

REPORT ON A JOINT RESEARCH PROJECT BETWEEN
THE NATIONAL RURAL SUPPORT PROGRAMME,
THE LAHORE SCHOOL OF ECONOMICS AND
THE UNIVERSITY OF OXFORD

Using the ‘Committee’ as a Model for Individual Finance in Pakistan

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Executive Summary

In September and October last year, the research team together with NRSP ran an individual-liability borrowing and saving product among women participating in group lending arrangements in rural Pakistan. The product is inspired by the structure of a ‘committee’ (*i.e.* a ROSCA). We have two key results. First, it is viable to offer individual financial products inspired by the rotating structure of the committee; the implementation worked as planned, participants understood the product well, and product take-up varied with the terms of the contracts offered. Second, respondents’ subjective perceptions were very positive and very supportive — and suggest substantial demand for running the product on a longer timescale. The daily repayment schedule used in this pilot proved very useful as an initial ‘proof of concept’, and it scaling up to a longer timescale is the logical next step.

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1 Introduction

In September and October last year, the research team together with NRSP ran a field experiment in Sargodha, Pakistan. The experiment was designed to test demand for microsaving, and to do so in a way that allows direct comparison to the demand for microlending. To allow this direct comparison, we drew on the rotating structure of the ROSCA. ROSCAs are common everywhere in the developing world, where they seem to have developed independently. In West Africa they are known as 'tontines', in India as 'chit funds', and in Pakistan as 'committees'. ROSCAs are used by consumers to purchase durables, and by small entrepreneurs to save for recurrent business expenditures, such as paying suppliers. In some countries, agents have begun offering ROSCA-like contracts to individuals, but without the need for forming a group. These agents, known as 'susu collectors' in Ghana for instance, operate *de facto* as small financial intermediaries, albeit largely outside the formal financial sector.

Our design is simple, and builds on the evolved wisdom of the ROSCA idea: in short, we replicate the rotating structure of a ROSCA in an individual-liability product. This combines saving and credit into a single financial service, offered to individuals (rather than groups), and tests whether microcredit demand is motivated by savings needs.

2 Experimental design

The experimental design is simple. Each week, each participant is offered one of 12 different types of microfinance contract, where the type of contract offered is determined by the random draw of cards. These contracts differ by (i) timing of lump sum payment and (ii) interest rate. Lump sum payments are either made on Day 1, Day 3, Day 4 or Day 6 (where 'Day 1' refers to the day immediately following the day of the offer). On any day that the lump sum is not paid, the participant is required to pay 200 Pakistani rupees (PKR). The base lump sum payment is either 900 PKR (that is, a negative interest rate), 1000 PKR (zero nominal interest rate) or 1100 PKR (positive interest).

For example, the following table illustrates the required payment schedule for 'contract 3P' (i.e. a contract with lump sum payment on day 3, with a positive interest rate):

	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6
Participant pays	200	200		200	200	200
Bank pays			1100			

There are therefore 12 different types of contracts (that is, there are three possible interest rates and four possible days for lump sum payment). Each participant in the experiment is randomly offered one of these contracts, and must make a 'take it or leave it' decision whether to accept. We are interested to test (i) whether there is demand for this kind of rotating individual-liability product, and (ii) if so, how that demand varies with the terms of the contract randomly offered.

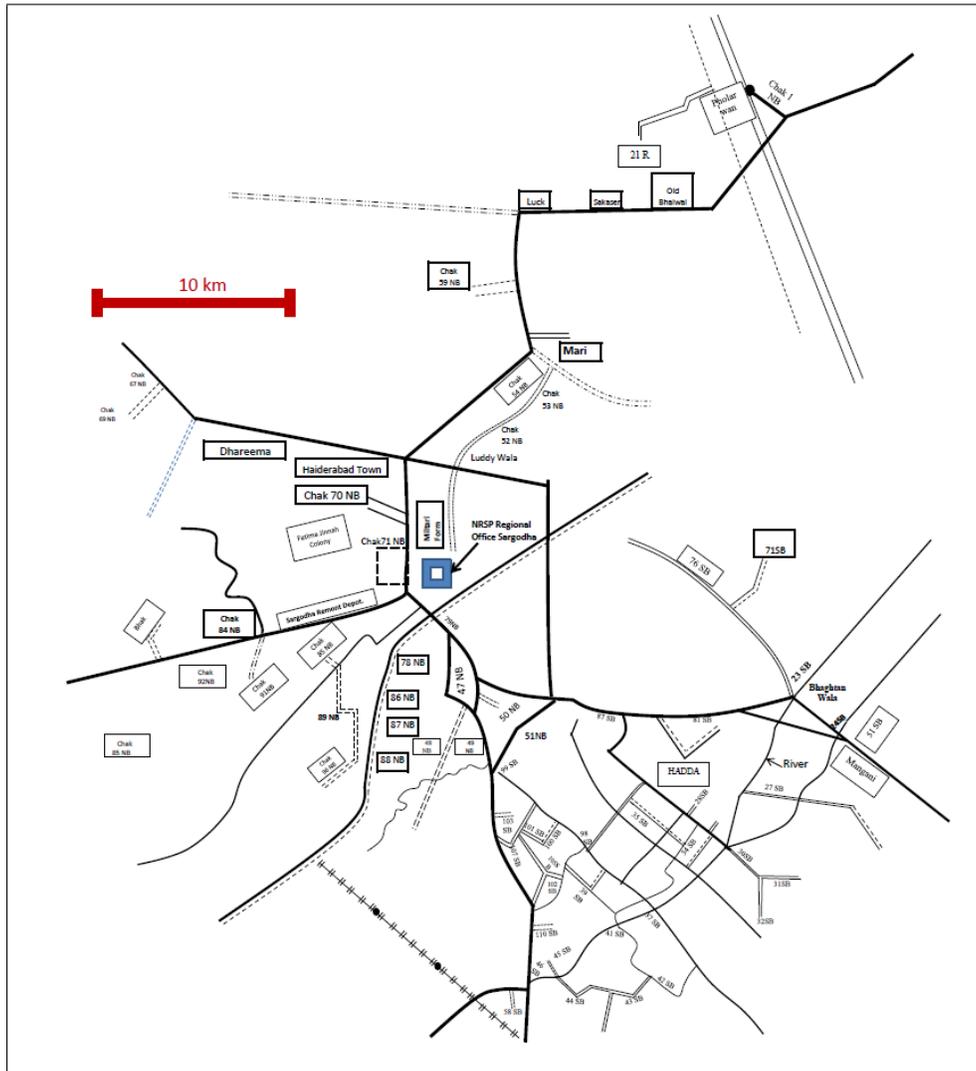
3 Implementation

We ran this experiment in September and October 2013 in Sargodha, Punjab. Our sample comprised female members of the National Rural Support Programme (NRSP) who are currently, or have in the past, been clients of some microfinance products being offered by the NRSP. The pilot was conducted through four offices in Sargodha district. Female members of these four branches were invited to attend meetings set in locations near their residences. Members who stayed for the first meeting were randomly offered different microfinance products each week. Participants were free to accept or reject the product randomly drawn in that round. If they declined the product that week, participants were still required to participate in the meeting next week, when they were again randomly offered a product. In total, there were three weekly meetings; those who attended all three weekly meetings (whether choosing to accept or reject the product for that week) received a show-up fee of 1100 PKR at the end of the trial.

Figure 1 shows the location of implementing branches around Sargodha.¹ Table 1 describes the sample of women who participated in the first meeting (including by making a decision on

¹ We thank Sharafat Hussain for preparing this detailed map.

Figure 1: Implementing branches



an offered contract). The sample ranges in age from 18 to 70, with a median age of 38. 90% of our participants are married, and only 30% have any education (that is, having completed at least one year of schooling). By design, our respondents live very close to the meeting place (a median of four minutes' walking time away); this is important for ensuring that take-up decisions are based primarily on the financial costs and benefits of the products offered, rather than on the time and effort costs of commuting to the place of payment.

Table 1: Description of sample

	N	Mean	S. Dev.	1st Q.	Median	3rd Q.	Min.	Max.	Balance (p-values)
Age (years)	888	38.6	10.4	30.0	38.0	46.0	18.0	70.0	0.842
Dummy: Any education	889	0.3	0.5	0.0	0.0	1.0	0.0	1.0	0.760
Dummy: Literate	889	0.3	0.5	0.0	0.0	1.0	0.0	1.0	0.408
Distance (minutes)	887	4.5	3.8	2.0	4.0	5.0	1.0	30.0	0.313
Log (distance (minutes))	887	1.2	0.8	0.7	1.4	1.6	0.0	3.4	0.363
Years as a client	889	2.7	1.6	1.0	2.0	3.0	1.0	10.0	0.039**
Dummy: Owes more than 20,000 PKR	889	0.4	0.5	0.0	0.0	1.0	0.0	1.0	0.381
Dummy: Household larger than 6	889	0.4	0.5	0.0	0.0	1.0	0.0	1.0	0.997
Dummy: Respondent makes final decision on spending	889	0.3	0.5	0.0	0.0	1.0	0.0	1.0	0.048**
Dummy: Family members request money	889	0.7	0.5	0.0	1.0	1.0	0.0	1.0	0.660
Dummy: Respondent finds it hard to save	889	0.4	0.5	0.0	0.0	1.0	0.0	1.0	0.308
Dummy: Respondent or family owns livestock	889	0.5	0.5	0.0	0.0	1.0	0.0	1.0	0.238
Dummy: Respondent or family grows crops for sale	889	0.2	0.4	0.0	0.0	0.0	0.0	1.0	0.717
Dummy: Respondent or family runs a business	889	0.3	0.5	0.0	0.0	1.0	0.0	1.0	0.454
Dummy: Respondent or spouse earns from salaried/casual labour	889	0.7	0.5	0.0	1.0	1.0	0.0	1.0	0.816
Dummy: Respondent married	889	0.9	0.3	1.0	1.0	1.0	0.0	1.0	0.438
Dummy: Respondent would save/invest a 1000 PKR loan	888	0.3	0.4	0.0	0.0	1.0	0.0	1.0	0.415

For each respondent characteristic, Table 1 also shows a p -value for a test of the balance of the randomisation.² This shows that two of the 17 variables are mismatched at the 90% confidence level — namely, the number of years as an NRSP client, and a dummy variable for whether the respondent makes the final decision in the household on spending (either individually or jointly with her husband or others). We control for these two imbalanced variable as a robustness check to the subsequent analysis; we will find that the controls do not change our results.

We implemented the experiment in 32 microfinance groups. In three of these groups, there were breaches of the experiment protocol (through no fault of our research team or our implementing partner, NRSP). This is discussed in more detail in Appendix 2. We therefore decided to drop these three groups from the analysis completely (a decision taken before we began any of the analysis of the data). This means that we have a total of 29 clusters.³

4 Product demand

4.1 Take-up of the product

We begin by highlighting four important stylised facts on product take-up. Figure 2 shows average take-up across the 12 different types of contract offered. The figure shows the first two important stylised facts. *First*, overall take-up is very high (approximately 65%, on average). *Second*, take-up varies with contractual terms (in the sense that respondents are more likely to take a payment that is larger and that is sooner), but the variation is not large — and certainly not nearly as stark as the variation predicted by a standard microeconomic model, in which respondents would be highly sensitive to interest rate.⁴

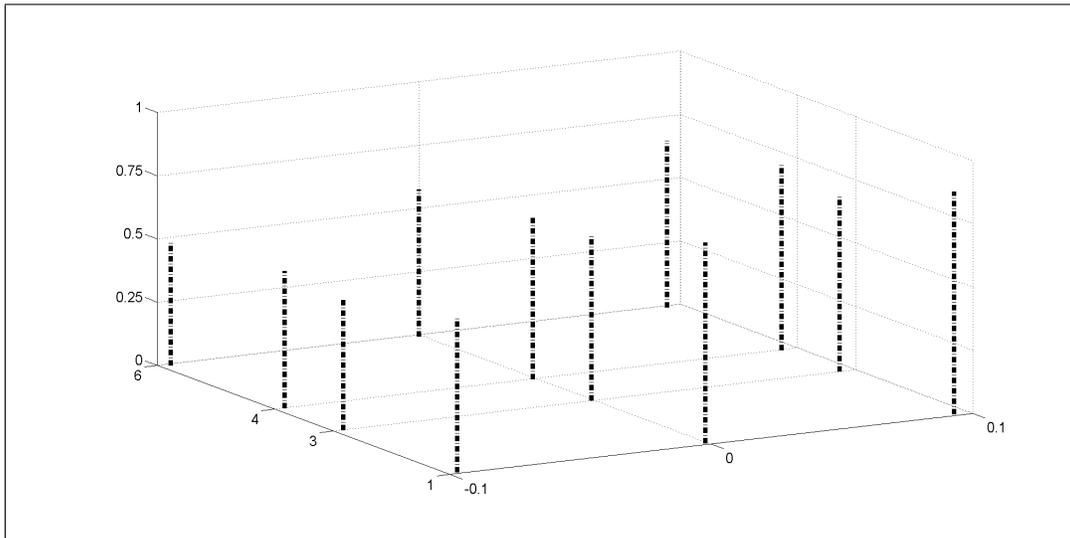
Table 2 shows an important *third stylised fact*: there appears to be important heterogeneity

² This is generated by estimating equation 5, treating each covariate in turn as an outcome variable, and running a joint test that all parameters other than the intercept are zero.

³ This is sometimes seen as being too few clusters for the application of standard clustering methods. We therefore confirm that our results are robust to the use of Moulton-corrected standard errors (results available on request); also, note that most of our results of interest are highly significant.

⁴ We develop this model in an academic paper currently under preparation.

Figure 2: Average product take-up across types of contract



across individuals. Of the 688 individuals completing all three experiment waves, 306 (44%) accepted all three contracts offered, and 119 (18%) accepted none of the contracts offered. This was despite the vast majority of respondents having been offered three different contracts.

Table 2: Individual heterogeneity

ACCEPTANCES	UNIQUE CONTRACTS OFFERED			TOTAL
	3	2	1	
0	92	26	1	119 (18%)
1	88	15	0	103 (15%)
2	132	24	4	160 (23%)
3	230	71	5	306 (44%)
	542	136	10	688 (100%)

The implication of this is clear, and is a *fourth stylised fact*: many individuals accepted both a credit contract and a savings contract, even over the very short duration of the experiment. Of the 688 respondents completing all waves, 488 were offered both a savings contract and a credit contract (a savings contract being a contract with $p = 4$ or $p = 6$; a credit contract having $p = 1$ or $p = 3$). Of these, 278 accepted at least one a savings contract and at least one credit contract.

Table 3: Acceptance of both credit and savings contracts

<i>accepted a credit contract?</i>	<i>accepted a savings contract?</i>		TOTAL
	NO	YES	
NO	78	44	122
YES	88	278	366
TOTAL	166	322	488

Together, these stylised facts suggest strongly that saving and borrowing among microfinance clients are substitutes, satisfying the same underlying demand: for a regular schedule of deposits and a lump-sum withdrawal. This is an interesting result — and is encouraging for further research. If saving and borrowing satisfy the same underlying demand, there may be substantial scope for new microfinance products developed along the lines of this pilot — products that combine both a saving and a borrowing component.

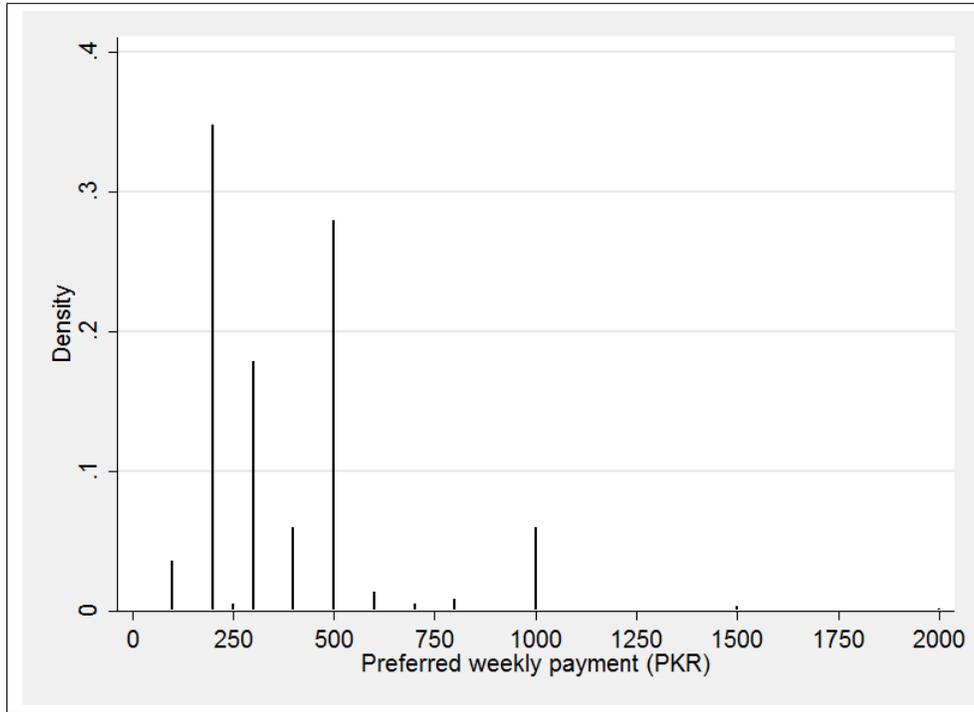
4.2 Participant perceptions

At the conclusion of the experiment, we asked participants for their assessment of the product, with a view to further refining the research and the product in future. Responses were generally very positive, and provided useful guidance for extending the work. First, we asked respondents whether they understood how the product works; 92% agreed that they did. 82% agreed that the product helped them to commit to saving (a proportion that did *not* differ between those who told us at baseline that they have problems in saving). 63% agreed that the product helped to resist pressure from friends and family to share money. 96% were glad to have participated in the project, and 87% would recommend this kind of financial product to a friend.

We then asked respondents whether, if we were to offer the same kind of product with a weekly payment, they would like to participate in such a product — and how much they would like to pay each week. 82% would like to participate in such a product. Figure 3 shows the preferred weekly payment; the median is 300 PKR per week. 83% would recommend this modified

product — with a weekly repayment — to a friend.

Figure 3: Preferred payment on a weekly basis



5 Econometric analysis

This section presents our key econometric results. We show tables of regression results in Appendix 2.

5.1 Product take-up and contract terms

We begin by testing sensitivity of take-up to interest rates, and to the day of lump sum payment. Define y_{it} as a dummy variable for whether individual i agreed to the offered contract in experiment wave $t \in \{1, 2, 3\}$, and define $r_{it} \in \{-0.1, 0.0, 0.1\}$ as the interest rate offered. Then we estimate the following linear probability model:

$$y_{it} = \beta_0 + \beta_r \cdot r_{it} + \varepsilon_{it}. \quad (1)$$

Define $rneg_{it}$ as a dummy for $r_{it} = -0.1$ and $rpos_{it}$ as a dummy for $r_{it} = 0.1$; then we also estimate allowing for asymmetric interest rate effects:

$$y_{it} = \beta_0 + \beta_{neg} \cdot rneg_{it} + \beta_{pos} \cdot rpos_{it} + \varepsilon_{it} \quad (2)$$

where zero interest rate is the omitted category.

Symmetrically, we estimate the following to test sensitivity to the day of lump sum payment. Define $d_{it} \in \{1, 3, 4, 6\}$ as the day of payment, and $d1_{it}$ and $d6_{it}$ as corresponding dummy variables (leaving days 3 and 4 as the joint omitted category). Then we estimate:

$$y_{it} = \beta_0 + \beta_d \cdot d_{it} + \varepsilon_{it} \quad (3)$$

$$y_{it} = \beta_0 + \beta_1 \cdot d1_{it} + \beta_6 \cdot d6_{it} + \varepsilon_{it}. \quad (4)$$

Finally, we estimate a saturated specification (leaving as the base category an offer of a zero interest rate with lump sum payment on either day 3 or day 4):

$$y_{it} = \beta_0 + \beta_{neg} \cdot rneg_{it} + \beta_{pos} \cdot rpos_{it} + \beta_1 \cdot d1_{it} + \beta_6 \cdot d6_{it} + \gamma_{neg,1} \cdot rneg_{it} \cdot d1_{it} \\ + \gamma_{neg,6} \cdot rneg_{it} \cdot d6_{it} + \gamma_{pos,1} \cdot rpos_{it} \cdot d1_{it} + \gamma_{pos,6} \cdot rpos_{it} \cdot d6_{it} + \varepsilon_{it}. \quad (5)$$

Table 4 shows the results. We find a significant response to the interest rate (column 1); relative to a zero interest rate, we have a significant negative effect of a negative interest rate, and a significant positive effect of a positive interest rate (column 2). Similarly, we find a significant effect of the day of payment (column 3); a significant positive effect of receiving payment on day 1, and a significant negative effect of receiving payment on day 6 (column 4). Column 5 shows the saturated specification: the coefficients on day of payment and interest rate barely change from columns 3 and 4, and the interaction effects are not significant.

However, none of the estimated effects are particularly large. For example, column 2 shows an average take-up of about 67% for clients with $r = 0$; this falls only to 54% for clients offered

$r = -0.1$, and rises to 73% for clients offered $r = 0.1$. Similarly, column 4 shows an average take-up of 63% for clients with $d = 3$ or $d = 4$, which rises to 75% for clients offered $d = 1$ and falls to 57% for $d = 6$.

5.2 Product take-up across experiment waves

Next, we test whether respondents react differently to different types of contracts in each of the three experiment waves. Table 5 first tests the effect of experiment wave on product take-up (columns (1) and (2)). The table then estimates the ‘saturated’ specification separately for each experiment wave (columns (4), (5) and (6)), and reports p -values for parameter equality across waves (column (7)). The results show a large and highly significant general decline in willingness to adopt (that is, the intercept term is significantly smaller in the third experiment wave); this is in addition to a significant increase in sensitivity to a positive interest rate, and to receiving a negative interest rate on the first payment day.

5.3 Product take-up and heterogeneous effects

We now disaggregate by key participant characteristics to test for heterogeneous product demand. We begin with literacy. Table 6 shows that literate respondents were about 10 percentage points less likely to take up the product than illiterate respondents, and were significantly more responsive to the interest rate (in particular, they were substantially more likely to react positively to a positive interest rate).

Table 7 considers heterogeneity by the distance that the respondent lives from the meeting place. We bifurcate the sample into those respondents living more than four minutes’ walk away and those living less (four minutes’ walk being the median distance in the sample). We find generally similar responses to the contracts offered, with the notable exception of being offered payment on day 1: respondents living further away were significantly and substantially more likely to agree to a contract offering payment on day 1.

Table 8 disaggregates by occupation — that is, by whether the respondent (or her spouse) receives income from growing crops for sale, runs a business, or earns income from salaried work or casual labour. (That is, we compare women meeting *any* of these categories with women who meet *none*. Relatively few women — only 58 — fall into the latter category.) Responses are generally homogenous between these two groups. (Columns (5) and (6) imply that women without income are sensitive to negative interest rates only when they are offered on day 6 — but it seems likely that this result is driven by the small number of women not earning income in this way.)

Finally, we consider various measures of respondents' demand for lump-sum payments, and for their ability to hold cash balances; we test heterogeneity by whether the respondent reported that she would save/invest a hypothetical loan of 1000 rupees (Table 9), whether family members request money whenever the respondent has it on hand (Table 10), whether the respondent reports difficulty in saving (Table 11) and whether the respondent described a lumpy purchase with a hypothetical loan of 1000 rupees (Table 12).

There are several significant differences among the first two of these four comparisons. First, take-up is generally higher among those who described saving or investing a hypothetical loan than those who did not (see particularly columns 1 and 2 of Table 9). Similarly, those who did not describe saving or investing such a loan were significantly more responsive to the offer of a negative interest rate than those who did (columns 3 and 4, Table 9). Similarly, respondents who did not face family pressure were significantly more responsive to the interest rate (in particular, the offer of a positive interest rate) than those who do face such pressure (columns 1 and 2, Table 9). We interpret these results as suggestive evidence that some respondents value the product — whether offered in the credit or the debt domain — as a means to insulate income in return for a lump-sum payment.

6 Conclusions

This summary has highlighted several important results. First, it is viable to offer individual financial products inspired by the rotating structure of the committee; the implementation worked as planned, participants understood the product well, and product take-up varied substantially with the terms of the contracts offered (as we would expect if participants understood the product well). Second, respondents' subjective perceptions were very positive and very supportive — and suggest substantial demand for running the product on a longer timescale. The daily repayment schedule used in this pilot was very useful as an initial 'proof of concept'.

Our ongoing work with NRSP extends this pilot analysis in several ways. First, we use a longer timescale: we repeat the same basic structure, but have participants repaying each week, rather than each day (over a period of six weeks). This is likely to be more realistic in addressing participants' saving and borrowing needs. Second, we refine our sample to focus on women operating microenterprises. The Sargodha sample was very useful for testing the basic idea of this product, but we anticipate that such a product is likely to be most useful for supporting microenterprises, so it is sensible to refine the sample in this way. Third, we increase the repayment amounts. We have chosen to increase to a weekly payment of 1000 rupees; admittedly this is at the larger end of the sums shown in Figure 3, but we feel that this is appropriate given the shift to a microenterprise sample. As with the move to a longer timescale, we see this as an important step towards a more realistic product implementation. Finally, it seems likely that the aggregate results presented here mask substantial further heterogeneity in motivations for taking this product: it is likely that some women take the product because it eases short-term credit constraints, whereas others take it to provide a mechanism for saving. This highlights the potential future value for using small incentivised behavioural games to elicit better measures of participants' preferences for time and risk. We hope to pilot such games as part of current ongoing work with NRSP, and use such games extensively in a larger trial with NRSP in 2015.

In sum, this was a very successful experiment. The protocol was followed closely, the randomisation was implemented correctly, and the project ran to schedule. This is a testament to the outstanding support and research assistance that we received through NRSP's offices in Sargodha and in Islamabad. It has been a privilege to work with NRSP on this project, and to continue working with NRSP on extensions to this research.

Appendix 1: Regression Results

This appendix reports the results of our regression analysis. These results are discussed in the main text.

Table 4: Determinants of take-up: Interest rate and payment day

	(1)	(2)	(3)	(4)	(5)
<i>Dependent variable: Whether the respondent accepted the offer</i>					
Interest rate	0.929 (0.142)***				
Payment day			-0.036 (0.005)***		
Dummy: Negative interest		-0.125 (0.030)***			-0.099 (0.048)**
Dummy: Positive interest		0.063 (0.024)**			0.082 (0.045)*
Dummy: Payment day is 1				0.126 (0.030)***	0.152 (0.052)***
Dummy: Payment day is 6				-0.055 (0.025)**	-0.042 (0.056)
Dummy: Negative interest and payment day is 1					-0.077 (0.073)
Dummy: Negative interest and payment day is 6					0.011 (0.071)
Dummy: Positive interest and payment day is 1					-0.010 (0.054)
Dummy: Positive interest and payment day is 6					-0.042 (0.060)
Constant	0.646 (0.039)***	0.668 (0.045)***	0.776 (0.040)***	0.627 (0.044)***	0.628 (0.056)***
Obs.	2347	2347	2347	2347	2347
R ²	0.026	0.027	0.023	0.025	0.053

Parentheses show standard errors, which allow for clustering by microfinance group.
*Significance: * ⇔ p < 0.1, ** ⇔ p < 0.05, *** ⇔ p < 0.01.*

Table 5: Determinants of take-up: Learning over time

	(1)	(2)	(3)	(4)	(5)	Equality (<i>p</i> -value)
<i>Dependent variable: Whether the respondent accepted the offer</i>						
Experiment wave	-0.052 (0.021)**					
Dummy: Experiment wave 2		-0.017 (0.041)				
Dummy: Experiment wave 3		-0.107 (0.042)**				
Dummy: Negative interest			-0.171 (0.066)**	-0.122 (0.061)*	0.012 (0.091)	0.257
Dummy: Positive interest			-0.029 (0.066)	0.112 (0.057)*	0.194 (0.090)**	0.024**
Dummy: Payment day is 1			0.146 (0.069)**	0.115 (0.059)*	0.222 (0.082)**	0.437
Dummy: Payment day is 6			-0.025 (0.068)	-0.132 (0.084)	0.039 (0.076)	0.229
Dummy: Negative interest and payment day is 1			0.087 (0.089)	-0.117 (0.091)	-0.241 (0.132)*	0.061*
Dummy: Negative interest and payment day is 6			-0.001 (0.089)	0.078 (0.105)	-0.053 (0.141)	0.701
Dummy: Positive interest and payment day is 1			0.031 (0.081)	-0.037 (0.075)	-0.050 (0.103)	0.723
Dummy: Positive interest and payment day is 6			-0.012 (0.083)	0.029 (0.102)	-0.149 (0.099)	0.420
Constant	0.752 (0.058)***	0.690 (0.044)***	0.714 (0.072)***	0.667 (0.064)***	0.473 (0.072)***	0.011**
Obs.	2347	2347	889	745	713	
R ²	0.008	0.009	0.060	0.070	0.065	

Parentheses show standard errors, which allow for clustering by microfinance group.
*Significance: * ⇔ p < 0.1, ** ⇔ p < 0.05, *** ⇔ p < 0.01.*

Table 6: Heterogeneity by literacy

	(1)		(2)		(3)		(4)		(5)		(6)	
	Literate?		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.092 (0.055)	-0.143 (0.037)***									-0.023 (0.099)	-0.135 (0.060)**
Dummy: Positive interest	0.147 (0.045)***	0.022 (0.027)									0.144 (0.076)*	0.054 (0.059)
Dummy: Payment day is 1			0.171 (0.040)***	0.106 (0.035)***							0.196 (0.070)***	0.131 (0.054)**
Dummy: Payment day is 6			-0.070 (0.037)*	-0.047 (0.029)							-0.048 (0.086)	-0.038 (0.066)
Dummy: Negative interest and payment day is 1											-0.125 (0.155)	-0.055 (0.069)
Dummy: Negative interest and payment day is 6											-0.069 (0.119)	0.043 (0.088)
Dummy: Positive interest and payment day is 1											0.016 (0.072)	-0.024 (0.069)
Dummy: Positive interest and payment day is 6											0.000 (0.100)	-0.066 (0.088)
Constant	0.599 (0.062)***	0.701 (0.043)***	0.598 (0.057)***	0.641 (0.043)***							0.548 (0.083)***	0.667 (0.054)***
Obs.	746	1601	746	1601							746	1601
R ²	0.042	0.024	0.042	0.018							0.085	0.044
Parameter equality: Intercept (p-value)			0.057*	0.300								0.125
Parameter equality: All other parameters (p-value)			0.051*	0.185								0.148

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * $\Leftrightarrow p < 0.1$, ** $\Leftrightarrow p < 0.05$, *** $\Leftrightarrow p < 0.01$.

Table 7: Heterogeneity by distance

	(1)		(2)		(3)		(4)		(5)		(6)	
	Distance > 4 minutes?		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.121 (0.045)**	-0.133 (0.037)***									-0.110 (0.071)	-0.093 (0.070)
Dummy: Positive interest	0.072 (0.035)**	0.053 (0.035)									0.081 (0.072)	0.083 (0.073)
Dummy: Payment day is 1			0.063 (0.039)	0.173 (0.034)***							0.057 (0.069)	0.223 (0.060)***
Dummy: Payment day is 6			-0.061 (0.036)*	-0.051 (0.033)							-0.037 (0.068)	-0.048 (0.075)
Dummy: Negative interest and payment day is 1											-0.078 (0.112)	-0.085 (0.075)
Dummy: Negative interest and payment day is 6											0.049 (0.097)	-0.018 (0.099)
Dummy: Positive interest and payment day is 1											0.068 (0.084)	-0.068 (0.075)
Dummy: Positive interest and payment day is 6											-0.098 (0.099)	0.001 (0.085)
Constant	0.645 (0.059)***	0.688 (0.054)***	0.635 (0.050)***	0.623 (0.060)***	0.637 (0.067)***	0.624 (0.080)***						
Obs.	1039	1302	1039	1302	1039	1302						
R ²	0.027	0.028	0.010	0.041	0.046	0.070						
Parameter equality: Intercept (p-value)			0.516	0.858	0.890							
Parameter equality: All other parameters (p-value)			0.932	0.012**	0.022**							

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * ⇔ p < 0.1, ** ⇔ p < 0.05, *** ⇔ p < 0.01.

Table 8: Heterogeneity by economic activity

	(1)		(2)		(3)		(4)		(5)		(6)	
	Respondent or spouse grows crops for sale, runs a business or earns from salaried/casual labour?		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.125 (0.031)***	-0.108 (0.146)								-0.111 (0.052)**	0.133 (0.237)	
Dummy: Positive interest	0.070 (0.024)***	-0.064 (0.104)								0.082 (0.044)*	0.067 (0.151)	
Dummy: Payment day is 1					0.119 (0.031)***	0.258 (0.095)**				0.143 (0.053)**	0.290 (0.152)*	
Dummy: Payment day is 6					-0.059 (0.026)**	0.015 (0.112)				-0.066 (0.055)	0.324 (0.156)*	
Dummy: Negative interest and payment day is 1										-0.076 (0.078)	-0.111 (0.220)	
Dummy: Negative interest and payment day is 6										0.047 (0.072)	-0.606 (0.283)**	
Dummy: Positive interest and payment day is 1										-0.009 (0.056)	0.019 (0.195)	
Dummy: Positive interest and payment day is 6										-0.021 (0.059)	-0.352 (0.213)	
Constant	0.663 (0.045)***	0.739 (0.107)***	0.629 (0.044)***	0.595 (0.093)***	0.634 (0.054)***	0.533 (0.167)***						
Obs.	2223	124	2223	124	2223	124	2223	124	2223	124	2223	124
R ²	0.029	0.009	0.023	0.065	0.054	0.129						
Parameter equality: Intercept (p-value)												0.484
Parameter equality: All other parameters (p-value)												0.000***

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * ⇔ p < 0.1, ** ⇔ p < 0.05, *** ⇔ p < 0.01.

Table 9: Heterogeneity by whether or not the respondent would save/invest a hypothetical loan of 1000 PKR

	(1)		(2)		(3)		(4)		(5)		(6)	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.186 (0.060)***	-0.102 (0.033)***							-0.132 (0.084)			-0.091 (0.052)*
Dummy: Positive interest	0.009 (0.039)	0.085 (0.028)***							0.007 (0.068)			0.105 (0.047)**
Dummy: Payment day is 1			0.124 (0.042)***	0.126 (0.035)***					0.114 (0.073)			0.158 (0.051)***
Dummy: Payment day is 6			0.027 (0.033)	-0.093 (0.032)***					0.077 (0.089)			-0.101 (0.063)
Dummy: Negative interest and payment day is 1									-0.085 (0.124)			-0.067 (0.071)
Dummy: Negative interest and payment day is 6									-0.066 (0.130)			0.040 (0.081)
Dummy: Positive interest and payment day is 1									0.107 (0.088)			-0.039 (0.049)
Dummy: Positive interest and payment day is 6									-0.063 (0.101)			-0.019 (0.071)
Constant	0.793 (0.033)***	0.620 (0.057)***	0.687 (0.039)***	0.607 (0.053)***					0.726 (0.057)***			0.598 (0.064)***
Obs.	631	1715	631	1715					631			1715
R ²	0.041	0.025	0.014	0.032					0.062			0.059
Parameter equality: Intercept (p-value)					0.007***							0.083*
Parameter equality: All other parameters (p-value)					0.220							0.006***

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * $\Leftrightarrow p < 0.1$, ** $\Leftrightarrow p < 0.05$, *** $\Leftrightarrow p < 0.01$.

Table 10: Heterogeneity by whether family members request money whenever the respondent has money on hand

	(1)		(2)		(3)		(4)		(5)		(6)	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.122 (0.037)***	-0.132 (0.046)***							-0.092 (0.055)			-0.129 (0.080)
Dummy: Positive interest	0.037 (0.031)	0.121 (0.038)***							0.034 (0.057)			0.177 (0.063)***
Dummy: Payment day is 1			0.109 (0.037)***	0.165 (0.040)***					0.122 (0.066)*			0.205 (0.065)***
Dummy: Payment day is 6			-0.080 (0.030)**	-0.001 (0.040)					-0.081 (0.069)			0.030 (0.076)
Dummy: Negative interest and payment day is 1									-0.092 (0.087)			-0.029 (0.100)
Dummy: Negative interest and payment day is 6									0.018 (0.087)			0.007 (0.119)
Dummy: Positive interest and payment day is 1									0.031 (0.072)			-0.086 (0.075)
Dummy: Positive interest and payment day is 6									-0.010 (0.076)			-0.103 (0.095)
Constant	0.680 (0.050)***	0.641 (0.076)***	0.644 (0.042)***	0.592 (0.083)***	0.661 (0.060)***	0.570 (0.084)***						
Obs.	1629	718	1629	718	1629	718	1629	718	1629	718	1629	718
R ²	0.020	0.047	0.026	0.026	0.048	0.075						
Parameter equality: Intercept (p-value)		0.648		0.529		0.316						
Parameter equality: All other parameters (p-value)		0.080*		0.292		0.021**						

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * $\Leftrightarrow p < 0.1$, ** $\Leftrightarrow p < 0.05$, *** $\Leftrightarrow p < 0.01$.

Table 11: Heterogeneity by whether the respondent reports difficulty in saving

	(1)		(2)		(3)		(4)		(5)		(6)	
	Respondent reports difficulty saving?		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.139 (0.046)***	-0.112 (0.033)***								-0.157 (0.058)**		-0.057 (0.068)
Dummy: Positive interest	0.018 (0.042)	0.096 (0.025)***								0.032 (0.053)		0.122 (0.066)*
Dummy: Payment day is 1			0.144 (0.037)***	0.115 (0.042)**						0.143 (0.062)**		0.161 (0.073)**
Dummy: Payment day is 6			-0.057 (0.044)	-0.046 (0.036)						-0.073 (0.077)		-0.016 (0.076)
Dummy: Negative interest and payment day is 1										-0.009 (0.073)		-0.126 (0.115)
Dummy: Negative interest and payment day is 6										0.081 (0.084)		-0.039 (0.101)
Dummy: Positive interest and payment day is 1										0.020 (0.085)		-0.040 (0.079)
Dummy: Positive interest and payment day is 6										-0.025 (0.070)		-0.048 (0.087)
Constant	0.646 (0.064)***	0.684 (0.051)***	0.580 (0.047)***	0.661 (0.063)***						0.618 (0.060)***		0.635 (0.077)***
Obs.	1015	1332	1015	1332						1015		1332
R ²	0.021	0.034	0.029	0.020						0.053		0.055
Parameter equality: Intercept (p-value)			0.591	0.481								0.844
Parameter equality: All other parameters (p-value)			0.188	0.321								0.802

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * ⇔ p < 0.1, ** ⇔ p < 0.05, *** ⇔ p < 0.01.

Table 12: Heterogeneity by whether the respondent described a lumpy purchase at baseline

	(1)		(2)		(3)		(4)		(5)		(6)	
	Respondent described a lumpy consumption good?		NO		YES		NO		YES		NO	
Dependent variable: Whether the respondent accepted the offer												
Dummy: Negative interest	-0.168 (0.042)***	-0.108 (0.035)***							-0.117 (0.076)			-0.091 (0.051)*
Dummy: Positive interest	0.049 (0.036)	0.069 (0.028)**							0.044 (0.080)			0.099 (0.047)**
Dummy: Payment day is 1			0.139 (0.039)***	0.122 (0.037)***					0.222 (0.079)***			0.133 (0.058)**
Dummy: Payment day is 6			-0.026 (0.047)	-0.067 (0.030)**					-0.055 (0.117)			-0.037 (0.054)
Dummy: Negative interest and payment day is 1									-0.227 (0.118)*			-0.026 (0.074)
Dummy: Negative interest and payment day is 6									0.055 (0.142)			-0.008 (0.080)
Dummy: Positive interest and payment day is 1									-0.036 (0.084)			-0.008 (0.056)
Dummy: Positive interest and payment day is 6									0.029 (0.143)			-0.070 (0.054)
Constant	0.716 (0.037)***	0.649 (0.054)***	0.643 (0.045)***	0.621 (0.053)***					0.667 (0.075)***			0.612 (0.063)***
Obs.	657	1690	657	1690					657			1690
R ²	0.040	0.023	0.023	0.026					0.074			0.050
Parameter equality: Intercept (p-value)			0.212	0.695								0.508
Parameter equality: All other parameters (p-value)			0.517	0.743								0.513

Parenteses show standard errors, which allow for clustering by microfinance group.

Significance: * $\Leftrightarrow p < 0.1$, ** $\Leftrightarrow p < 0.05$, *** $\Leftrightarrow p < 0.01$.

Appendix 2: Breach of experimental protocol

In three of the 32 groups, our research assistants observed breaches of the experiment protocol. These kind of breaches are sometimes inevitable in running fieldwork, and are not attributable to NRSP. However, out of caution, we have excluded these groups from the analysis.

In summary:

1. In one group, one woman (who was not supposed to be present) pressured the others into a mass walk-out; as a result, only six out of 45 women agreed to participate in the research.
2. In a second group, one man gathered all the participants and spoke to them before the ballots at the second meeting. He also told research assistants that participants in the area are 'too busy' for this kind of scheme. When drawing the contracts, it seemed that at least some of the participants exchanged glances with this gentleman when prompted for a decision. At this group's first meeting, 24 of the 27 participants accepted the contract offer; whereas at the second meeting, 0 of the 16 remaining participants accepted the contract offer.
3. In a third group, all women declined the offer in the third meeting, because the owner of the host house was ill and she apparently instructed everyone to decline so that she would not have to host the daily payment meetings. The week 2 ballot may also have been affected by these considerations, since she was apparently already ill in week 2.