CSAE Working Paper WPS/2022-08-app

Microequity and Mutuality: Experimental Evidence on Credit with Performance-Contingent Repayment

ONLINE APPENDIX

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A1 Theoretical model

In this appendix section, we present a stylised conceptual framework. We consider a microfinance client, maximising expected utility by deciding how much sales effort to invest both (i) 'on-contract' (e_c: sales for FoodCo) and (ii) 'off-contract' (e_n: sales through any other channel):

$$V(\omega, R; r, \kappa) = \max_{e_c \geq 0, e_n \geq 0} \int \int u \left[\omega \cdot \pi(e_c, \eta_c; \kappa) + \pi(e_n, \eta_n; \kappa) - C(e_c, e_n) - F; r \right] \; dF(\eta_c, \eta_n). \quad \text{(A1)}$$

To solve the client's problem, we use a standard CARA utility function (that is, $u(x) \equiv -\exp(-rx)$), and assume that the productivity shocks η are *iid* Normal: $\eta_c, \eta_n \sim_{iid} \mathcal{N}(0, \sigma^2)$. We use a standard constant-elasticity cost function: $C(e_c, e_n) \equiv \dfrac{(e_c + e_n)^{1+\gamma}}{1+\gamma}$. We consider a scenario in which profits are multiplicative in effort and productivity shocks: $\pi(e, \eta; \kappa) \equiv \kappa \cdot (1 + \eta) \cdot e$. This formalises the notion that, as clients exert more effort, they also expose themselves to more risk. For those with no bicycle, we normalise $\kappa \equiv 1$; therefore, $\kappa > 1$ refers to the returns capital (*i.e.* purchase of the bicycle).

This framework allows us to model several key contractual forms:

(i). *Debt*: Under the debt contract, clients retain all of their profits ($\omega = 1$), owe a fixed repayment ($F = F_d$), and enjoy higher productivity: $\kappa > 1$.

(ii). *Equity*: Under the equity contract, clients retain 90% of their on-contract profits ($\omega = 0.9$), owe half the fixed repayment of the debt contract ($F = F_e = 0.5F_d$) and enjoy higher productivity: $\kappa > 1$.

(iii). *Hybrid*: We can represent a stylised hybrid contract by taking the net present value of an income stream in which – for simplicity – we model the client as choosing effort and then earning the same retained profit in each month.[1] As in the debt and equity cases, clients under the hybrid contract purchase the bicycle and enjoy higher productivity: $\kappa > 1$.

[1] In our example, we use a monthly discount factor of 0.95 to illustrate.

(iv). *No-contract case*: For a client refusing to take a loan (and, therefore, not purchasing the bicycle), $\omega = 1$, $F = 0$ and $\kappa = 1$.

Figure A1 shows the repayment under each of these four scenarios. Specifically, it shows that repayments are invariant to profits under both the no-contract scenario and under the traditional debt scenario. Under the equity contract, repayments increase linearly – starting at half of the debt repayment, for a client earning zero profits. Under the hybrid contract, the net present value representation starts between the repayments under equity and debt (for a client earning zero profits), and is then an increasing concave function. This captures one key advantage to the client of the hybrid contract, relative to the equity contract: namely, that it limits the upside exposure. (Note that there are additional advantages to the hybrid contract, in the form of repayment flexibility; these could readily be captured in a more complicated dynamic programming framework, but this would lose much of the elegance and intuition of the static setup.)

Appendix Figure A1: **Contract repayments and retained earnings**

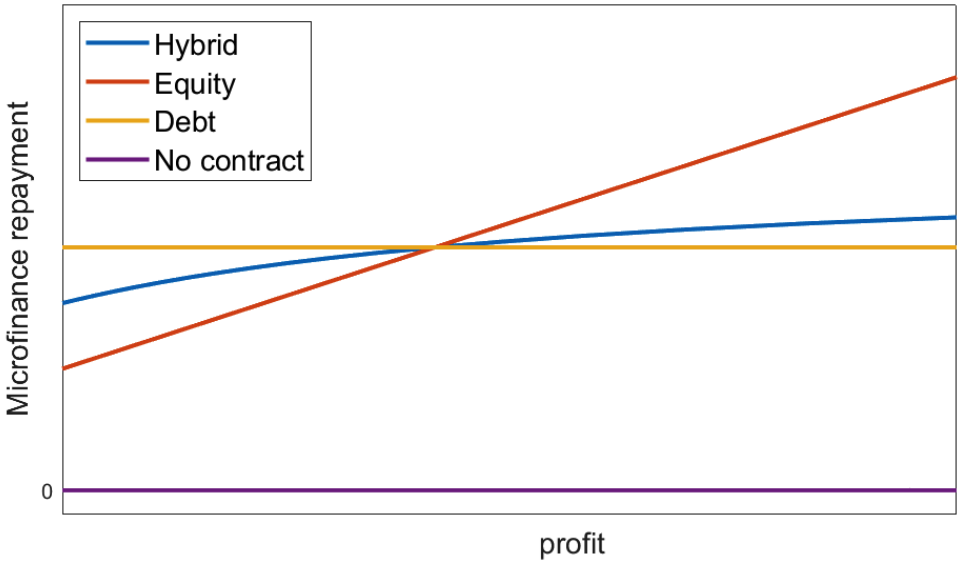


Figure A2 shows key model predictions, for reasonable parameter values.[2] Specifically, we conduct comparative static exercises for different values of the return to capital (κ) and risk aversion ($r\sigma^2$). Panel A compares optimal on-contract effort (e_c^*) under both the debt contract and the equity contract; in red, we shade the region where e_c^* is higher under equity, and in yellow, we shade the region where e_c^* is higher under debt. The panel shows that, because client risk is increasing in client effort, the equity contract can crowd *in* on-contract effort, for sufficiently high values of both risk aversion and capital returns.

Panel B shows which contract the client would prefer: none (in purple), debt (in yellow), equity (in red), or hybrid (in blue).[3] First, note that 'none' is preferred if the return to capital is low. This makes strong intuitive sense: such clients barely gain from having a bicycle, and certainly do not gain enough to justify the loan repayments. Second, debt is preferred for clients who have a high return to capital *and* who are not overly risk averse. In this region, we have a classic 'adverse selection' story: more profitable clients are more wary of sharing a proportion of their income, so prefer the fixed-repayment contract. However, for sufficiently high risk aversion, this incentive is outweighed by the implicit insurance provided by the equity contract. Third, this adverse selection story is mitigated in part by the hybrid contract: some clients who would prefer a standard debt contract over a performance-contingent contract would prefer the hybrid contract, because of the way that it limits upside exposure.

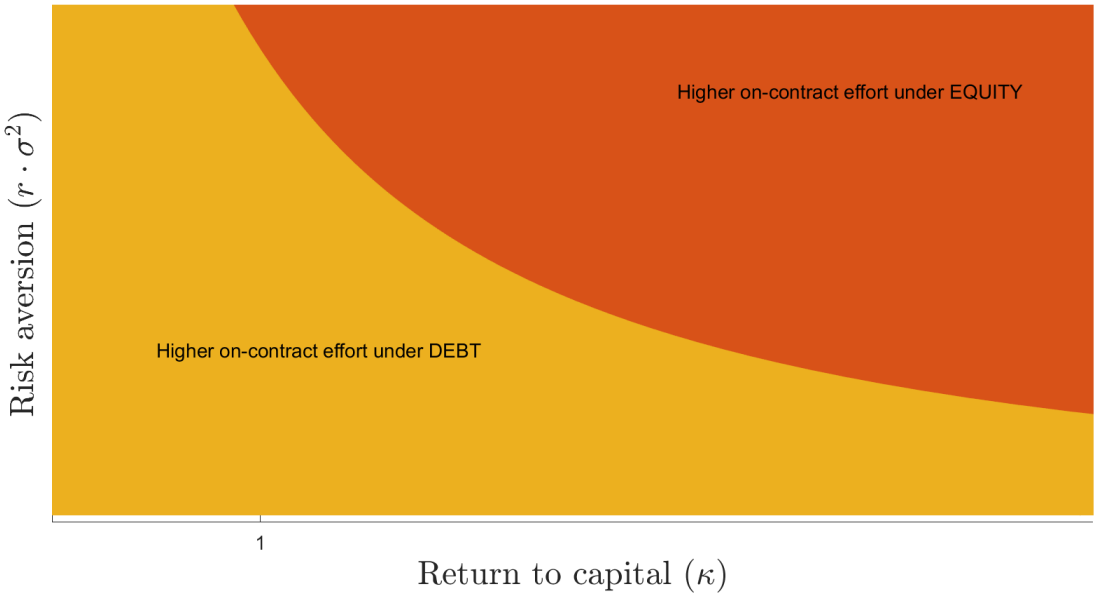
This stylised framework captures the key trade-offs facing micro-distributors. The model could readily be extended in several ways; this would include, in particular, providing for heterogeneity in micro-distributor productivity (which can be incorporated by allowing distributor-specific heterogeneity in $\mathbb{E}(\eta_c)$ and $\mathbb{E}(\eta_n)$). In our view, no intuitive insight is gained through these additional model complications.

[2] For this illustration, we use $\gamma = 0.35$ and $F_d = 0.1$.

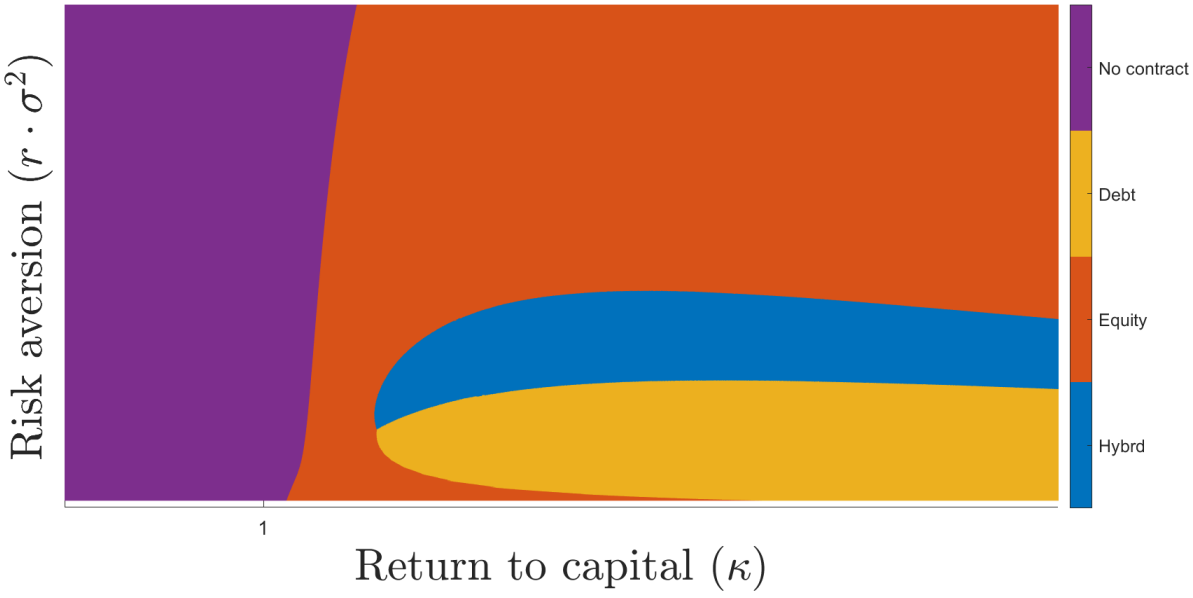
[3] To solve the model under the hybrid contract, we need to use numerical integration methods; specifically, we use the method of Tauchen (1986).

Appendix Figure A2: **Theoretical model: Key predictions**

PANEL A: CROWDING-IN EFFORT



PANEL B: PREFERRED CONTRACT



A2 Spillover effects

We test whether our results are driven by 'business stealing' by treated respondents from control respondents. To test for spillovers, we exploit the fact that we have administrative data on the universe of micro-distributors in FoodCo's program, regardless of whether they participated in our project; distributors who were neither assigned to treatment nor to control. We test the consequence on these micro-distributors of random variation in the number of treated respondents at the stockpoint, conditional upon the number of experimental participants at the stockpoint. Denote by y_{ist} the profits of non-participant i, at stockpoint s, in period t. Denote by A_{st} the total number of participants who had been assigned to treatment at stockpoint s by period t, and by C_{st} the total number assigned to control. Denote by P_{st} the total number of participants assigned at stockpoint s by period t; that is, $P_{st} \equiv A_{st} + C_{st}$. We estimate:

$$y_{ist} = \beta_0 + \beta_1 \cdot A_{st} + f(P_{st}) + \varepsilon_{ist}, \tag{A2}$$

where $f(P_{st})$ denotes a flexible function of the number of participants (Miguel & Kremer, 2004), and where we cluster by stockpoint.[4] In this specification, β_1 tests for spillovers at the level of the stockpoint: if there are positive spillovers from providing bicycles, then $\beta_1 > 0$, and if there are negative spillovers, $\beta_1 < 0$. This identification strategy relies crucially upon the random assignment to treatment: holding fixed the total number of participants at each stockpoint, A_{st} is determined randomly, so $\mathbb{E}(A_{st} \cdot \varepsilon_{ist}) = 0$. Table A1 displays the spillover results. Column 1 reports our primary specification. In column 2, we additionally control for time dummies. Columns 3 and 4 repeat the specifications in columns 1 and 2, but collapsing the analysis to the level of the stockpoint. In each case, we estimate significant *positive* spillovers from treatment. Specifically, we estimate an increase of about US$4 for each non-participating micro-distributor at the stockpoint, for each additional person offered a contract. These combined findings are reassuring for the robustness of our main results: it indicates that, if anything, our main results are likely to be slight underestimates of the treatment effects of our contracts.

[4] Specifically, we include a different dummy variable for each different value of P_{st}.

Appendix Table A1: **Spillovers**

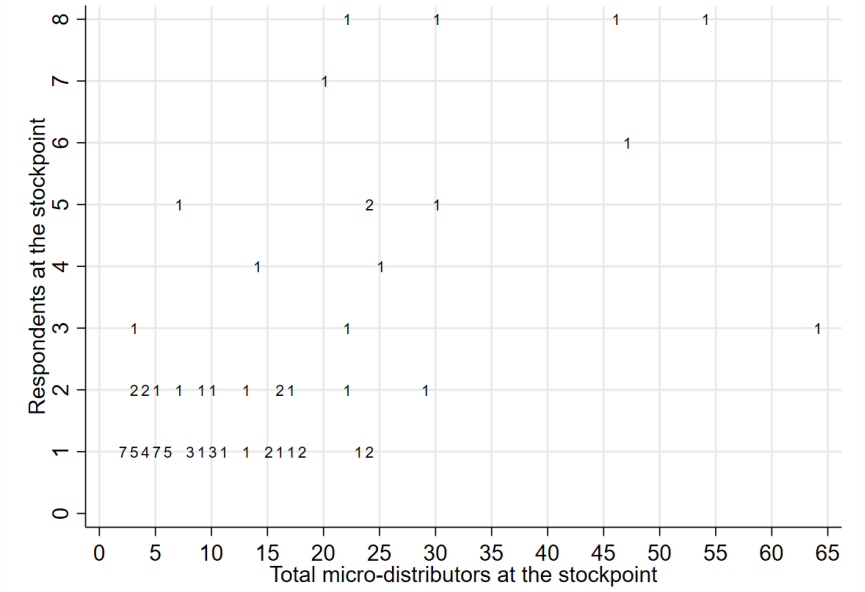
	(1)	(2)	(3)	(4)
Level of analysis:	Non-participating clients		Stockpoints	
Number treated at the stockpoint	3.96***	4.11***	4.07*	4.03**
	(1.343)	(1.388)	(2.075)	(2.039)
Constant	11.04***	10.97***	11.64***	11.64***
	(1.298)	(1.229)	(1.002)	(0.993)
Controls: Total participating at the stockpoint	yes	yes	yes	yes
Controls: Time	no	yes	no	yes
Observations	52948	52948	9737	9737

Notes: In this table, we use administrative data on micro-distributors who were not involved in our experiment, and test the consequence of random variation in the number of treated respondents at the stockpoint. We report intent-to-treat (ITT) estimates, and standard errors in parentheses (with clustering at the level of the stockpoint). * p < 0.10, ** p < 0.05, *** p < 0.01..

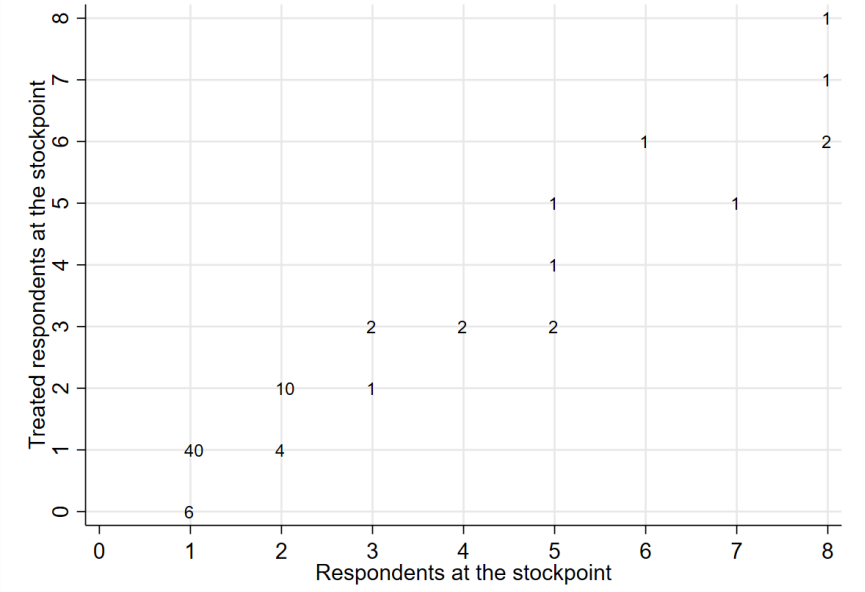
Figure A3 illustrates the underlying variation in (i) stockpoint size, (ii) number of research participants, and (iii) number of treated participants. Panel A shows the joint distribution of the number of respondents and the total number of micro-distributors at the stockpoint; the numbers on the scatterplot are the count of stockpoints having a given combination of the two variables. (Thus, for example, there are seven stockpoints that have five micro-distributors of whom one was in the research project.) Panel B shows the number of respondents at each stockpoint and the number of those who were treated; this is the exogenous variation that we rely upon for identification in this spillover analysis. (Thus, for example, there are 14 stockpoints in which we have two experimental respondents; of these, 10 of the stockpoints have both respondents treated, and four of the stockpoints have just one respondent treated.)

Appendix Figure A3: **Variation in treatment by stockpoint**

PANEL A: EXPERIMENTAL RESPONDENTS AND STOCK-POINT SIZE



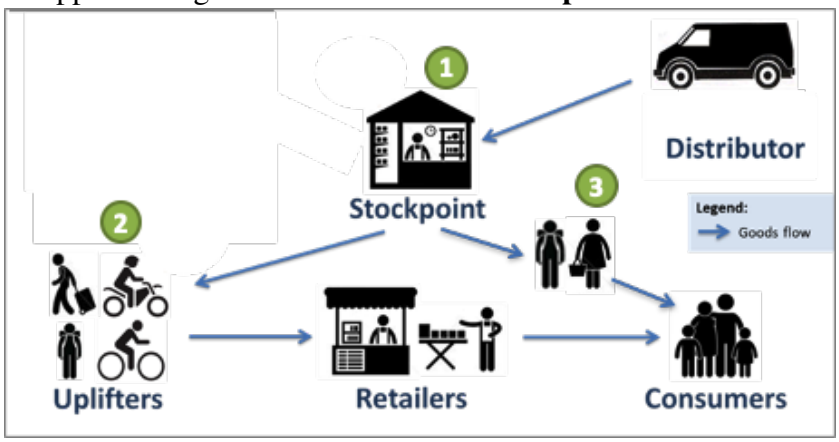
PANEL B: TREATED RESPONDENTS AND EXPERIMENTAL RESPONDENTS



This figure shows the variation that we exploit to test for spillover effects. Panel A shows the joint distribution of the number of respondents and the total number of micro-distributors at the stockpoint. Panel B shows the number of respondents at each stockpoint and the number of those who were treated; this is the exogenous variation that we rely upon for identification in this spillover analysis. In each panel, the numbers on the graph are the count of stockpoints.

A3 Additional figures and tables

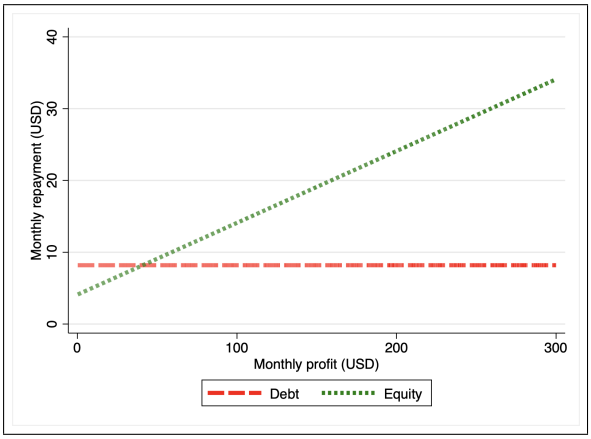
Appendix Figure A4: **Route-to market: product flowchart**



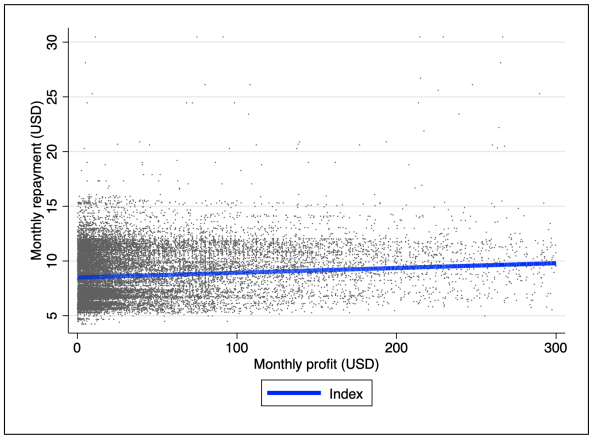
Notes: *Types of participant: (i) stockpoints — receive gum from FoodCo distributor and supply it to both 'uplifters' and 'hawkers'; (ii) uplifters — receive stock from stockpoint and sell door-to-door to retailers (kiosks, small outlets, table shops); and (iii) hawkers — receives stock from stockpoints and sell directly to end consumers.*

Appendix Figure A5: **Micro-distributor performance and contract payments**

PANEL A: DEBT AND EQUITY-LIKE CONTRACTS



PANEL B: INDEX CONTRACT



Notes: *In this figure, we plot required contract payments against micro-distributor performance (monthly profit in US$). Contract payments are based on the average bike price of US$95. Panel A illustrates payments under the 'deterministic' contracts, where payment amounts due are either completely unrelated to performance (debt contract, illustrated by the red line) or related only to one's own performance (equity and hybrid contracts, the monthly payments for both being represented by the green line). In contrast, Panel B illustrates payments under the index insurance contract, which are a realisation of a stochastic outcome (the sales of other micro-distributors in one's region), with the blue line representing the predicted payments following a regression of index payments on individual performance controlling for individual fixed effects.*

A3.1 Summary statistics and balance

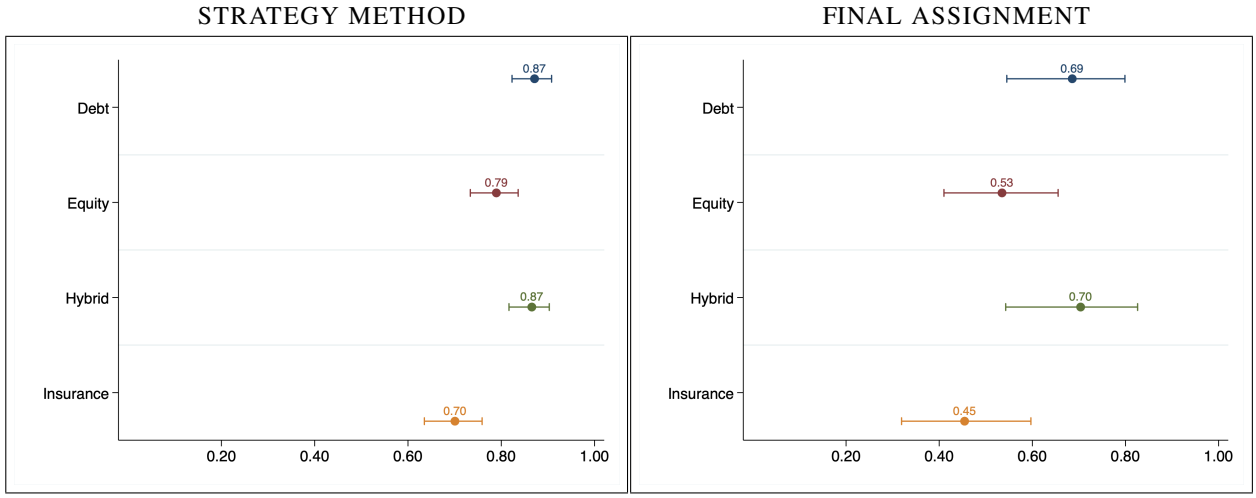
Appendix Table A2: SUMMARY STATISTICS AND BALANCE

	Control	Debt	Hybrid	Equity	Insurance	Equality test (p-val)
Age	30.29	31.32	31.62	29.41	32.31	0.219
Married	0.71	0.76	0.85	0.63	0.78	0.241
Female	0.14	0.12	0.08	0.20	0.19	0.431
Household size	3.21	3.38	3.27	3.17	3.81	0.486
Number of earners	1.43	1.44	1.35	1.34	1.56	0.256
Education (post-secondary)	0.18	0.15	0.27	0.27	0.09	0.145
Number of employees	0.46	0.12	0.15	0.02	0.16	0.109
Business profit (all sources)	131.54	123.51	138.44	101.44	151.36	0.101
Profits from selling FoodCo products	33.35	40.14	69.34	49.68	58.76	0.330
Has wage job	0.29	0.18	0.35	0.22	0.28	0.473
Wage earnings	17.54	14.47	14.62	13.29	25.78	0.675
Total household income	204.07	181.75	162.65	166.01	224.77	0.369
Consumption expenditure	173.07	207.14	221.72	179.50	200.76	0.584
Management practices	0.73	0.72	0.83	0.77	0.78	0.198
Maths score	0.61	0.66	0.65	0.63	0.66	0.798
Time preferences index	7.32	6.44	6.23	6.98	6.84	0.942
Risk aversion index	4.04	3.71	4.08	4.08	3.84	0.472
Loss aversion index	5.64	5.32	6.35	5.56	6.72	0.308
Number of individuals	28	34	26	41	32	

Notes: The first five columns present baseline summary statistics for individuals who were randomly assigned to the control, debt, hybrid, equity, or insurance arms, respectively. The sixth column presents a test of equality across the five groups. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. We also conducted an omnibus balance test of equality, which comfortably passes (p=0.497).

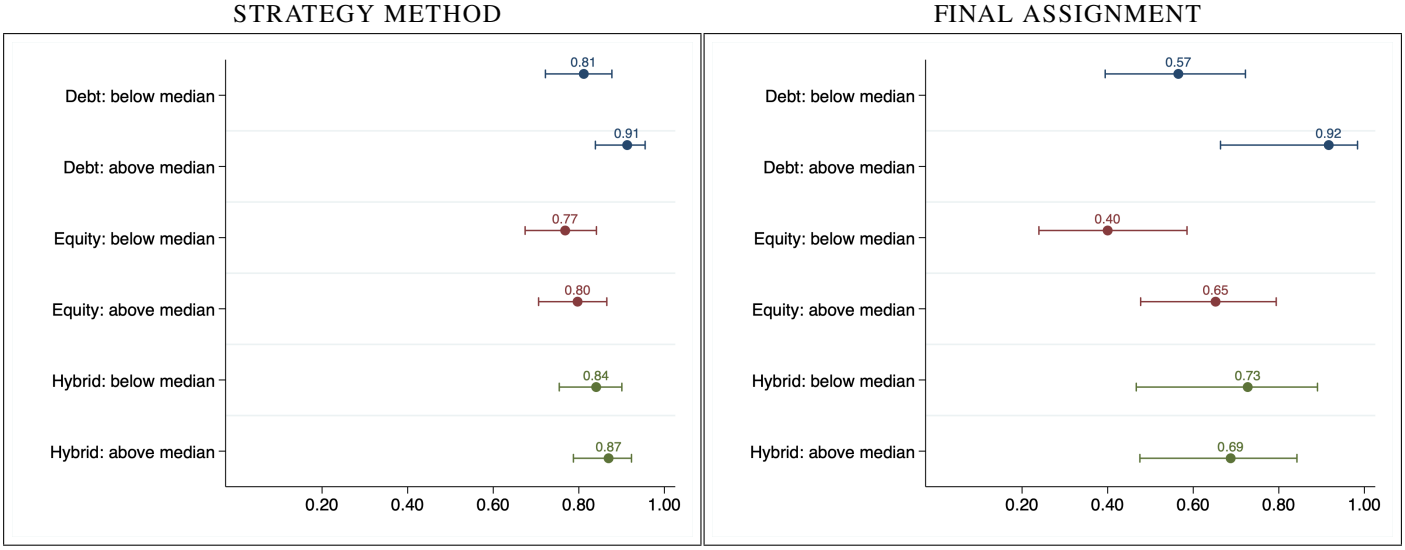
A3.2 Take-up analysis

Appendix Figure A6: Overall take-up rates



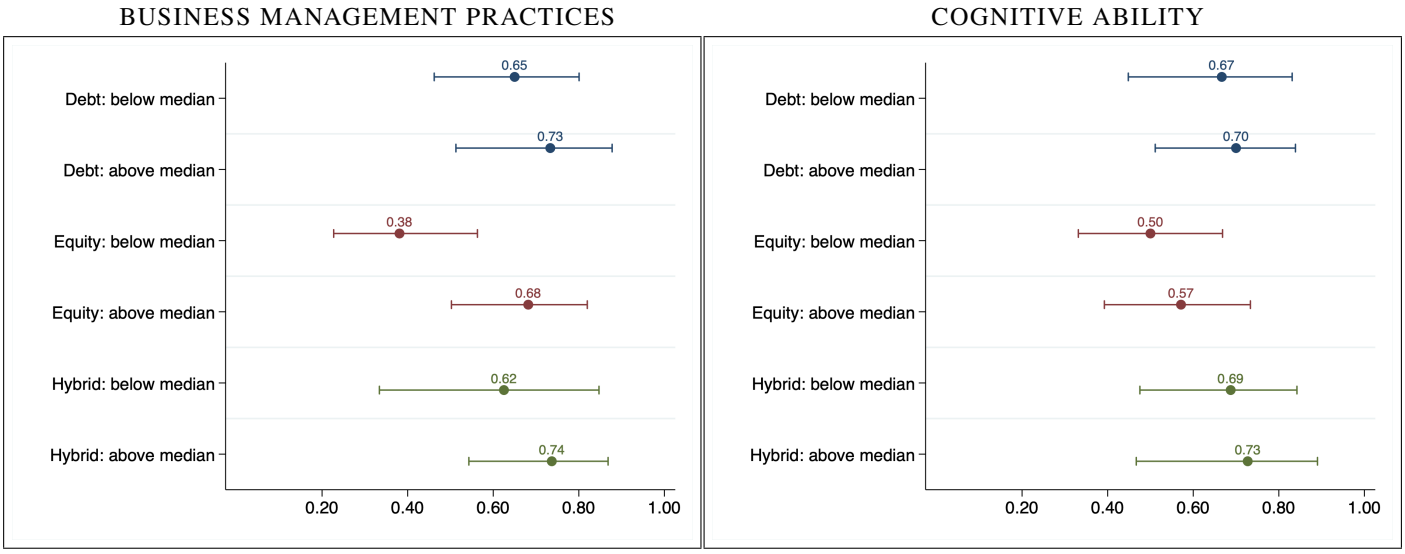
Notes: This figure displays the overall contract take-up rates, using the incentivised strategy method elicitation procedure in the left panel (four contract choices per participant), and the final random assignment for each participant in the right panel.

Appendix Figure A7: Take-up heterogeneity by baseline profits (FoodCo administrative data)



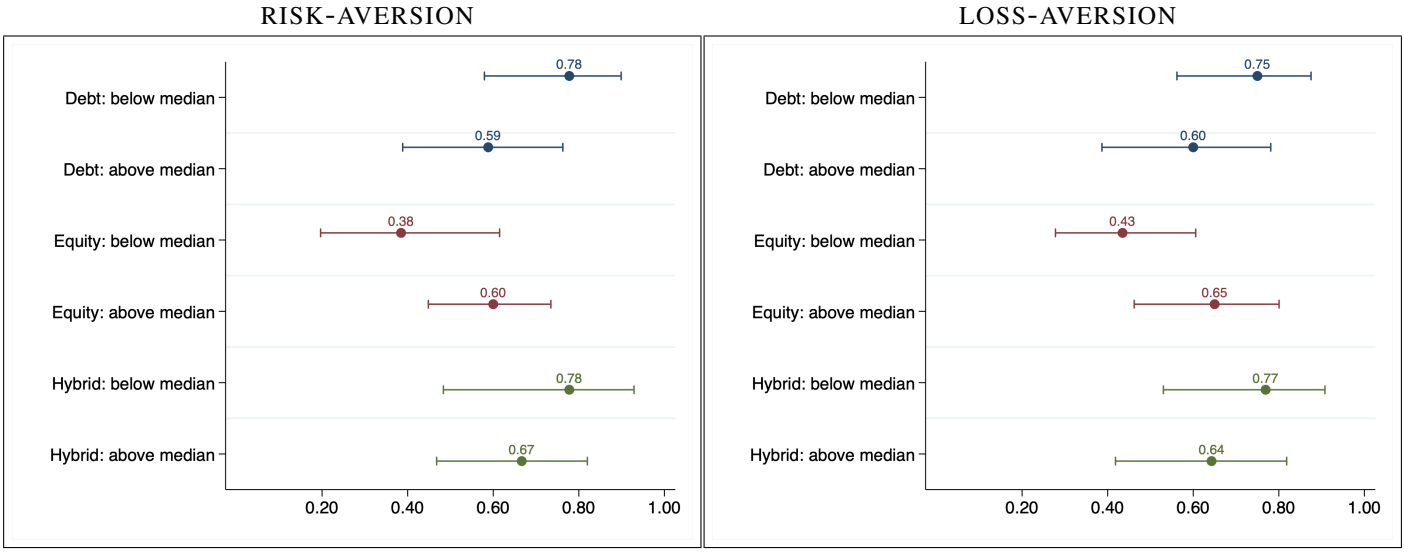
Notes: This figure displays heterogeneous take-up by baseline profitability (using FoodCo administrative data). We cannot reject equality of the difference in take-up for above- and below-median micro-distributors under the debt contract compared to the same difference for those under the equity contract ($p-$value of 0.615, or 0.663 if we also control for baseline risk preferences in the test).

Appendix Figure A8: Take-up heterogeneity by baseline management practices and cognitive ability



Notes: This figure displays heterogeneous take-up by baseline management practices (left panel) and baseline mathematical ability (right panel). We cannot statistically equality of the difference in take-up for above- and below-median ability micro-distributors under the debt contract compared to the same difference for those under the equity contract ($p-$values of 0.308 and 0.862 respectively).

Appendix Figure A9: Take-up heterogeneity: risk preferences



Notes: This figure displays heterogeneous take-up by baseline risk aversion (left panel) and loss aversion (right panel). The risk aversion measure is a combination of a broad survey on risk attitudes in a variety of domains, as well as a more narrowly-focused incentivised measure, and the loss aversion measure is from an incentivised activity. The $p-$value for a test of equality of the difference in take-up for micro-distributors with below- and above-median risk aversion under the debt contract compared to the same difference for those under the equity contract is 0.070, and 0.054 if we also control for baseline profitability in the test. The $p-$value for a test of equality of the difference in take-up for micro-distributors with below- and above-median loss aversion under the debt contract compared to the same difference for those under the equity contract is 0.094, and 0.108 if we also control for baseline profitability in the test.

A3.3 Log and IHS transformation of main outcome variable

Appendix Table A3: **Robustness: impact on transformed administrative profits**

	(1) FoodCo profits: Log	(2) FoodCo profits: IHS	(3) FoodCo profits: Log	(4) FoodCo profits: IHS
Debt	0.22	0.24	0.22	0.25
	(0.375)	(0.436)	(0.375)	(0.435)
Performance-contingent	0.74**	0.86**		
	(0.342)	(0.396)		
Hybrid			1.04**	1.21**
			(0.440)	(0.504)
Equity			0.53	0.61
			(0.384)	(0.445)
Insurance	0.08	0.09	0.09	0.10
	(0.346)	(0.402)	(0.345)	(0.402)
Observations	2598	2598	2598	2598
Individuals	161	161	161	161
Control mean	1.07	1.29	1.07	1.29
Test: Hybrid = Debt			0.074	0.066
Test: Hybrid = Equity			0.263	0.252
Test: Equity = Debt			0.441	0.430

Note: In this table we report *intent-to-treat* (ITT) estimates of the impact of treatments on the main outcome variable (administrative profits), transforming the outcome varable using both logs and inverse hyperbolic sine. Standard errors, clustered at the individual level, are reported in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

A3.4 Local Average Treatment Effect (LATE) estimates

Appendix Table A4: **Business outcomes (LATE specification)**

	(1) FoodCo profits	(2) FoodCo profits	(3) Activity: seller	(4) FoodCo proportion	(5) Other earnings
Debt	13.55	13.55	-0.07	-0.15**	8.42
	(14.848)	(14.834)	(0.076)	(0.070)	(21.589)
Performance-contingent	37.87**				
	(15.214)				
Hybrid		43.93**	0.04	0.04	-10.32
		(19.762)	(0.059)	(0.080)	(17.671)
Equity		32.03*	-0.05	-0.02	-3.34
		(17.929)	(0.101)	(0.087)	(23.213)
Insurance	22.23	22.25	0.05	-0.12	6.48
	(18.308)	(18.250)	(0.080)	(0.096)	(32.112)
Observations	2598	2598	468	468	468
Individuals	161	161	160	160	160
Control mean	11.32	11.32	0.93	0.48	70.67

Note: In this table we report *local average treatment effect* (LATE) estimates, obtained by least-squares estimation. Columns 1 and 2 use administrative data from FoodCo on business profits, for which there is an average of 15 months of post-treatment data (up to and excluding the start of Covid-19 lockdowns in March 2020). For all other columns, we use survey data collected by enumerators using quarterly follow-up surveys (again, up to and excluding Covid-19 lockdowns). Standard errors, clustered at the individual level, are reported in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Appendix Table A5: **Mechanisms (LATE specification)**

	(1) Sales expansion	(2) Stockpoint visits	(3) Profit concentration	(4) Product varieties	(5) Credit extension	(6) Management practices	(7) Record keeping
Debt	0.14	1.66	-0.06	-0.03	0.02	0.00	-0.03
	(0.116)	(1.495)	(0.061)	(0.573)	(0.033)	(0.087)	(0.104)
Hybrid	0.25**	3.76*	-0.13*	0.90	0.07**	0.13*	0.19**
	(0.126)	(1.973)	(0.072)	(0.705)	(0.035)	(0.076)	(0.096)
Equity	0.26	2.08	-0.05	0.15	0.02	0.05	0.02
	(0.170)	(1.684)	(0.074)	(0.778)	(0.038)	(0.106)	(0.132)
Insurance	0.46***	0.52	0.01	0.13	-0.00	0.22**	0.24*
	(0.177)	(2.106)	(0.079)	(0.704)	(0.038)	(0.105)	(0.140)
Observations	468	2598	2598	2598	468	468	468
Individuals	160	161	161	161	160	160	160
Control mean	0.58	2.42	0.55	1.33	0.08	0.68	0.65

Note: In this table we report *local average treatment effect* (LATE) estimates, obtained by least-squares estimation. We use information from daily administrative data (columns 2 to 4) and survey data from all participants (columns 1 and columns 5 to 7) to explore a number of variables that shed light on the mechanisms for our results from Table 1: how often distributors visit stock-points in a given month to purchase inventory (which ranges from 0 to 31), how concentrated their total monthly profit is over those visits (Herfindahl index), the number of FoodCo products they sell in their monthly portfolio (which ranges from 1 to 6), whether they sell to distant customers (greater than 1km from their stock-point), whether they extend credit to customers, and their business management practices (an overall index and specifically record keeping). Standard errors, clustered at the individual level, are reported in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

A3.5 Randomisation inference

Appendix Table A6: **Business outcomes**

	(1) FoodCo profits	(2) FoodCo profits	(3) Activity: seller	(4) FoodCo proportion	(5) Other earnings
Debt	10.39	10.39	-0.05	-0.11	5.95
	(0.369)	(0.369)	(0.389)	(0.022)**	(0.697)
	[0.470]	[0.489]	[0.410]	[0.038]**	[0.689]
Performance-contingent	25.96				
	(0.017)**				
	[0.038]**				
Hybrid		34.43	0.03	0.03	-7.73
		(0.025)**	(0.530)	(0.642)	(0.563)
		[0.028]**	[0.644]	[0.604]	[0.632]
Equity		19.61	-0.03	-0.01	-1.68
		(0.097)*	(0.627)	(0.788)	(0.891)
		[0.154]	[0.635]	[0.811]	[0.902]
Insurance	11.85	11.87	0.02	-0.06	3.07
	(0.252)	(0.249)	(0.590)	(0.178)	(0.843)
	[0.427]	[0.433]	[0.718]	[0.233]	[0.835]
Observations	2598	2598	468	468	468

Note: In this table we repeat the analysis from Table 1 of the paper, using randomisation inference. Standard errors, clustered at the individual level, are reported below each coefficient, with standard p-values in parentheses, and randomization inference p-values in square brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Appendix Table A7: **Mechanisms**

	(1) Sales expansion	(2) Stockpoint visits	(3) Profit concentration	(4) Product varieties	(5) Credit extension	(6) Management practices	(7) Record keeping
Debt	0.10	1.28	-0.05	-0.02	0.01	0.00	-0.02
	(0.240)	(0.270)	(0.341)	(0.962)	(0.564)	(0.963)	(0.759)
	[0.229]	[0.333]	[0.349]	[0.970]	[0.554]	[0.972]	[0.754]
Hybrid	0.19	2.96	-0.10	0.71	0.05	0.10	0.14
	(0.035)**	(0.056)*	(0.066)*	(0.181)	(0.049)**	(0.074)*	(0.036)**
	[0.029]**	[0.036]**	[0.054]*	[0.183]	[0.030]**	[0.107]	[0.062]*
Equity	0.13	1.29	-0.03	0.10	0.01	0.03	0.01
	(0.128)	(0.214)	(0.480)	(0.829)	(0.551)	(0.627)	(0.897)
	[0.078]	[0.329]	[0.506]	[0.831]	[0.565]	[0.629]	[0.897]
Insurance	0.22	0.27	0.01	0.07	-0.00	0.11	0.11
	(0.004)***	(0.812)	(0.847)	(0.854)	(0.907)	(0.036)**	(0.097)*
	[0.003]***	[0.845]	[0.886]	[0.884]	[0.909]	[0.054]*	[0.128]
Observations	468	2598	2598	2598	468	468	468

Note: In this table we repeat the analysis from Table 2 of the paper, using randomisation inference. Standard errors, clustered at the individual level, are reported below each coefficient, with standard p-values in parentheses, and randomization inference p-values in square brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Appendix Table A8: **Household consumption and health**

	(1) Expenditure: food	(2) Expenditure: clothing	(3) Expenditure: schooling	(4) Health impedes work	(5) Work caused pain
Debt	8.99	0.25	-4.91	-0.09	-0.10
	(0.078)*	(0.897)	(0.153)	(0.219)	(0.118)
	[0.058]*	[0.907]	[0.159]	[0.236]	[0.141]
Hybrid	8.47	4.92	3.10	-0.06	-0.03
	(0.100)*	(0.040)**	(0.478)	(0.475)	(0.691)
	[0.090]*	[0.038]**	[0.388]	[0.469]	[0.669]
Equity	1.54	-0.16	-0.81	-0.07	-0.02
	(0.710)	(0.942)	(0.824)	(0.310)	(0.761)
	[0.741]	[0.934]	[0.814]	[0.287]	[0.744]
Insurance	8.18	-2.34	-0.44	-0.03	0.02
	(0.056)*	(0.238)	(0.897)	(0.685)	(0.810)
	[0.092]*	[0.283]	[0.910]	[0.665]	[0.775]
Observations	468	468	468	468	468

Note: In this table we repeat the analysis from Table 3 of the paper, using randomisation inference. Standard errors, clustered at the individual level, are reported below each coefficient, with standard p-values in parentheses, and randomization inference p-values in square brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A4 Controlling for baseline profits and risk preferences

Appendix Table A9: **Business outcomes**

	(1) FoodCo profits	(2) FoodCo profits	(3) Activity: seller	(4) FoodCo proportion	(5) Other earnings
Debt	10.33	10.27	-0.03	-0.06	4.46
	(8.781)	(8.867)	(0.059)	(0.048)	(18.519)
Performance-contingent	31.35***				
	(9.884)				
Hybrid		31.39**	0.07*	0.07	-8.43
		(13.090)	(0.039)	(0.050)	(16.106)
Equity		24.58**	0.02	0.01	-0.64
		(11.415)	(0.047)	(0.047)	(16.580)
Insurance	17.96*	17.82*	0.04	0.00	1.60
	(10.304)	(10.422)	(0.046)	(0.045)	(17.796)
Observations	2598	2598	468	468	468
Individuals	161	161	160	160	160
Control mean	11.32	11.32	0.93	0.48	70.67
Test: Hybrid = Debt		0.105	0.075	0.005	0.339
Test: Hybrid = Equity		0.636	0.234	0.190	0.447
Test: Equity = Debt		0.216	0.424	0.078	0.716

Note: In this table we report *intent-to-treat* (ITT) estimates that replicate the analysis from Table 1 in the main paper, while controlling for (de-meaned) baseline values of profits and risk preferences, as well as the de-meaned variables interacted with each treatment indicator. Standard errors, clustered at the individual level, are reported in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

Appendix Table A10: **Mechanisms**

	(1) Stockpoint visits	(2) Profit concentration	(3) Product varieties	(4) Sales expansion	(5) Credit extension	(6) Management practices	(7) Record keeping	(8) Bike use: business	(9) Bike use: hours
Debt	1.52	-0.08	-0.07	0.08	0.03	0.05	0.01	0.73***	22.32***
	(1.028)	(0.055)	(0.395)	(0.078)	(0.024)	(0.075)	(0.083)	(0.055)	(2.142)
Hybrid	3.25**	-0.12**	0.71	0.18**	0.06***	0.15**	0.18**	0.90***	34.82***
	(1.408)	(0.055)	(0.493)	(0.086)	(0.024)	(0.057)	(0.072)	(0.037)	(5.553)
Equity	2.45**	-0.07	0.55	0.12	0.02	0.08	0.06	0.71***	24.90***
	(1.057)	(0.051)	(0.427)	(0.080)	(0.020)	(0.061)	(0.071)	(0.058)	(2.067)
Insurance	0.98	-0.04	0.18	0.19**	0.02	0.16***	0.15**	0.79***	31.23***
	(1.122)	(0.048)	(0.402)	(0.075)	(0.016)	(0.058)	(0.073)	(0.068)	(5.981)
Observations	2598	2598	2598	468	468	468	468	468	468
Individuals	161	161	161	160	160	160	160	160	160
Control mean	2.42	0.55	1.33	0.58	0.08	0.68	0.65	0.00	0.00
Test: Hybrid = Debt	0.238	0.345	0.090	0.136	0.216	0.116	0.015	0.008	0.036
Test: Hybrid = Equity	0.549	0.214	0.740	0.382	0.113	0.124	0.037	0.006	0.094
Test: Equity = Debt	0.396	0.873	0.109	0.517	0.867	0.653	0.463	0.847	0.386

Note: In this table we report *intent-to-treat* (ITT) estimates that replicate the analysis from Table 2 of the main paper, while controlling for (de-meaned) baseline values of profits and risk preferences, as well as the de-meaned variables interacted with each treatment indicator. Standard errors, clustered at the individual level, are reported in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01.

A5 Aggregate profit analysis

Appendix Table A11: **Aggregate profit**

	(1) Micro-distributor profit	(2) FoodCo profit	(3) MFI profit	(4) Aggregate profit
Debt	10.39	1.49	-1.68***	7.09
	(11.520)	(37.089)	(0.349)	(45.672)
Hybrid	34.43**	75.77	-0.59**	100.39
	(15.227)	(70.574)	(0.291)	(84.743)
Equity	19.61*	31.39	-0.46	45.41
	(11.742)	(49.660)	(0.405)	(59.853)
Insurance	11.87	25.08	-1.42***	33.32
	(10.269)	(31.773)	(0.440)	(39.331)
Observations	2598	2598	2598	2598
Individuals	161	161	161	161
Control mean	11.32	47.97	0.00	59.29
Test: Hybrid = Debt	0.133	0.351	0.018	0.325
Test: Hybrid = Equity	0.357	0.586	0.787	0.571
Test: Equity = Debt	0.472	0.609	0.023	0.582

Note: In this table we report intent-to-treat (ITT) estimates, obtained by least-squares estimation. Column 1 displays monthly profits for micro-distributors (replicating the main outcome from column 2 of Table 1 of the paper). Column 2 displays the monthly profits for FoodCo over the same follow-up period, estimated from the per-product profit margin for each of the six possible FoodCo products that micro-distributors can sell (for which we observed the exact breakdown). Column 3 displays the profit for the MFI over the same follow-up period, based on the repayment data (up until the outbreak of Covid-19, when repayment collection was halted) for those micro-distributors who took up the financing contract offer, imputed by distributing the cumulative gain or loss over the number of follow-up periods to match the administraive data on profits from FoodCo. Finally, Column 4 displays the aggregate profit variable, combining the return to the micro-distributor, FoodCo and the MFI. Standard errors, clustered at the individual level, are reported in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

A6 Baseline workshop elicitation procedure

Micro-distributors who expressed their interest in the purchase of a bicycle were invited to a workshop, where they completed a baseline survey and several activities to measure risk preferences and loss aversion. There were two risk preference elicitation activities; the first was a self-reported measure, using a series of questions that asked individuals about their risk-taking in their occupation, in financial matters, in their faith in others, and a general question on overall risk taking. Responses were given on a scale of 1 to 10, with 0 representing 'risk-averse' and 10 representing 'fully prepared to take risks'. The questions were adapted from Dohmen et al. (2011), and have been used by other researchers in several settings, and often demonstrated a reasonably strong correlation with important 'real-world' outcomes. The second measure of risk preferences was incentivised. Respondents were asked 30 questions that required them to choose between a certain amount of money and an uncertain prospect, which had two possible outcomes: (i) a 'bad' outcome, with a payoff of zero; or (ii) a 'good' outcome, with a payoff of KES 1,000. We adapted the measures used by Barr and Packard (2002) and Vieider et al. (2015). We also measured loss aversion by adapting the measure used by Bartling, Fehr, and Herz (2014). Respondents had to choose between a series of binary-outcome prospects 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, a realised loss was taken out of their guaranteed workshop participation fee; as such, this represented a potential real loss.

For the incentivised activities, participants were informed that, at the end of the behavioural games session, one of the 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 approximately three times as large as median daily business profits for micro-distributors.

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