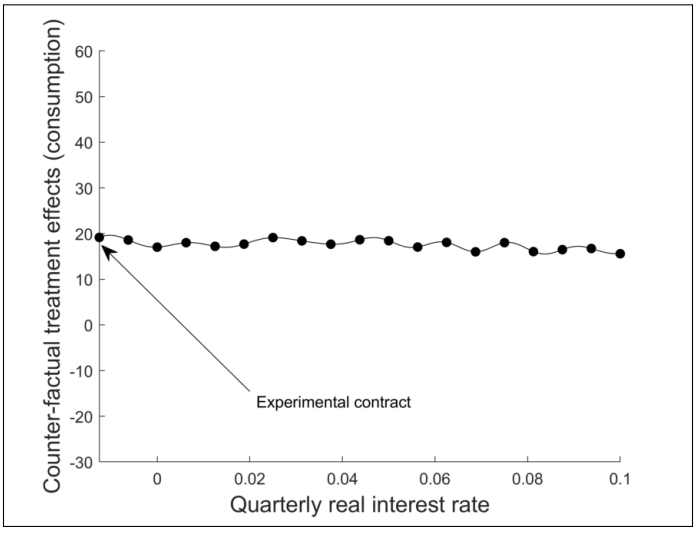


Figure A.15: **12-month consumption effects under alternative real interest rates**



O.8 Counterfactual: Variation in contractual terms

The second counterfactual analysis considers variation in contractual duration and nominal interest rate. We show counterfactual 12-month treatment effects on fixed capital in the main paper. Appendix Figures A.16 and A.17 respectively show the counterfactual 12-month treatment effects on value-added and on consumption,.

Figure A.16: **Value-added effects under alternative contractual terms**

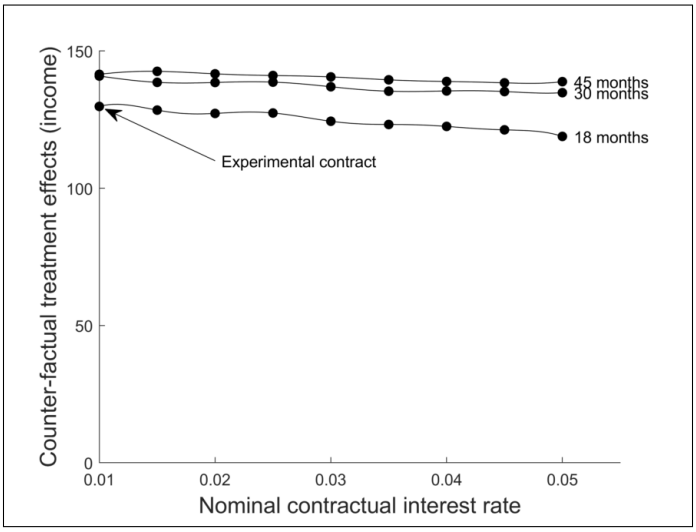
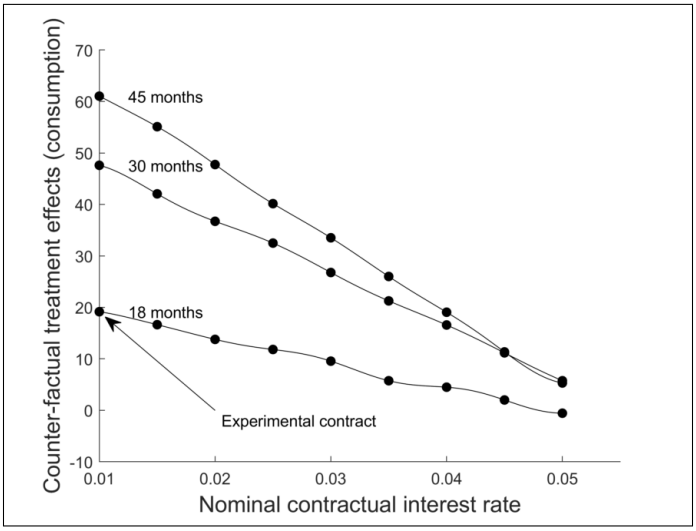


Figure A.17: **Consumption effects under alternative contractual terms**



O.9 Robustness to the specification of capital adjustment costs

In the main paper, equation 6 provides a minimum adjustment size of κ:

$$\Delta k_t \in \begin{cases} \{[-(1-\delta)\cdot k_t, -\kappa],\ [-\delta \cdot k_t, 0]\} & \text{if } \psi_t = 0; \\ \{\underbrace{[-(1-\delta)\cdot k_t, -\kappa]}_{\text{sell}},\ \underbrace{[-\delta \cdot k_t, 0]}_{\text{repair}},\ \underbrace{[\kappa - \delta \cdot k_t, \infty)}_{\text{buy}}\} & \text{if } \psi_t = 1. \end{cases} \tag{6}$$

We view this minimum-size constraint primarily as a stylised way of capturing individisibilities in fixed capital. For this reason, equation 6 imposes the minimum adjustment size both for capital purchases and capital sales. As a structural robustness check, we also explore a model variation in which the minimum adjustment size applies to capital expansions but not to contractions; we thank an anonymous referee for this suggestion. Specifically, we modify equation 6 to allow for any magnitude of capital reduction (up to the entire value of the depreciated microenterprise capital):

$$\Delta k_t \in \begin{cases} \{[-(1-\delta)\cdot k_t, 0]\} & \text{if } \psi_t = 0; \\ \{\underbrace{[-(1-\delta)\cdot k_t, 0]}_{\text{sell and/or repair}},\ \underbrace{[\kappa - \delta \cdot k_t, \infty)}_{\text{buy}}\} & \text{if } \psi_t = 1. \end{cases} \tag{6'}$$

We then solve the model under equation 6' (keeping the same structural parameters as in the main paper). We show the results in Figures A.18, A.19 and A.20. The results are remarkably similar to those from the original model (with the main difference being that this alternative specification implies a slightly worse fit on capital). This similarity should not be surprising in this context: the return to fixed capital here is high, so the primary empirical implication of the minimum capital transaction size is to limit the expansion of enterprises, rather than to limit their contraction.

Figure A.18: **Model fit: Control group (alternative capital adjustment specification)**

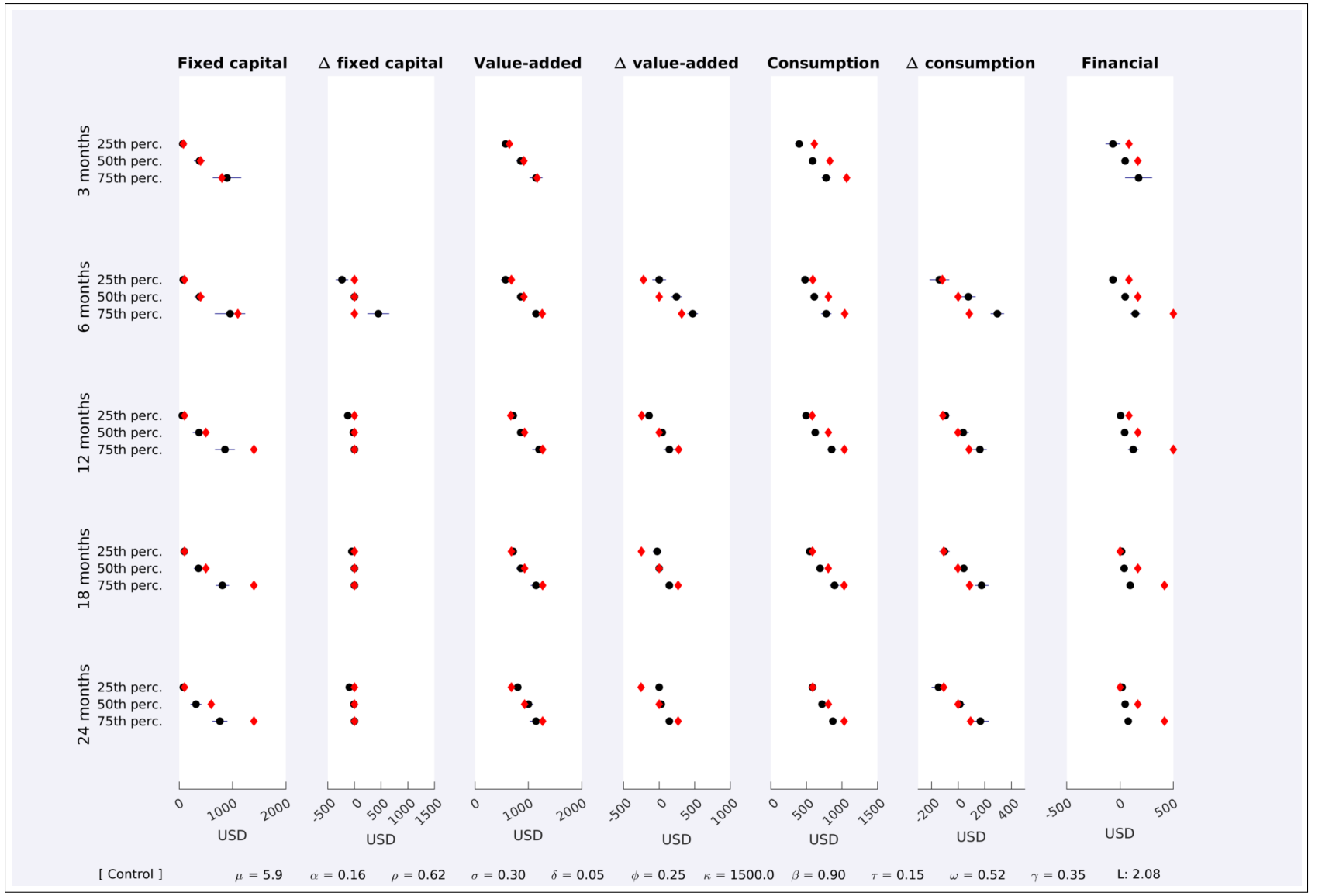


Figure A.19: **Model fit: Treatment group 1 (alternative capital adjustment specification)**

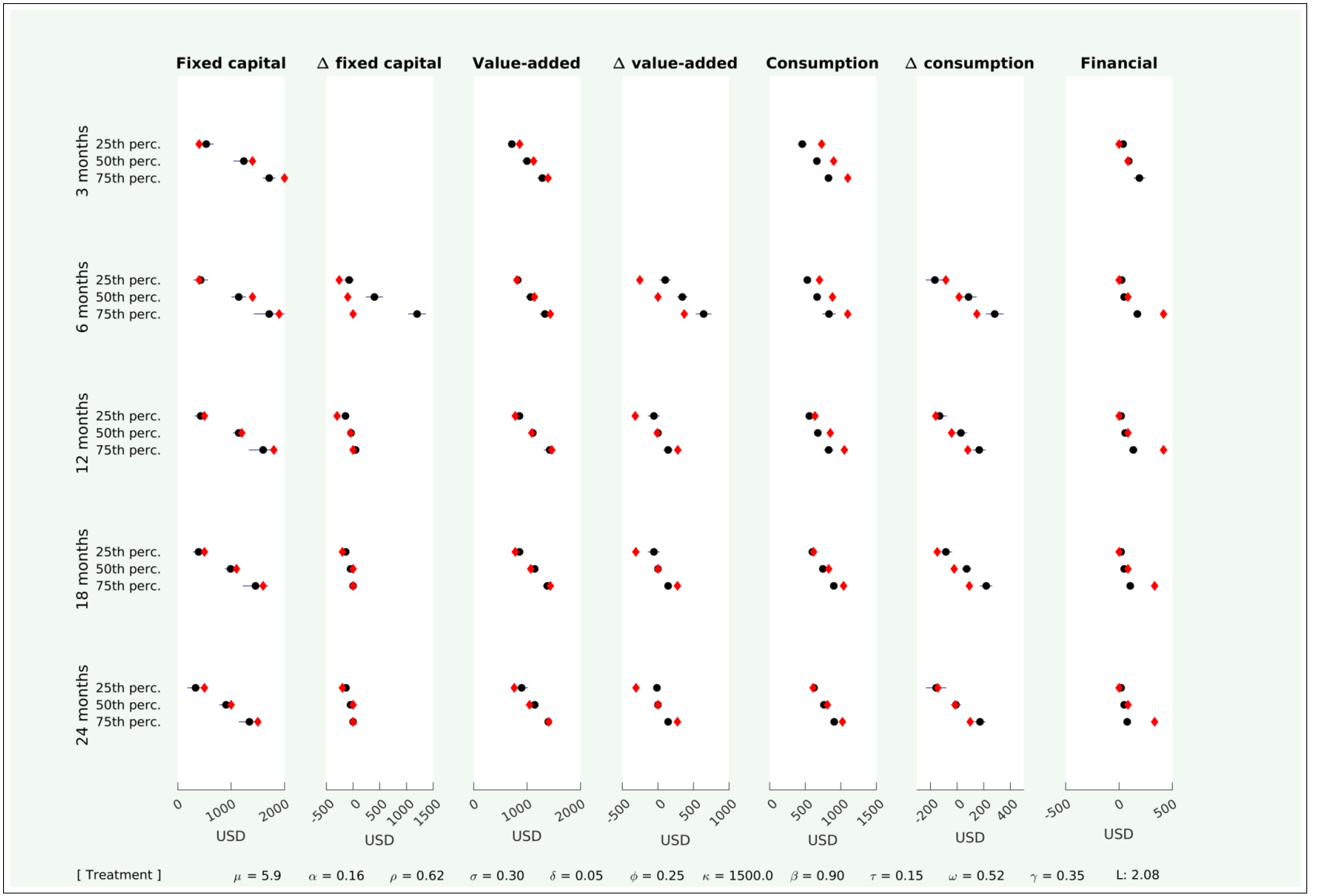
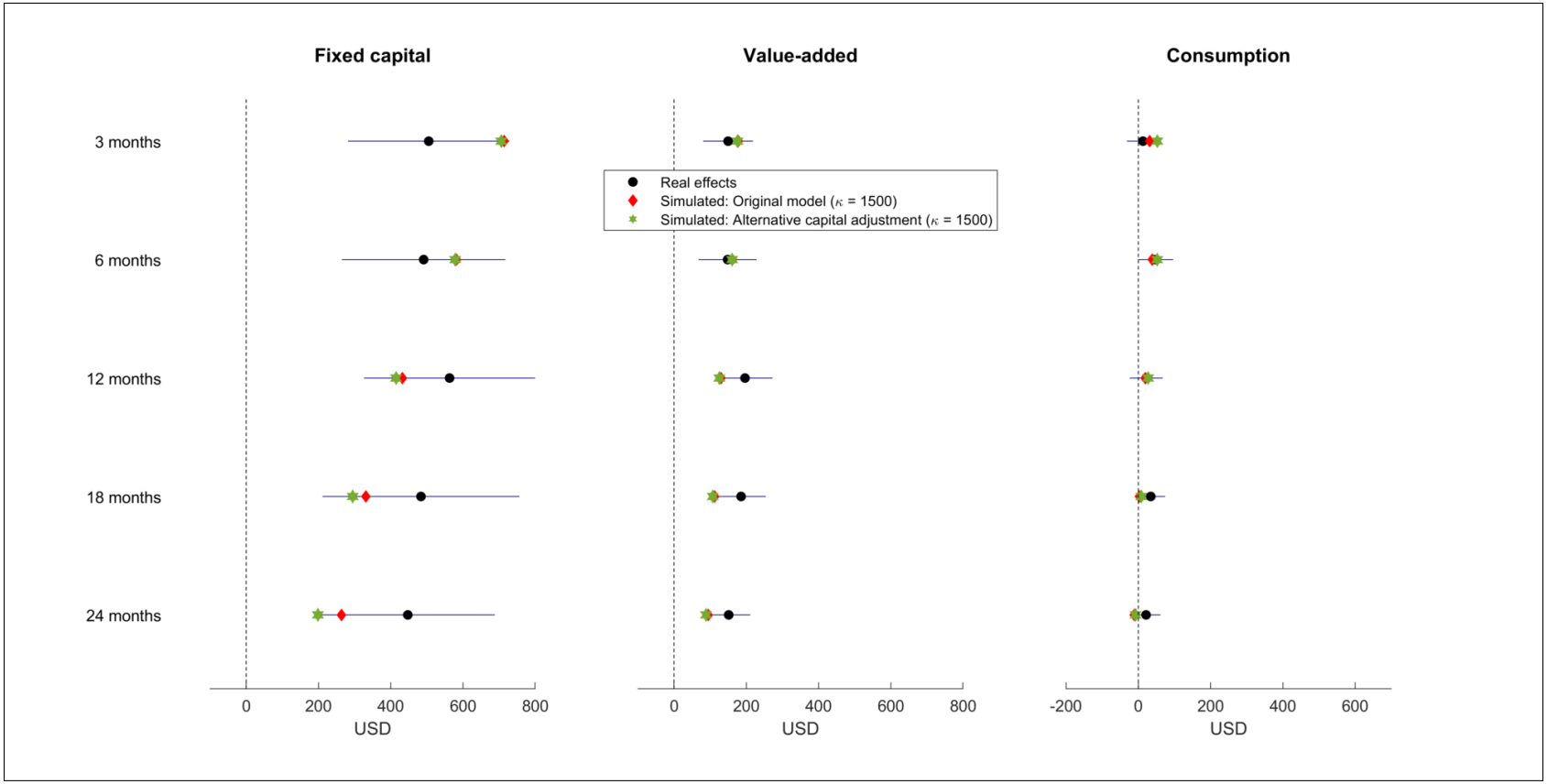


Figure A.20: **Model fit: Targeted treatment parameters (alternative capital adjustment specification)**



O.10 Belief-elicitation exercise: depreciation and partial irreversibility parameters

In this section, we describe the procedure used to estimate two parameters that we then fixed in the structural model: depreciation and partial irreversibility.[3] Following Gavazza, Lizzeri, and Roketskiy (2014), we define irreversibility as the difference between an asset's suggested retail value (the price at which a dealer sells it) and its wholesale price (the price that retailers pay to buy it), holding asset age constant. Table A.36 provides an overview of the variables and parameters used in this estimation procedure.

Table A.36: Overview of variables and parameters

Variable	Description	Method
$\tilde{P}_t^r$	Belief about current retail value	Directly collected
$\tilde{P}_t^w$	Belief about current (wholesale) market value	Directly collected
$\tilde{P}_0^r$	Original purchase price	Directly collected, reflated using $\tilde{\pi}$
$\tilde{P}_0^w$	Theoretical value	Jointly implied by $\tilde{P}_0^r$, $\tilde{P}_t^w$, $\tilde{\alpha}_0$, and $\tilde{\delta}^w$

Parameter	Interpretation	Estimation
$\tilde{\pi}$	Inflation estimate	Directly collected
$\tilde{\alpha}_t$	Current partial irreversibility rate	$\frac{\tilde{P}_t^r - \tilde{P}_t^w}{\tilde{P}_t^r}$
$\tilde{\delta}^r$	Depreciation rate of retail price	$1 - \left(\frac{\tilde{P}_t^r}{\tilde{P}_0^r}\right)^{\frac{1}{t}}$
$\tilde{\alpha}_0$	Immediate depreciation at purchase	$\frac{\tilde{P}_t^r - \tilde{P}_t^w}{\tilde{P}_0^r}$
$\tilde{\delta}^w$	Depreciation rate of wholesale price	$1 - \left(\frac{\tilde{P}_t^w}{(1-\tilde{\alpha}_0)\cdot\tilde{P}_0^r}\right)^{\frac{1}{t}}$

O.10.1 Estimation procedure

We gathered incentivised beliefs about assets' current wholesale market value $\tilde{P}_t^w$, and non-incentivised beliefs about the higher retail price $\tilde{P}_t^r$ charged by dealers. Respondents also stated their recollection of the original purchase price $\tilde{P}_0^r$, reflated using their inflation estimate $\tilde{\pi}$. These three variable allow the direct computation of $\tilde{\alpha}_t = 1 - \frac{\tilde{P}_t^w}{\tilde{P}_t^r}$ and $\tilde{\delta}^r = 1 - \left(\frac{\tilde{P}_t^r}{\tilde{P}_0^r}\right)^{\frac{1}{t}}$. The variables of interest $\tilde{\alpha}_0$ and $\tilde{\delta}^w$, required to calculate the wholesale depreciation schedule, are then estimated as follows:

(i) We make use of the fact that most assets are relatively new, varying between 1.7 and 2.9 years, with a mean of 2.3. With the assumption of a near-constant absolute cost of irreversibility being both well-founded theoretically and confirmed empirically, we proceed by applying $\tilde{P}_0^r - \tilde{P}_0^w \approx \tilde{P}_t^r - \tilde{P}_t^w$

[3] The data and analysis in this section is based on the work of Saidani (2020), who conducted all of the belief elicitation activities with our respondents.

to calculate $\tilde{\alpha}_0$ as $\frac{\tilde{P}_t^r - \tilde{P}_t^w}{\tilde{P}_0^r}$ (the present-day dealer markup divided by the reflated original purchase price).

(ii) Then, noting that $\tilde{P}_t^w = \tilde{P}_0^w \cdot \left(1 - \tilde{\delta}^w\right)^t = \tilde{P}_0^r \cdot \tilde{\alpha}_0 \cdot \left(1 - \tilde{\delta}^w\right)^t$, it is straightforward to calculate $\tilde{\delta}^w = 1 - \left(\frac{\tilde{P}_t^w}{(1-\tilde{\alpha}_0)\cdot\tilde{P}_0^r}\right)^{\frac{1}{t}}$.

O.10.2 Sample and survey

The sample frame consisted of 193 microenterprise owners from the experimental sample, covering the five largest asset categories for assets purchased in the project. Entrepreneurs received \$3 for participating in an initial survey, plus up to \$3 for a follow-up valuation exercise. Of the 193 individuals in the sample, 130 completed the survey. The reasons for non-completion are as follows: By the time surveys were conducted (October until December 2019), 19% of the entrepreneurs in the sample had successfully completed the 18-month contract with the MFI, gained full ownership of the asset, and decided to sell it on the market, thereby excluding them from a valuation exercise that required physical ownership of an asset. A further 12% of respondents were not contactable, partly because they had changed their phone number. Lastly, two respondents refused to be interviewed, in one case due to a health emergency in the immediate family; one individual had moved to a different town; and one person had passed away.

Among others, the survey included the following questions:

Purchase price $\tilde{P}_0^r$: What was the purchase price of the asset?

Inflation estimate $\tilde{\pi}$: "We are interested in the inflation of asset prices over the last years. If you bought the same asset again today *in the original condition in which it was purchased*, how much would you have to pay for it?".

As a follow-up, respondents were presented with the implied inflation rate, calculated as $\left(\frac{\text{purchase price}}{\text{reflated price}}^{\frac{365}{(\text{today}-\text{purchase date})}} - 1\right)$: "Your answer implies that a asset changes in value by x% each year. Would you like to confirm your estimate, or correct it?"

Market value $\tilde{P}_t^w$: Respondents' beliefs about the market value of their assets, the key result of this survey, was elicited in an incentivised manner, as discussed below. The question was worded as follows: "Please think about how much your asset would sell for in its current condition in the market, after negotiating and finding the best price. Think carefully, and consider all important factors. We will later obtain a professional estimate by asset vendors, and if your estimate is within 15% of the average valuation, you will receive the agreed payment amount. How much would your asset sell for in its current condition in the market?"

Repurchase value $\tilde{P}_t^r$: "Now rather than selling, imagine you had to buy your asset in its current condition from the market. As vendors make a profit on buying and selling, you would probably not be able to buy it for the sale price you mentioned earlier. Please think of the lowest price that a dealer would sell your asset for, after negotiation. How much would you have to pay for your asset if you had to *buy* it in its current condition from the market?"

O.10.3 Incentivisation

Respondents were due to be paid a fixed sum if their response was within 15% of the average valuation of three professional asset valuers.[4] Given this method, respondents faced the following optimisation problem:

$$\max_{\tilde{\omega}} \sum_{\omega} q_{\omega} \mathbb{I}\left\{0.85 \cdot \bar{\omega} \leq \tilde{\omega} \leq 1.15 \cdot \bar{\omega}\right\} \cdot u\left(x\right) \tag{A.11}$$

where $\bar{\omega} = \frac{1}{3}\sum_{i=1}^{3} \omega_i$ is the average of three valuations; and $\mathbb{I}\left\{cond\right\}$ is an indicator function that equals 1 if the condition is true and 0 otherwise. This method effectively elicits the midpoint of the 'most likely interval' of width $0.3 \cdot \mathrm{E}\left(\bar{\omega}\right)$, i.e. that interval which includes the most probability density Schlag and van der Weele (2015).[5] This method retains its incentive-compatibility when agents are not subjective expected utility maximisers: A preference for positive payment over no payment is all that is required (Schlag, Tremewan, & van der Weele, 2015).

Addressing two potential objections, there are two observations worth noting:

(i) First, respondents' beliefs about the distribution of expert valuations is equivalent to their belief about the distribution of market values, and that it is thus valid to incentivise the latter through the realised value of the former: Experts are simply asset vendors (i.e. those people who buy and sell second-hand assets), and thus their (truthful) assessment of an asset's post-negotiation market value is identical to the price that its owner could expect it to fetch in the market.

(ii) Second, the validity of the incentivisation is not affected by the fact that it was not possible to obtain expert valuations after all, as mentioned previously. Ex-ante, entrepreneurs responded to the survey in the belief that they could receive monetary incentives; and they were not misled, since the valuation exercise was intended and planned, but as mentioned it was ultimately disrupted by the outbreak of Covid-19 and subsequent lockdown in Lahore.

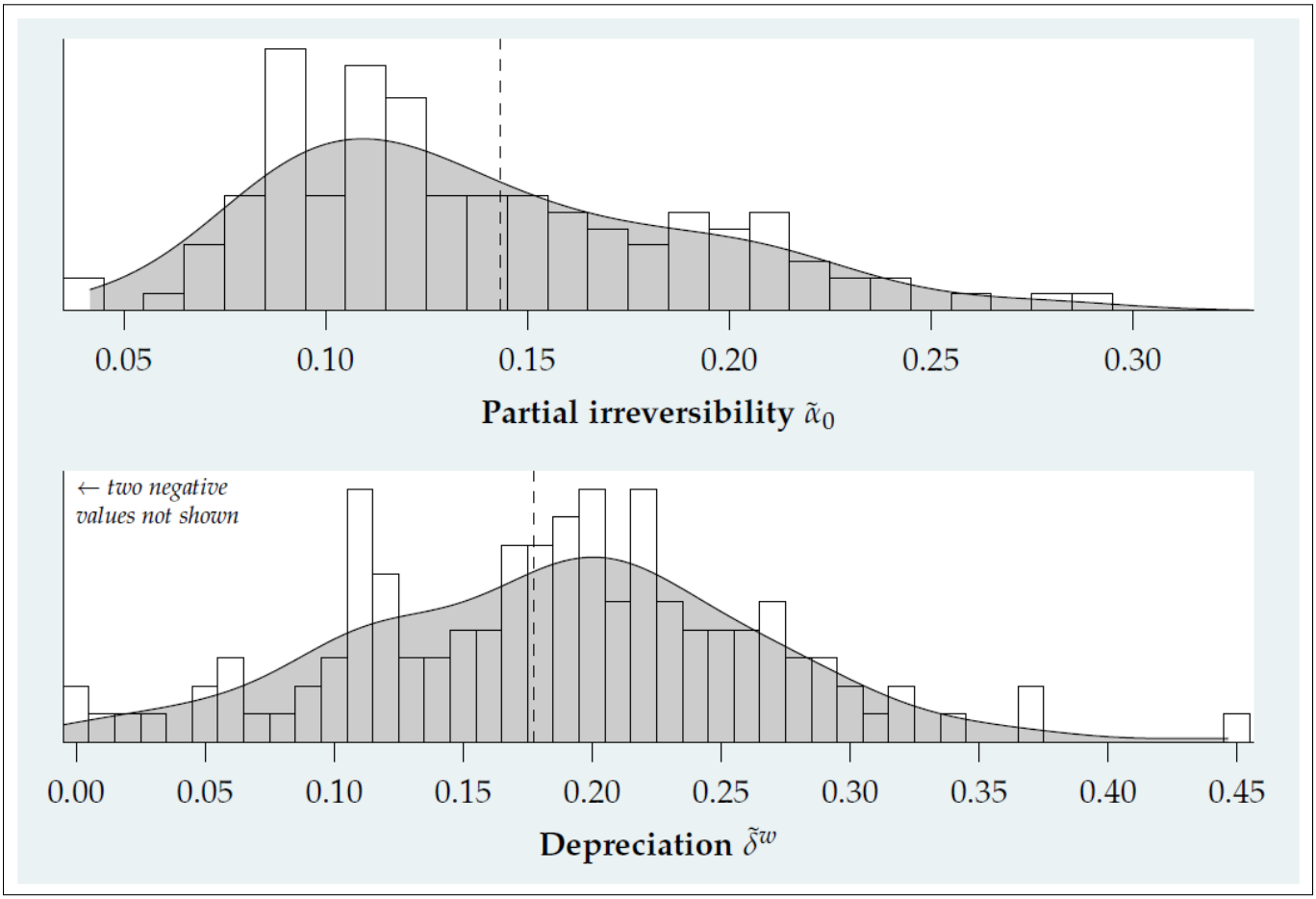
O.10.4 Results

Following the methodology discussed above, we use the data from the microenterprise survey to compute partial irreversibilities $\tilde{\alpha}_0$ and exponential depreciation rates $\tilde{\delta}^w$ for all microenterprises, which together

[4] Unfortunately, this valuation were not completed as the exercise coincided with the outbreak of Covid-19 and the lockdown in Lahore.

[5] In theory, this is a generalisation of the mode: The 'most likely interval' of width 0 is equivalent to the point with the highest probability density, i.e. the mode of the distribution. Nonetheless, except for highly skewed or multi-modal distributions, this quantity is expected to lie close to the mean and the median. Evidence from interviews during the survey trials indicates that respondents' beliefs are single-peaked, and that their uncertainty around stated beliefs is near-symmetric, implying that the mode, mean and median are practically equivalent.

Figure A.21: Density plots of estimated parameters (dashed lines indicate the sample mean)



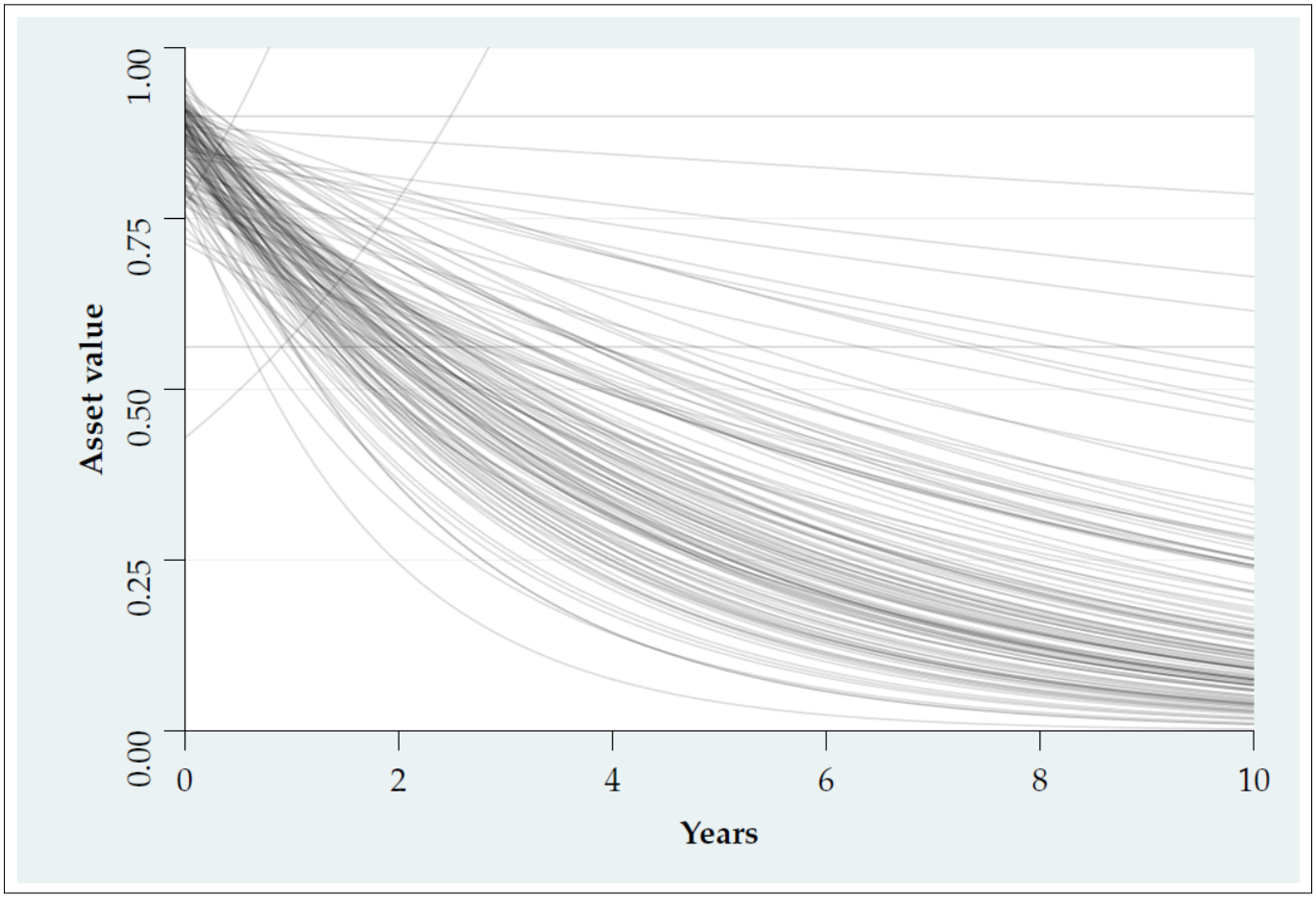
fully specify the wholesale depreciation schedule:

$$\tilde{\alpha}_0 = \frac{\tilde{P}_t^r - \tilde{P}_t^w}{\tilde{P}_0^r} \tag{A.12}$$

$$\tilde{\delta}^w = 1 - \left(\frac{\tilde{P}_t^w}{(1-\tilde{\alpha}_0) \cdot \tilde{P}_0^r} \right)^{\frac{1}{t}} \tag{A.13}$$

Figure A.21 shows how the estimated parameters are distributed. There is substantial heterogeneity between microenterprises, with implied rates of partial irreversibility ranging from 0.04 to 0.29, and subjective depreciation even more spread out. The sample averages of $\tilde{\alpha}_0$ and $\tilde{\delta}^w$ are 14.3% and 17.7% respectively. Subjective depreciation schedules implied by these parameters are plotted in A.22.

Figure A.22: Subjective depreciation schedules of surveyed microenterprises



P Benefit-cost analysis using model-based inputs

We use our model-based counterfactuals to calculate benefit-cost ratios and IRR under alternative contract structures that may be relevant for potential future scale-up. Tables A.37 and A.38 present the key elements of the analysis. In Table A.37, we take the model-based estimates for treatment effects at year-1 and at year-2, under the actual implemented contract cost (1% per month). In Table A.38, we use model-based estimates for treatment effects using a counterfactual cost of 2% per month. This reduces the estimated treatment effects, to which we also add a conservative estimate of a doubling of losses to the MFI from additional defaults under the more expensive contract.

Table A.37: Benefit-cost analysis: inputs (1% contract cost)

Costs

	Project total	**Cost lower bound: per treatment client (N=503)**	**Cost upper bound: per take-up client (N=281)**
Capital disbursed for initial purchase of assets	388,571	773	1,383
Total capital recovered from clients (including defaults)	-385,524	-766	-1,372
Total capital disbursed minus capital recovered (discounted to year 0)	38,095	76	136
Staff salaries (calculated as if all incurred at start of year 0)	30,076	60	107
Other implementation costs (calculated as if all incurred at start of year 0)	1,810	4	6
Total cost (calculated as of year 0)	69,981	139	249
Total costs compounded to year 2 at 10% social discount rate		**168**	**301**

Benefits

	Average (ITT)
Year 1 business profit treatment effect	292
Year 2 business profit treatment effect	247
Year 2 business assets treatment effect	263
Total benefits at year 2	**802**
Total business profits year 3 onwards, assuming benefits last:	
1 year	225
2 years	429
3 years	614
5 years	936
10 years	1,518
15 years	1,879
20 years	2,103

Table A.38: Benefit-cost analysis: inputs (2% contract cost)

Costs

	Project total	**Cost lower bound: per treatment client (N=503)**	**Cost upper bound: per take-up client (N=281)**
Capital disbursed minus capital recovered (assuming twice the default rate)	76,190	151	271
Staff salaries (calculated as if all incurred at start of year 0)	30,076	60	107
Other implementation costs (calculated as if all incurred at start of year 0)	1,810	4	6
Total cost (calculated as of year 0)	108,076	215	385
Total costs compounded to year 2 at 10% social discount rate		**260**	**465**

Benefits

		Average (ITT)
Year 1 business profit treatment effect		285
Year 2 business profit treatment effect		244
Year 2 business assets treatment effect		246
Total benefits at year 2		**775**
Total business profits year 3 onwards, assuming benefits last:		
	1 year	222
	2 years	423
	3 years	607
	5 years	925
	10 years	1,499
	15 years	1,856
	20 years	2,077

Q Elicitation of behavioural characteristics

In this section, we describe how we implemented behavioural games to measure individual preferences. Before conducting all activities, participants were informed that, at the end of the behavioural games session, one of the incentivised activities would be selected for payment by physically drawing a ball from a bag. Within the selected activity, balls would be drawn to select the one final question that would be used for payment. As such, participants were required to answer all questions attentively, because any question could have been selected. This method also allowed the use of payment amounts that were relatively large, with the average payment being three times as large as the median daily business profits for microenterprises in the sample.[6]

The incentivised measure of risk preferences is based on a certainty equivalent elicitation procedure that involved a series of 30 questions requiring respondents to choose between a guaranteed amount of money or an uncertain investment option, which had two possible outcomes: (i) a 'bad' outcome, with a payoff of zero; or (ii) a 'good' outcome, with a payoff of Rs 1,000.[7]

In the loss aversion elicitation exercise, respondents were offered a series of binary-outcome investment choices that involved a large positive outcome or a (gradually increasing) negative outcome, which they could accept or reject. If they accepted the investments and the loss aversion activity was chosen for payment at the end of the workshop, then a realised loss would be taken out of their guaranteed workshop participation fee; as such, this represented a potential real loss.[8]

In the time preference elicitation activity, individuals were offered a series of choices between an amount of money paid on the same day as the workshop or (gradually increasing) amounts of money one month from the workshop. The time-preference activity was also conducted using a 'far frame', where money was offered one month forward versus two months forward.

For all incentivised measures, a simple (unweighted) index was created for the number of decisions made (for example, the number of rejections of the risky investments, indicating risk aversion or loss aversion, or the number of rejections of future payment amounts, indicating a preference for money today). This index was then split into equal-sized terciles (as close as possible), based on the recommendations of Gelman and Park (2009).

[6] From a methodological perspective, Charness, Gneezy, and Halladay (2016) show that paying for only a (randomly selected) subset of all activities is at least as effective as paying for all of them, and can actually be more effective in terms of helping to avoid wealth effects and hedging within the behavioural games session.

[7] We adapted the measures used by Barr and Packard (2002) and Vieider et al. (2015).

[8] We adapted the loss aversion measure used by Bartling, Fehr, and Herz (2014).

R Script describing the fixed-repayment contract

English translation of the script for demonstration of fixed-repayment contract

Introduction

In this meeting, we are going to describe a type of contract that Akhuwat would like to offer to some of its selected clients, like you. This contract is designed to help entrepreneurs like you purchase an asset for their business. If you are offered this contract, you are allowed to use the money to buy a large asset for your business, *such as* a sewing machine if you make clothes, or *for example* a rickshaw if you are a rickshaw driver, or *for example* a welding plant if you do welding, or *for example* a molding machine if that is your business. You are not allowed to use it to purchase raw materials or inventories or stock that you then sell to people: for example, if you were a tailor, then you would not be allowed to use the money to buy thread or clothes. The benefit of this new contract is that it allows you to access finance for a larger amount than is currently available from Akhuwat,

The purpose of this meeting is to describe the contract to you. We would like you to understand how the contract works. We will describe the contract and then we will ask you questions to see if you have understood the contract. Please do not tell us now in this meeting about if you are interested in the contract or not. After the meeting, on another day, an Akhuwat member of staff will visit you to ask if you would be interested in this contract. The purpose of the group meeting is just to explain the contract and check that you have understood how it works. Please feel free to ask us as many questions as you want about the contract. It is very important that you understand how this contracts works: what payments you have to make and what happens if you do not make the payments

Does anybody have any question?

Ali the Tailor

We will explain how the contract works using the hypothetical story of a business person called Ali. Ali lives and works in Township, Lahore. Ali owns and manages a small tailor business, where he stitches clothes by hand. Ali's business is successful, but he would like to expand his business. Ali thinks that if he buys a sewing machine, his profits will increase a lot. Ali has a small amount of savings, 10,000 Rs, but it is not enough to buy a sewing machine, which costs 100,000 Rs.

Akhuwat can help Ali. Ali has 10,000 Rs of savings. The sewing machine costs 100,000 Rs. If Akhuwat contributes 90,000 Rs, then Akhuwat and Ali can buy the asset together. Akhuwat and Ali will then own the asset together. This type of partnership, or joint ownership, is called "shirakat." Akhuwat will own 90% of the sewing machine, and Ali will own 10% of the sewing machine.

But Akhuwat does not need to use the sewing machine. Ali does need to use the sewing machine, for his business. So Akhuwat and Ali make an agreement. Ali will use the sewing machine for his business, and he will pay rent to Akhuwat every month because he is the only one who will benefit from using it. So Ali will pay Akhuwat rent, or "kirayah." Ali will also be responsible for all daily repairs of the asset, because he is the one that is using it, but if there is a natural disaster then Akhuwat will share in the risk of this with Ali.

ENUMERATOR: PLEASE BE VERY CAREFUL IN EXPLAINING THE NUMBERS NOW:

The amount of rent that Ali will pay to Akhuwat is based on the percentage of the asset that Akhuwat owns. Imagine that Akhuwat and Ali agree on a rental rate of 1% per month for the sewing machine." 1% of 100,000 Rs is 1,000 Rs. Because Akhuwat owns 90% of the sewing machine, Akhuwat is entitled to 90% of 1,000 Rs, which is 900 Rs. So Ali must pay Akhuwat rent of 900 Rs at the end of the first month.

ENUMERATOR: Illustrate all of this.
Does everybody understand? Does anybody have any questions?

Reduction of Akhuwat's Ownership Share

As mentioned, Akhuwat owns 90% of the sewing machine, and Ali owns 10%. However, this ownership share can change. Ali can purchase some of Akhuwat's ownership share. If Ali gives Akhuwat 5,000 Rs, then he can purchase 5% of Akhuwat's ownership share in the sewing machine. This would increase Ali's ownership share of the asset by 5%, and decrease Akhuwat's share by 5%. Ali's ownership share would increase from 10% before to 15% now, and Akhuwat's ownership share would decrease from 90% before to 85% now.

The benefit of this to Ali is that he now pays less rent. Before, when his ownership share of the sewing machine was only 10%, and Akhuwat's ownership share was 90%, Ali had to pay rent on Akhuwat's share of 900 Rs per month. But after he repurchased 5% from Akhuwat's share, Ali now owns 15% of the asset, and Akhuwat owns 85%, so the rent he pays will decrease to 850 Rs per month.

Does everybody understand? Does anybody have any questions?

We have now explained the basic idea about this new contract that Akhuwat is interested in offering to some of its selected clients, using the example of Ali. The main ideas that we discussed were:

1) Joint-ownership of the sewing machine between Akhuwat and Ali, or 'shiraakat'
2) A payment of rent or "kirayah" from Ali to Akhuwat, because Ali is using the asset and Akhuwat owns some of the sewing machine.
3) A reduction in the amount of rent that Ali has to pay when he repurchases some of Akhuwat's ownership share in the sewing machine.

We will now describe the contract that Akhuwat is interested in offering to some of its clients, using the same ideas as the example with Ali. Please do not tell us now in this meeting about if you are interested in the contract or not. After the meeting, on another day, an Akhuwat member of staff will visit you to ask if you would be interested in this contract.

Describing the Contract: The Fixed-Repayment Contract

The contract is a "fixed-repayment" contract. We will again illustrate it with the example of Ali the tailor and the sewing machine.

In this fixed-repayment contract, Ali and Akhuwat make an agreement for 18 months. The agreement says that, every month, Ali has to buy back 5% of Akhuwat's ownership share in the sewing machine. That means that Ali has to pay 5,000 Rs to Akhuwat every month, for 18 months. Every time Ali pays 5,000 to Akhuwat, his ownership share of the sewing machine increases by 5%, and Akhuwat's ownership share decreases by 5%. We can see what this looks like using a table:

Fixed Payment Contract

Start of Month	Akhuwat	Ali
1	90%	10%
2	85%	15%
3	80%	20%

4	75%	25%
5	70%	30%
6	65%	35%
7	60%	40%
8	55%	45%
9	50%	50%
10	45%	55%
11	40%	60%
12	35%	65%
13	30%	70%
14	25%	75%
15	20%	80%
16	15%	85%
17	10%	90%
18	5%	95%
End	0%	0%

ENUMERATOR: Describe, slowly, how Akhuwat's ownership share decreases by 5% every month.

So this "fixed-repayment" agreement between Ali and Akuwat means that Ali must pay 5,000 every month to Akhuwat to purchase Akhuwat's ownership share in the asset. But during those 18 months, the asset will stay with Ali, and he will benefit from it, so he must also pay rent or "kirayah," like we described before. Because the rent payment that Ali pays to Akhuwat every month is dependent upon the ownership share, the rent amount will decrease each month as Akhuwat's ownership share decreases. We can see what this looks like using a table:

Fixed Payment Contract

Start of Month	Ali	Akhuwat	End of Month Rent	End of Month Payment
1	10	90	900	5000
2	15	85	850	5000
3	20	80	800	5000
4	25	75	750	5000
5	30	70	700	5000
6	35	65	650	5000
7	40	60	600	5000

8	45	55	550	5000
9	50	50	500	5000
10	55	45	450	5000
11	60	40	400	5000
12	65	35	350	5000
13	70	30	300	5000
14	75	25	250	5000
15	80	20	200	5000
16	85	15	150	5000
17	90	10	100	5000
18	95	5	50	5000
End	100%	0%	0	0

ENUMERATOR: Describe, slowly, how Ali's rental payment changes as the ownership share changes.

Does everybody understand how this fixed-repayment contract works? Does anybody have any questions?

Missed Payments

Now we will describe what happens if Ali misses any of the requirement payments in the contract.

If Ali cannot pay any of his required payments, then he has to make the payment in the next month. However, if he still cannot make the payment in the next month, then Ali has to agree that Akhuwat will repossess the sewing machine.

To help in this process - before this contract starts - Akhuwat and Ali will agree to have a "witness" to the contract, who will agree to assist in the process of delivering the sewing machine back to Akhuwat in this situation that we have described. But the "witness" will not have any obligation to make any payment if Ali misses a payment.

When Akhuwat repossesses the sewing machine, Akhuwat will sell the sewing machine in the market. The proceeds of the sale will be distributed in proportion to the ownership shares. For example, if the sewing machine was sold for 80,000 Rs in the market, and Akhuwat and Ali's ownership share was 50%-50%, then Akhuwat will keep 40,000 Rs and Ali will keep 40,000 Rs. After that, the contract between Ali and Akhuwat will be finished.

Other

Akhuwat has only a limited number of products that it can offer at the moment. The computer will decide who will be offered the product, using a random process (like drawing lots). We have no influence on the decision of the computer. The computer will decide randomly if you are selected to be offered the contract. Some ,people will not be offered the contract. This will not take place today, but will take place after we have identified the asset that you would like to purchase.

Does everybody understand? Does anybody have any questions?

S Heterogeneity analysis

In this section, we present tables illustrating heterogeneity in (i) contract take-up; (ii) usage of the flexible-repayment option; and (iii) heterogeneity in outcome variables.

Table A.39: **Heterogeneity in take-up**

	(1) Risk aversion	(2) Loss aversion	(3) Time preference	(4) Management practices	(5) Cognitive ability
Fixed * Low tercile	0.60	0.54	0.55	0.47	0.58
	(0.051)	(0.049)	(0.054)	(0.053)	(0.051)
Fixed * Middle tercile	0.55	0.57	0.51	0.63	0.48
	(0.057)	(0.060)	(0.070)	(0.054)	(0.063)
Fixed * High tercile	0.43	0.48	0.52	0.50	0.51
	(0.052)	(0.054)	(0.045)	(0.053)	(0.050)
Flexible * Low tercile	0.53	0.55	0.63	0.56	0.62
	(0.054)	(0.048)	(0.061)	(0.055)	(0.057)
Flexible * Middle tercile	0.56	0.58	0.61	0.57	0.53
	(0.057)	(0.063)	(0.059)	(0.054)	(0.060)
Flexible * High tercile	0.67	0.65	0.55	0.64	0.61
	(0.051)	(0.054)	(0.047)	(0.053)	(0.048)
Observations	503	503	503	503	503
Test: Fixed coefficients equal	0.058	0.512	0.858	0.068	0.406
Test: Flexible coefficients equal	0.116	0.395	0.524	0.491	0.477
Test: High tercile equal	0.001	0.029	0.623	0.058	0.161
Test: Diff-in-diff (high vs low tercile)	0.002	0.133	0.631	0.661	0.554

Note: In each column of this table, the dependent variable is a dummy that is equal to 1 for individuals who took up the asset finance contract (regardless of whether it was with a fixed or flexible repayment schedule), and we investigate heterogeneous take-up by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three terciles generated when trichotomising the following (pre-specified) baseline variables: (1) risk preferences (coming from our incentivised measure, with the high tercile representing the most risk averse microenterprise owners); (2) loss aversion (again using the incentivised measure, where the high tercile represents the most loss averse microenterprise owners); (3) time preferences (with high representing the most impatient individuals, as measured using an incentivised exercise); (4) business management practices (with the high tercile representing the group with the highest score for the business management practices index); and (5) cognitive ability (with the high tercile representing those who scored highest on a series of mathematical and number recall questions). Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. Individuals from the control group (who were not given the opportunity to take up the asset finance contract) are excluded from the regressions. Below the results, we report the p-values from four tests: (i) whether the interaction terms for all the fixed contract coefficients are equal; (ii) whether the interaction terms for all the flexible contract coefficients are equal; (iii) whether the take-up rate across contracts was equal for individuals in the highest tercile of the heterogeneity measure (e.g. testing the null that, for the most risk averse or most loss averse microenterprise owners, take-up when assigned to the flexible contract was equal to take-up when assigned to the fixed contract); (iv) a difference-in-difference test: testing that the take-up differential between individuals in the lowest tercile compared to that for individuals in the highest tercile was the same across contracts (e.g. within those assigned to the fixed contract, compared the different in take-up for the most risk averse and most risk tolerant, and comparing that number for the equivalent difference for people assigned to the flexible contract).

Table A.40: **Outcome heterogeneity by baseline risk aversion**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium risk aversion	0.09*	15.17	38.04	-60.39	23.32	-7.75	29.44
	(0.051)	(19.665)	(178.653)	(137.505)	(26.041)	(6.911)	(37.350)
High risk aversion	0.08	24.77	446.05**	132.99	4.48	-7.00	-16.33
	(0.054)	(21.905)	(190.518)	(138.098)	(27.950)	(7.649)	(41.448)
Fixed * Low risk aversion	0.24***	64.70***	786.39***	662.95***	58.06**	23.33***	17.56
	(0.047)	(18.964)	(190.271)	(154.605)	(25.193)	(7.111)	(46.865)
Fixed * Medium risk aversion	0.02	19.35	479.70**	553.07***	7.56	18.77***	-9.51
	(0.050)	(19.480)	(190.599)	(155.550)	(25.771)	(6.293)	(38.187)
Fixed * High risk aversion	0.02	-2.13	-40.42	202.81*	14.93	-2.66	-5.92
	(0.051)	(20.935)	(168.028)	(113.828)	(26.660)	(7.191)	(34.780)
Flexible * Low risk aversion	0.17***	41.35**	417.38**	339.18**	41.31	-0.50	-0.69
	(0.052)	(20.034)	(172.690)	(138.106)	(25.695)	(6.808)	(34.277)
Flexible * Medium risk aversion	0.04	17.10	543.31***	431.66***	20.52	16.53**	23.40
	(0.047)	(19.138)	(192.387)	(150.049)	(25.725)	(7.043)	(48.686)
Flexible * High risk aversion	0.07	15.43	116.33	390.03***	46.73*	22.59***	84.88*
	(0.047)	(19.857)	(167.939)	(124.516)	(26.499)	(7.834)	(44.377)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.001	0.050	0.005	0.034	0.326	0.027	0.899
Test: Flexible coefficients equal	0.177	0.586	0.241	0.903	0.759	0.063	0.347
Test: Diff-in-diff (high vs low risk aversion)	0.044	0.113	0.026	0.011	0.183	0.000	0.071

Note: In this table we investigate heterogeneous treatment effects by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three baseline risk terciles (where low, medium and high risk aversion refers to individuals who were in the bottom, middle and highest terciles of measured risk aversion using the baseline risk preference elicitation task). The omitted category represents individuals in the control group from the lowest tercile of risk aversion. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for two null hypotheses: (i) the null hypothesis that the effect of assignment to the fixed contract is equal across three terciles of risk aversion; (ii) the null hypothesis that the effect of assignment to the flexible contract is equal across risk terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the least risk averse and the most risk averse was the same across the two assignment groups.

Table A.41: **Outcome heterogeneity by baseline loss tercile**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium loss aversion	0.07	6.81	150.98	-21.72	33.26	-3.60	-43.20
	(0.058)	(22.970)	(196.211)	(144.766)	(30.609)	(7.438)	(40.994)
High loss aversion	0.05	-0.20	66.35	15.32	0.36	-6.15	29.64
	(0.050)	(19.800)	(173.000)	(127.059)	(24.149)	(6.881)	(35.118)
Fixed * Low loss aversion	0.19***	52.60***	613.45***	549.81***	48.64**	12.71**	1.34
	(0.044)	(17.905)	(178.935)	(145.343)	(22.792)	(5.941)	(42.268)
Fixed * Medium loss aversion	0.02	23.01	359.12	507.09***	16.50	16.65**	55.49
	(0.054)	(22.469)	(218.670)	(165.959)	(31.760)	(8.181)	(45.020)
Fixed * High loss aversion	0.03	4.79	248.79	389.17***	6.95	12.18*	-45.87
	(0.051)	(20.139)	(162.499)	(125.779)	(26.024)	(7.091)	(31.765)
Flexible * Low loss aversion	0.11**	36.99**	557.64***	552.46***	42.72**	8.08	38.33
	(0.048)	(18.087)	(157.560)	(123.042)	(21.651)	(6.341)	(36.572)
Flexible * Medium loss aversion	0.08	14.14	48.44	222.47	6.06	15.04*	90.66*
	(0.055)	(22.370)	(198.810)	(166.009)	(31.732)	(8.492)	(46.435)
Flexible * High loss aversion	0.09*	18.66	371.08*	321.71**	48.80*	18.24**	-13.38
	(0.049)	(19.648)	(194.265)	(142.489)	(26.306)	(7.592)	(36.399)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.019	0.211	0.338	0.688	0.466	0.904	0.175
Test: Flexible coefficients equal	0.931	0.693	0.151	0.258	0.546	0.593	0.184
Test: Diff-in-diff (high vs low loss aversion)	0.031	0.268	0.498	0.743	0.179	0.302	0.939

Note: In this table we investigate heterogeneous treatment effects by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three baseline loss terciles (where low, medium and high loss aversion refers to individuals who were in the bottom, middle and highest terciles of measured loss aversion using the baseline loss aversion elicitation task). The omitted category represents individuals in the control group from the lowest tercile of loss aversion. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for two null hypotheses: (i) the null hypothesis that the effect of assignment to the fixed contract is equal across three terciles of loss aversion; (ii) the null hypothesis that the effect of assignment to the flexible contract is equal across loss terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the least loss averse and the most loss averse was the same across the two assignment groups.

Table A.42: **Outcome heterogeneity by baseline time-preference tercile**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium impatience	-0.09	-28.00	-361.89*	-288.46*	-10.34	6.09	-46.28
	(0.061)	(24.338)	(213.110)	(165.977)	(31.784)	(8.258)	(45.098)
High impatience	-0.03	-14.74	-379.03*	-357.67**	-1.77	-6.01	-29.37
	(0.050)	(20.472)	(198.919)	(144.543)	(24.713)	(6.650)	(37.534)
Fixed * Low impatience	0.08	14.12	26.83	257.53	37.07	16.95**	-26.41
	(0.049)	(20.907)	(211.702)	(163.505)	(26.885)	(7.736)	(48.278)
Fixed * Medium impatience	0.25***	68.29***	831.31***	775.35***	40.46	3.51	-3.47
	(0.058)	(23.505)	(228.292)	(201.884)	(33.098)	(8.791)	(45.534)
Fixed * High impatience	0.04	19.73	525.18***	513.37***	13.16	16.23***	16.36
	(0.042)	(16.423)	(148.809)	(110.339)	(20.503)	(5.504)	(31.159)
Flexible * Low impatience	0.08	32.06	377.62*	348.87**	58.03**	10.67	-29.93
	(0.050)	(21.187)	(226.949)	(160.718)	(28.493)	(8.190)	(40.791)
Flexible * Medium impatience	0.18***	45.28**	489.00***	426.27***	54.29*	5.69	47.47
	(0.060)	(22.549)	(184.864)	(154.830)	(30.359)	(8.225)	(44.215)
Flexible * High impatience	0.06	11.43	341.14**	438.06***	12.47	18.38***	67.00*
	(0.045)	(17.540)	(157.870)	(116.777)	(22.410)	(6.175)	(39.267)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.016	0.184	0.034	0.147	0.695	0.436	0.752
Test: Flexible coefficients equal	0.249	0.486	0.834	0.907	0.384	0.464	0.214
Test: Diff-in-diff (high vs low impatience)	0.847	0.281	0.037	0.388	0.541	0.437	0.351

Note: In this table we investigate heterogeneous treatment effects by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three baseline time preference terciles (where low, medium and high time preferences refers to individuals who were in the bottom, middle and highest terciles of measured impatience using the baseline time preference elicitation task). The omitted category represents individuals in the control group from the lowest tercile of time preferences (most patient). Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for two null hypotheses: (i) the null hypothesis that the effect of assignment to the fixed contract is equal across three terciles of impatience; (ii) the null hypothesis that the effect of assignment to the flexible contract is equal across time preference terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the least patient and the most patient was the same across the two assignment groups.

Table A.43: **Outcome heterogeneity by baseline management tercile**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium management	-0.06	3.43	72.58	-6.77	7.44	2.19	50.77
	(0.053)	(20.484)	(184.064)	(138.383)	(25.502)	(7.266)	(34.008)
High management	-0.06	16.03	-67.05	-35.51	40.54	5.02	8.28
	(0.054)	(22.213)	(206.524)	(143.519)	(28.411)	(7.982)	(42.609)
Fixed * Low management	0.09**	33.39*	573.34***	552.38***	21.77	19.83***	3.32
	(0.046)	(18.097)	(183.984)	(153.301)	(24.395)	(6.931)	(32.687)
Fixed * Medium management	0.13**	42.98**	483.15***	570.50***	43.28*	11.95*	-52.58
	(0.054)	(20.885)	(176.776)	(133.062)	(25.268)	(6.789)	(32.936)
Fixed * High management	0.08	11.08	267.14	340.75**	15.97	7.87	50.71
	(0.050)	(20.776)	(189.332)	(142.258)	(27.503)	(7.307)	(49.504)
Flexible * Low management	-0.03	5.24	418.50**	311.22**	22.95	7.43	8.85
	(0.053)	(19.443)	(188.853)	(140.923)	(24.486)	(7.259)	(31.080)
Flexible * Medium management	0.17***	54.79***	319.16*	396.41***	77.99***	15.64**	48.05
	(0.052)	(20.121)	(163.441)	(136.239)	(25.342)	(6.702)	(37.931)
Flexible * High management	0.14***	16.36	397.49**	479.40***	6.13	15.30*	51.43
	(0.047)	(19.506)	(179.387)	(130.719)	(26.794)	(8.173)	(50.891)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.811	0.546	0.505	0.450	0.738	0.480	0.208
Test: Flexible coefficients equal	0.013	0.190	0.912	0.685	0.124	0.666	0.638
Test: Diff-in-diff (high vs low management)	0.005	0.182	0.248	0.072	0.754	0.054	0.934

Note: In this table we investigate heterogeneous treatment effects by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three management practices terciles (where low, medium and high refers to individuals who were in the bottom, middle and highest terciles of baseline management practices). The omitted category represents individuals in the control group from the lowest tercile of management practices. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for two null hypotheses: (i) the null hypothesis that the effect of assignment to the fixed contract is equal across three terciles of management practices; (ii) the null hypothesis that the effect of assignment to the flexible contract is equal across management terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest management practices and the highest management practices was the same across the two assignment groups.

Table A.44: **Outcome heterogeneity by baseline numeracy tercile**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium numeracy	-0.10*	-28.63	277.83	223.28	-27.98	1.16	19.59
	(0.056)	(22.861)	(200.793)	(144.585)	(29.154)	(7.938)	(45.849)
High numeracy	-0.04	-8.01	411.87**	266.09**	-10.05	7.89	-17.82
	(0.051)	(21.190)	(182.284)	(131.743)	(27.460)	(6.931)	(37.324)
Fixed * Low numeracy	0.04	15.79	796.03***	716.22***	18.95	21.86***	-37.55
	(0.043)	(18.893)	(194.907)	(156.982)	(25.449)	(6.723)	(35.524)
Fixed * Medium numeracy	0.18***	47.81**	352.97*	465.98***	21.68	5.88	-13.38
	(0.057)	(22.312)	(213.937)	(159.591)	(27.207)	(7.637)	(47.127)
Fixed * High numeracy	0.09*	26.02	180.18	301.63**	37.31	10.65	40.76
	(0.049)	(18.724)	(159.540)	(125.574)	(23.529)	(6.545)	(39.953)
Flexible * Low numeracy	0.03	16.60	718.32***	572.15***	19.04	18.36**	22.09
	(0.049)	(19.926)	(187.015)	(155.273)	(27.064)	(7.634)	(40.301)
Flexible * Medium numeracy	0.15**	39.38*	281.43	196.57	47.33	13.16	-13.06
	(0.059)	(23.082)	(195.176)	(139.984)	(29.406)	(8.197)	(41.825)
Flexible * High numeracy	0.11**	23.13	170.60	383.70***	41.48*	8.60	73.58*
	(0.049)	(18.350)	(149.916)	(114.096)	(23.343)	(6.328)	(40.975)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.173	0.548	0.050	0.126	0.849	0.264	0.330
Test: Flexible coefficients equal	0.276	0.758	0.072	0.191	0.754	0.617	0.347
Test: Diff-in-diff (high vs low numeracy)	0.562	0.882	0.777	0.279	0.904	0.884	0.668

Note: In this table we investigate heterogeneous treatment effects by interacting each of the two treatment dummies (assignment to the fixed or flexible contract) with dummies for each of the three baseline math score terciles (where low, medium and high refers to individuals who were in the bottom, middle and highest terciles of measured maths score using the baseline task). The omitted category represents individuals in the control group from the lowest tercile of maths score. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for two null hypotheses: (i) the null hypothesis that the effect of assignment to the fixed contract is equal across three terciles of maths score; (ii) the null hypothesis that the effect of assignment to the flexible contract is equal across maths score terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest maths score and the highest maths score was the same across the two assignment groups.

Table A.45: **Outcome heterogeneity by baseline risk tercile: LATE**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium	0.14**	25.00	35.08	-43.84	31.66	4.18	20.11
	(0.057)	(20.618)	(178.371)	(134.269)	(26.935)	(8.533)	(38.435)
High	0.14**	36.34*	441.08**	152.91	12.93	7.19	-30.59
	(0.057)	(21.395)	(182.882)	(130.043)	(27.529)	(8.978)	(47.417)
Fixed * Low	0.49***	123.26***	1298.98***	1120.52***	107.42**	59.67***	10.24
	(0.089)	(33.073)	(315.768)	(247.783)	(42.467)	(14.640)	(78.113)
Fixed * Medium	0.02	33.10	848.33**	975.89***	10.97	30.43***	-17.22
	(0.091)	(34.193)	(333.646)	(265.182)	(45.956)	(11.311)	(67.868)
Fixed * High	0.04	-6.22	-70.85	483.82*	33.35	-8.62	-11.49
	(0.118)	(48.048)	(383.753)	(246.461)	(60.181)	(17.935)	(82.622)
Flexible * Low	0.36***	83.31*	617.01*	531.78*	81.52	6.42	-31.41
	(0.122)	(44.451)	(347.104)	(274.036)	(57.375)	(17.469)	(78.727)
Flexible * Medium	0.09	33.91	1032.67***	758.97***	44.09	29.63**	56.80
	(0.093)	(37.185)	(380.007)	(278.083)	(49.315)	(14.133)	(96.955)
Flexible * High	0.13*	29.31	212.57	603.85***	75.90*	40.76***	139.40*
	(0.073)	(29.630)	(250.236)	(179.671)	(39.682)	(13.812)	(71.049)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.000	0.041	0.023	0.165	0.287	0.012	0.966
Test: Flexible coefficients equal	0.164	0.569	0.208	0.842	0.850	0.281	0.327
Test: Diff-in-diff (high vs low tericle)	0.171	0.214	0.062	0.077	0.405	0.000	0.137

Note: In this table we investigate heterogeneous treatment effects using *local average treatment effect* estimates, where we instrument take-up with assignment to either of the two treatment contracts (fixed- or flexible-repayment), and interact with dummies for each of the three baseline heterogeneity terciles (where 'Low', 'Medium' and 'High' refers to individuals who were in the bottom, middle and highest terciles of the particular heterogeneity variable, as done in the equivalent table for the ITT results). The omitted category represents individuals in the control group from the lowest tercile. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for three null hypotheses: (i) the null hypothesis that the effect of take-up of the fixed contract is equal across three terciles; (ii) the null hypothesis that the effect of take-up of the flexible contract is equal across terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest and highest tercile was the same across the two assignment groups.

Table A.46: **Outcome heterogeneity by baseline loss tercile: LATE**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium	0.10	11.87	147.57	-18.68	35.81	2.48	-51.49
	(0.062)	(23.940)	(197.581)	(144.721)	(31.731)	(8.400)	(41.404)
High	0.08	5.72	80.58	44.01	4.08	1.55	21.01
	(0.051)	(19.511)	(168.084)	(122.010)	(23.499)	(7.528)	(33.923)
Fixed * Low	0.44***	111.63***	1130.52***	1037.13***	97.50**	41.41***	-17.71
	(0.088)	(33.657)	(316.958)	(250.797)	(41.368)	(14.095)	(75.373)
Fixed * Medium	0.05	39.05	614.96*	874.30***	29.15	28.20**	101.22
	(0.097)	(38.874)	(363.773)	(267.884)	(55.345)	(14.180)	(77.715)
Fixed * High	0.05	7.06	490.17	774.99***	11.07	20.60	-90.81
	(0.100)	(39.747)	(326.302)	(248.393)	(51.280)	(14.313)	(63.314)
Flexible * Low	0.21**	68.06*	939.82***	966.59***	78.59*	24.90*	66.76
	(0.096)	(34.807)	(286.172)	(215.430)	(42.362)	(14.882)	(73.566)
Flexible * Medium	0.17	27.46	84.52	419.22	11.86	28.63*	171.63*
	(0.108)	(43.234)	(372.727)	(300.658)	(61.472)	(17.046)	(92.894)
Flexible * High	0.15*	32.28	562.25*	433.71*	85.23*	30.91**	-13.76
	(0.084)	(33.035)	(330.432)	(228.195)	(44.986)	(14.430)	(62.511)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.004	0.122	0.366	0.772	0.389	0.612	0.150
Test: Flexible coefficients equal	0.918	0.700	0.210	0.194	0.601	0.960	0.227
Test: Diff-in-diff (high vs low tericle)	0.022	0.219	0.618	0.511	0.209	0.268	0.952

Note: In this table we investigate heterogeneous treatment effects using *local average treatment effect* estimates, where we instrument take-up with assignment to either of the two treatment contracts (fixed- or flexible-repayment), and interact with dummies for each of the three baseline heterogeneity terciles (where 'Low', 'Medium' and 'High' refers to individuals who were in the bottom, middle and highest terciles of the particular heterogeneity variable, as done in the equivalent table for the ITT results). The omitted category represents individuals in the control group from the lowest tercile. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for three null hypotheses: (i) the null hypothesis that the effect of take-up of the fixed contract is equal across three terciles; (ii) the null hypothesis that the effect of take-up of the flexible contract is equal across terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest and highest tercile was the same across the two assignment groups.

Table A.47: **Outcome heterogeneity by baseline time-preference tercile: LATE**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium	-0.01	-12.87	-327.20*	-256.08*	-1.64	22.06**	-55.14
	(0.069)	(24.271)	(193.801)	(152.267)	(30.988)	(11.019)	(43.295)
High	0.06	2.67	-322.83*	-297.27**	9.05	10.24	-42.81
	(0.056)	(20.042)	(187.230)	(135.241)	(24.488)	(8.489)	(44.344)
Fixed * Low	0.28***	49.95	130.36	554.36**	80.77*	57.04***	-61.70
	(0.097)	(35.955)	(351.793)	(265.363)	(46.712)	(16.922)	(86.079)
Fixed * Medium	0.47***	127.29***	1569.73***	1446.10***	74.76	-3.21	-19.49
	(0.130)	(48.203)	(471.762)	(401.805)	(67.297)	(19.522)	(93.881)
Fixed * High	0.07	35.42	1007.16***	990.02***	24.83	29.79***	35.68
	(0.084)	(31.821)	(283.695)	(202.763)	(39.730)	(11.213)	(63.100)
Flexible * Low	0.23**	75.09**	735.28*	573.18**	109.12**	30.74*	-65.41
	(0.099)	(37.693)	(403.781)	(259.286)	(52.593)	(17.718)	(79.191)
Flexible * Medium	0.29***	71.05*	743.68**	670.77***	95.66*	13.87	88.31
	(0.109)	(39.751)	(311.213)	(256.130)	(51.948)	(16.322)	(76.863)
Flexible * High	0.08	13.03	534.93*	759.75***	18.99	32.79**	145.08*
	(0.092)	(35.367)	(302.162)	(212.061)	(45.628)	(13.424)	(84.540)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.033	0.304	0.033	0.170	0.630	0.090	0.677
Test: Flexible coefficients equal	0.302	0.435	0.879	0.873	0.410	0.644	0.195
Test: Diff-in-diff (high vs low tericle)	0.676	0.371	0.046	0.505	0.661	0.254	0.381

Note: In this table we investigate heterogeneous treatment effects using *local average treatment effect* estimates, where we instrument take-up with assignment to either of the two treatment contracts (fixed- or flexible-repayment), and interact with dummies for each of the three baseline heterogeneity terciles (where 'Low', 'Medium' and 'High' refers to individuals who were in the bottom, middle and highest terciles of the particular heterogeneity variable, as done in the equivalent table for the ITT results). The omitted category represents individuals in the control group from the lowest tercile. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for three null hypotheses: (i) the null hypothesis that the effect of take-up of the fixed contract is equal across three terciles; (ii) the null hypothesis that the effect of take-up of the flexible contract is equal across terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest and highest tercile was the same across the two assignment groups.

Table A.48: **Outcome heterogeneity by baseline management tercile: LATE**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium	-0.01	13.84	112.92	41.93	13.90	13.32	41.81
	(0.059)	(20.806)	(183.016)	(137.438)	(25.894)	(8.681)	(32.891)
High	-0.01	26.57	-12.81	19.00	46.75	15.92*	-0.64
	(0.059)	(22.848)	(208.339)	(143.321)	(29.215)	(9.411)	(41.819)
Fixed * Low	0.31***	91.70**	1250.29***	1224.88***	60.20	67.11***	-18.05
	(0.113)	(39.085)	(384.630)	(318.340)	(51.774)	(18.916)	(64.756)
Fixed * Medium	0.19**	65.94**	753.94***	896.93***	65.62*	15.51	-86.12
	(0.086)	(32.991)	(285.145)	(213.746)	(39.813)	(11.135)	(54.754)
Fixed * High	0.18*	22.00	490.15	649.35**	33.43	16.00	101.92
	(0.101)	(42.020)	(370.291)	(262.201)	(55.146)	(15.299)	(99.984)
Flexible * Low	0.03	23.87	775.46**	589.21**	53.30	33.47*	0.97
	(0.112)	(37.020)	(348.301)	(249.588)	(45.680)	(17.645)	(54.550)
Flexible * Medium	0.34***	106.58***	505.59	645.62**	155.28***	32.18**	114.85
	(0.108)	(39.598)	(311.330)	(258.706)	(49.368)	(15.284)	(83.582)
Flexible * High	0.22***	20.96	615.09**	740.49***	0.55	22.93	78.51
	(0.078)	(32.081)	(289.234)	(201.342)	(44.709)	(14.228)	(89.890)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.634	0.497	0.378	0.408	0.893	0.060	0.262
Test: Flexible coefficients equal	0.126	0.211	0.851	0.886	0.074	0.879	0.461
Test: Diff-in-diff (high vs low tericle)	0.025	0.217	0.242	0.085	0.728	0.086	0.733

Note: In this table we investigate heterogeneous treatment effects using *local average treatment effect* estimates, where we instrument take-up with assignment to either of the two treatment contracts (fixed- or flexible-repayment), and interact with dummies for each of the three baseline heterogeneity terciles (where 'Low', 'Medium' and 'High' refers to individuals who were in the bottom, middle and highest terciles of the particular heterogeneity variable, as done in the equivalent table for the ITT results). The omitted category represents individuals in the control group from the lowest tercile. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for three null hypotheses: (i) the null hypothesis that the effect of take-up of the fixed contract is equal across three terciles; (ii) the null hypothesis that the effect of take-up of the flexible contract is equal across terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest and highest tercile was the same across the two assignment groups.

Table A.49: **Outcome heterogeneity by baseline numeracy tercile: LATE**

	(1) Number of businesses	(2) Business profits	(3) Business assets	(4) Fixed assets	(5) Household income	(6) Household consumption	(7) Household savings
Medium	-0.02	-14.82	251.74	213.53	-20.28	17.37*	2.62
	(0.062)	(22.675)	(189.056)	(132.990)	(28.821)	(9.460)	(53.553)
High	0.03	5.44	389.65**	262.01**	-2.49	22.75**	-34.87
	(0.060)	(21.479)	(171.896)	(121.337)	(27.051)	(9.361)	(39.099)
Fixed * Low	0.20**	50.75	1365.99***	1255.38***	47.50	63.89***	-92.35
	(0.086)	(33.046)	(315.373)	(246.489)	(43.693)	(15.372)	(64.628)
Fixed * Medium	0.34***	89.93**	710.75*	943.76***	38.99	3.34	-20.00
	(0.120)	(43.462)	(417.061)	(300.042)	(54.767)	(15.959)	(98.919)
Fixed * High	0.17*	48.83	340.39	568.08**	71.77	18.00	81.67
	(0.099)	(36.911)	(309.482)	(235.814)	(45.648)	(13.908)	(79.250)
Flexible * Low	0.15	49.57	1187.36***	944.46***	46.50	51.61***	38.51
	(0.096)	(36.239)	(314.395)	(252.457)	(49.606)	(16.803)	(78.317)
Flexible * Medium	0.27**	75.17	528.59	318.46	102.77	27.37	-21.54
	(0.132)	(48.792)	(401.338)	(280.481)	(63.627)	(19.129)	(87.455)
Flexible * High	0.17**	31.59	222.05	578.62***	63.88	9.67	128.51*
	(0.084)	(31.034)	(248.484)	(180.422)	(39.534)	(12.222)	(74.891)
Observations	3608	3608	3608	3608	3608	3608	3608
Test: Fixed coefficients equal	0.551	0.725	0.072	0.148	0.887	0.020	0.238
Test: Flexible coefficients equal	0.735	0.749	0.062	0.236	0.788	0.146	0.413
Test: Diff-in-diff (high vs low tericle)	0.734	0.746	0.899	0.407	0.919	0.859	0.523

Note: In this table we investigate heterogeneous treatment effects using *local average treatment effect* estimates, where we instrument take-up with assignment to either of the two treatment contracts (fixed- or flexible-repayment), and interact with dummies for each of the three baseline heterogeneity terciles (where 'Low', 'Medium' and 'High' refers to individuals who were in the bottom, middle and highest terciles of the particular heterogeneity variable, as done in the equivalent table for the ITT results). The omitted category represents individuals in the control group from the lowest tercile. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%. In the bottom three rows of the table, we report p-values for three null hypotheses: (i) the null hypothesis that the effect of take-up of the fixed contract is equal across three terciles; (ii) the null hypothesis that the effect of take-up of the flexible contract is equal across terciles; and (iii) a difference-in-difference test: testing the null that the difference in outcomes between the lowest and highest tercile was the same across the two assignment groups.

Heterogeneity in usage of the flexible-repayment option

As illustrated in the right panel of Figure 1, there is significant month-to-month variation in repayments made under the flexible contract, mostly lying in between what entrepreneurs were required to pay and what the equivalent required payment under the fixed contract would have been. Here, we formally explore how clients utilise the flexible repayment option, particularly when they experience business shocks. Business shocks are defined as the percentage change in monthly business profits, compared to the value six months prior. In each column, the dependent variable is total payments made in the previous six month period for individuals under the flexible repayment contract.[9] In column 1, we see that clients who faced a positive shock in their business profits in the previous six months were more likely to exercise their flexible repayment option by making higher payments, while those that faced negative shocks made lower payments (compared to the mean of 20% payment over the six month period).[10] This is an intuitive result that demonstrates usage of the flexible repayment option for its insurance value, and is consistent with results in Battaglia, Gulesci, and Madestam (2021).

In the remaining columns of the table, we explore heterogeneity in this response to business shocks, focusing on the interaction between shocks and risk. We follow Battaglia et al. (2021) in focusing on two types of risk that are important for business performance and contract repayment: (i) personal risk aversion of the microenterprise owner, and (ii) risk exposure of the business. For business risk exposure, we use the volatility of business profits, measured using the standard deviation of the previous three months of business profits (at baseline). Both risk variables are captured using a tercile split, with 'medium risk' and 'high risk' referring to the middle and highest tercile of the respective variable. To begin, column 2 presents the simple correlation between contract payments and business risk exposure, revealing that the most risk-exposed businesses (both high and medium risk) are less likely to make extra payments on average (compared to the least risk-exposed businesses, the omitted category). In column 3, we add business profit shocks to the analysis, interacting shocks with risk exposure measures. Results reveal that the most risk-exposed businesses – when faced with a positive shock – are much more likely to make higher excess payments (significant at the 1% level, with no other interaction terms significantly different from zero). In columns 4 and 5, we turn to the measure of risk aversion for the microenterprise owner. While column 4 indicates that there is no general relationship between repayments and risk aversion, when shocks are interacted with the measure of risk aversion in column 5 we see that the most risk-averse individuals were more likely to make additional payments when faced with a positive business shock (significant at the 1% level, with no other interaction terms significantly different from zero).

In summary, the flexible-repayment contract appears to provide some insurance-like benefit to the most risk averse (and risk-exposed) microenterprise owners in dealing with shocks; this is consistent with our previous analysis of heterogeneity, where we found that the most risk-averse microenterprise owners had higher selection into the flexible contract and greater post-treatment impacts, compared to similarly risk averse individuals who were only offered the fixed repayment contract.

[9] The flexible contract allowed payments greater than the required 2.5% of the asset value each month.
[10] Recall that the minimum permitted payment over a six-month period would be 15% (2.5% per month).

Table A.50: **Business shocks, repayment flexibility and risk-related heterogeneity**

	(1)	(2)	(3)	(4)	(5)
	Payment	Payment	Payment	Payment	Payment
Positive shock	1.66**		0.52		0.22
	(0.032)		(0.464)		(0.579)
Negative shock	-1.74*		-2.28		-0.59
	(0.053)		(0.350)		(0.748)
Medium risk		-3.82***	-2.54	1.20	-1.30
		(0.002)	(0.265)	(0.385)	(0.452)
High risk		-2.34**	-2.35	0.21	-1.30
		(0.039)	(0.343)	(0.877)	(0.520)
Positive * Medium risk			-0.34		0.63
			(0.666)		(0.350)
Positive * High risk			2.45***		2.47***
			(0.001)		(0.000)
Negative * Medium risk			1.33		-2.64
			(0.640)		(0.209)
Negative * High risk			0.45		-0.67
			(0.862)		(0.777)
Observations	480	492	480	492	480
Individuals	123	123	123	123	123
Dependent variable mean	20.02				
Heterogeneity measure		Risk exposure		Risk aversion	

Note: In this table we investigate how microenterprises respond to business shocks in terms of the payments they made under the flexible-repayment contract. Shocks are defined as the percentage change in monthly business profits, compared to the value six months prior. In each column, the dependent variable is the cumulative payment made in the last six months for individuals under the flexible-repayment contract, which allowed them to pay more than their obligation of 2.5% of the asset value each month. Columns 2 and 3 include a measure of baseline microenterprise 'risk exposure', constructed as the standard deviation of the previous three months of business profits at baseline. Columns 4 and 5 use the incentivised measure of baseline risk aversion for microenterprise owners. Both risk variables are constructed using a tercile split, with 'high risk' referring to the most risk exposed microenterprises / the most risk-averse microentrepreneurs respectively, 'medium risk' referring to the middle tercile of risk exposure / risk aversion, and the omitted category being the least risk exposed / least risk-averse. Standard errors, reported below each coefficient in parenthesis, allow for clustering at the level of the individual. We denote significance using $*$ for 10%, $**$ for 5% and $***$ for 1%.

References

Acharya, A., Blackwell, M., & Sen, M. (2016). Explaining Causal Findings Without Bias: Detecting and Assessing Direct Effects. *American Political Science Review*, *110*(3), 512–529.

Athey, S., & Imbens, G. W. (2017). The Econometrics of Randomized Experiments. In *Handbook of economic field experiments* (Vol. 1, pp. 73–140). Elsevier.

Barr, A., & Packard, T. G. (2002). Revealed Preference and Self-insurance: Can we learn from the Self-employed in Chile? *Working paper*.

Bartling, B., Fehr, E., & Herz, H. (2014). The Intrinsic Value of Decision Rights. *Econometrica*, *82*(6), 2005–2039.

Battaglia, M., Gulesci, S., & Madestam, A. (2021). Repayment flexibility and risk taking: Experimental evidence from credit contracts. *Working paper*.

Benjamini, Y., Krieger, A. M., & Yekutieli, D. (2006). Adaptive Linear Step-up Procedures that Control the False Discovery Rate. *Biometrika*, *93*(3), 491–507.

Blundell, R., & Bond, S. (2000). GMM Estimation with Persistent Panel Data: An Application to Production Functions. *Econometric Reviews*, *19*(3), 321–340.

Blundell, R., Costa Dias, M., Meghir, C., & Shaw, J. (2016). Female Labor Supply, Human Capital, and Welfare Reform. *Econometrica*, *84*(5), 1705–1753.

Carroll, C. (2020). *Solution Methods for Microeconomic Dynamic Stochastic Optimization Problems.* http://www.econ2.jhu.edu/people/ccarroll/solvingmicrodsops.pdf.

Charness, G., Gneezy, U., & Halladay, B. (2016). Experimental Methods: Pay One or Pay All. *Journal of Economic Behavior & Organization*, *131*, 141–150.

Gavazza, A., Lizzeri, A., & Roketskiy, N. (2014). A Quantitative Analysis of the Used-Car Market. *American Economic Review*.

Gelman, A., & Park, D. K. (2009). Splitting a Predictor at the Upper Quarter or Third and the Lower Quarter or Third. *The American Statistician*, *63*(1), 1–8.

Levinsohn, J., & Petrin, A. (2003). Estimating production functions using inputs to control for unobservables. *The Review of Economic Studies*, *70*(2), 317–341.

Saidani, Y. (2020). Asset depreciation, partial irreversibility and microenterprise investment decisions in Pakistan. *Oxford MPhil thesis*.

Schlag, K. H., Tremewan, J., & van der Weele, J. J. (2015). A Penny for your Thoughts: A Survey of Methods for Eliciting Beliefs. *Experimental Economics*.

Schlag, K. H., & van der Weele, J. J. (2015). A method to elicit beliefs as most likely intervals. *Judgment and Decision Making*.

Tauchen, G. (1986). Finite State Markov-chain Approximations to Univariate and Vector Autoregressions. *Economics letters*, *20*(2), 177–181.

Vieider, F. M., Lefebvre, M., Bouchouicha, R., Chmura, T., Hakimov, R., Krawczyk, M., & Martinsson, P. (2015). Common Components of Risk and Uncertainty Attitudes Across Contexts and Domains: Evidence from 30 Countries. *Journal of the European Economic Association*, *13*(3), 421–452.