## Appendix

Table A.1: Use of funds by frequency of ROSCA meetings in 9 research sites (Note multiple
answers are allowed per respondent)

	Daily	Weekly	Every 2 weeks	Monthly	Every 3 months	Every 6 months	Total
Business investment	1	2	1	6	1	7	18
Investment in agriculture	0	1	0	1	11	4	17
Investment in livestock	4	3	4	15	29	24	79
Investment in aquaculture	0	0	3	1	0	0	4
Durable goods (TV, VCR,							
Motorbike)	2	1	0	4	3	3	14
Food	1	0	0	0	2	1	4
Education	0	1	1	4	6	5	17
Debt payments	1	0	1	1	4	1	8
Saving	1	0	0	2	3	1	7
Clothes, shoes, household							
items	1	0	1	0	10	1	13
Wedding / funeral	0	0	0	0	1	1	2
Medical expenses	1	0	0	1	3	1	6
Fixing / buying houses	0	0	0	1	7	9	17
Buying land	0	0	0	0	2	0	2
Tax payments	4	1	0	1	1	0	7

Variable name	Description
Age	Age of the subject
Gender	Gender of the subject, 1=male
Education	Number of years the subject attended school
A aquaintanaa ratia	Number of other subjects the subject knows by name divided by the total number
Acquaintance ratio	of subjects in the session
Farm/livestock	Subject's main occupation is farming or raising livestock
Fishery	Subject's main occupation is fishing
Trade	Subject's main occupation is trading
Business	The subject is engaged in household business
Government officer	The subject works for a local government
Relative income	Subject's household income divided by the mean household income of the village
Mean income	Mean household income of the village (million dong)
Gini coefficient	Gini coefficient of the income among 25 households surveyed in 2002
Distance to market	Distance to the nearest local market (km)
(Table 6)	
ROSCA	1=the member of ROSCA, 0=otherwise
ROSCA*Bidding	1=the member of Bidding ROSCA, 0=otherwise
(Table 7)	
Dummy (Field)	1= field experiment (non-student subjects)
Dummy (South)	1= field experiment in the South (non-student subjects)
(Table 8)	
Trusted agent	The subject is a trusted agent of delayed delivery of money
Log (savings)	Logged savings. Savings is measured as the total value of savings in cash, gold and savings accounts
Exp/income ratio	Household expenditure divided by household income per year
(Table 9)	
Weekly ROSCA	The subjects participates in weekly ROSCA
Monthly ROSCA	The subjects participates in monthly ROSCA
Relative order	The order of receipt of funds divided by the total number of meetings
(Table 11)	
Expected return	Expected amount of return divided by the amount sent by Player 1
Oversea remittance	Whether the subject is receiving remittance from overseas, 1=Yes
Number of officers	Number of local government officers in the session
Receiver M	1=Player 2 is in Group M
Receiver L	1=Player 2 is in Group L
Present bias	Number of times the subject chose to receive money today in time discounting experiment
(Table 12)	
Received	Amount received from Player 1 divided by 20,000
Group M	1=Player 2 is in Group M
M*Mean income	The cross effect of mean income and Player 2 being in Group M
Group L	1=Player 2 is in Group L
L*Mean income	The cross effect of mean income and Player 2 being in Group L

### Table A.2: Variable definitions

Table A.3: Switching point (question) and approximations of  $\sigma$  (parameter for the curvature of power value function) and  $\alpha$  (probability sensitivity parameter in Prelec's weighting function), Full table

σ	Switching question in Series 1														
Series 2	1	2	3	4	5	6	7	8	9	10	11	12	13	141	Never
1	1.50	1.40	1.35	1.25	1.15	1.10	1.00	0.95	0.90	0.75	0.80	0.70	0.65	0.55	0.50
2	1.40	1.30	1.20	1.20	1.10	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.60	0.55	0.50
3	1.30	1.20	1.15	1.10	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.60	0.55	0.50	0.45
4	1.20	1.15	1.10	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.50	0.45	0.40
5	1.20	1.10	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.40	0.35
6	1.10	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35
7	1.00	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30
8	1.00	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25
9	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20
10	1.00	0.80	0.75	0.70	0.55	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15
11	0.80	0.70	0.65	0.65	0.60	0.55	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.15
12	0.70	0.60	0.60	0.55	0.50	0.50	0.45	0.40	0.35	0.30	0.25	0.20	0.20	0.15	0.15
13	0.60	0.55	0.55	0.50	0.45	0.45	0.40	0.35	0.30	0.25	0.20	0.15	0.15	0.15	0.10
14	0.55	0.50	0.50	0.40	0.40	0.35	0.30	0.30	0.25	0.20	0.20	0.15	0.10	0.10	0.05
Never	0.50	0.45	0.40	0.30	0.30	0.15	0.30	0.20	0.20	0.15	0.10	0.10	0.10	0.05	0.05

α		Switching question in Series 1													
Series 2	1	2	3	4	5	6	7	8	9	10	11	12	13	141	Never
1	0.60	0.70	0.75	0.80	0.90	0.90	1.00	1.05	1.10	1.20	1.20	1.25	1.30	1.40	1.45
2	0.60	0.70	0.70	0.80	0.80	0.90	0.90	1.00	1.05	1.10	1.15	1.20	1.30	1.30	1.40
3	0.50	0.60	0.65	0.70	0.80	0.80	0.90	0.90	1.00	1.05	1.10	1.20	1.20	1.30	1.30
4	0.50	0.60	0.60	0.70	0.70	0.80	0.80	0.90	0.95	1.00	1.05	1.10	1.20	1.20	1.30
5	0.40	0.50	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.05	1.10	1.20	1.20
6	0.40	0.50	0.55	0.60	0.60	0.70	0.75	0.80	0.86	0.90	0.95	1.00	1.05	1.10	1.15
7	0.40	0.40	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00	1.10	1.10
8	0.30	0.40	0.45	0.50	0.55	0.60	0.70	0.70	0.80	0.80	0.90	0.90	0.95	1.00	1.05
9	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.70	0.70	0.80	0.80	0.90	0.90	0.95	1.00
10	0.10	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	1.00
11	0.20	0.30	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90
12	0.20	0.20	0.30	0.30	0.35	0.40	0.45	0.50	0.65	0.60	0.65	0.70	0.75	0.80	0.85
13	0.10	0.15	0.20	0.30	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80
14	0.10	0.10	0.20	0.20	0.30	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.60	0.70	0.70
Never	0.05	0.10	0.10	0.10	0.20	0.10	0.30	0.30	0.40	0.40	0.40	0.50	0.50	0.60	0.60

-	$\alpha$ (Weighting function)	$\sigma$ (Value function)
Age	-0.001	-0.003*
Gender (1=male)	-0.088*	-0.016
Education	-0.006	-0.019***
Farm/livestock	-0.048	0.027
Fishery	0.019	0.217 ***
Trade	0.015	0.040
Business	-0.032	-0.047
Government officer	0.110*	0.032
Relative income	0.023	-0.022
Mean income	-0.005*	-0.006**
Distance to market	-0.000	-0.029*
ROSCA	0.048	-0.033
ROSCA*Bidding	-0.104	0.200 **
South	0.140	-0.149
Constant	0.942 ***	1.037***
Observations	155	155
<u>R<sup>2</sup></u>	0.09	0.20

Table A.4: Determinants of risk aversion (Data with interior switching points only)

Note: \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. We estimated  $\alpha$  and  $\sigma$  by OLS with robust standard errors. 26 subjects who did not have an interior switching point (so  $\alpha$  and  $\sigma$  values can only be bounded), are excluded to test for robustness.

	α (Weig	hting						
	function	on)	$\sigma$ (Value fu	inction)	$\lambda$ (Loss	$\lambda$ (Loss aversion)		
	South	North	South	North	South	North		
Age	-0.006*	-0	-0.002	-0.005*	0.067	0.024		
Gender (1=male)	-0.026	-0*	0.095	-0.075	-1.399	0.375		
Education	-0.001	-0	-0.019*	-0.020*	0.329**	0.064		
Farm/livestock	-0.08	-0	0.021	-0.025	-0.601	-1.459		
Fishery	-0.105	0.3 **	0.206*	0.270*	-0.199	0.855		
Trade	0.084	-0	-0.054	-0.024	-0.383	1.825		
Business	-0.027	0.1	-0.131	0.022	-1.024	1.633		
Government								
officer	-0.132	0.1	0.067	0.074	-1.102	-2.383		
Relative income	0.005	0	-0.029	-0.044	-0.595	-0.284		
Mean income	-0.005	-0	0.001	-0.003	-0.095	-0.157**		
Distance to market	0.018	-0**	-0.033*	-0.013	-0.203	0.497		
ROSCA	0.087	-0	-0.073	0.098	-0.407	-0.932		
Constant	1.173 ***	1 ***	0.816***	1.119	2.837	3.814		
Observations	98	83	98	83	98	83		
$R^2$	0.12	0.20	0.13	0.21	0.37	0.78		

Table A.5: Determinants of risk aversion by region

We estimated  $\alpha$  and  $\sigma$  by OLS with robust standard errors, and  $\lambda$  by interval regressions with robust standard errors. Note: \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level.

Table A.6: Pairwise time discounting choices

	Option A	Option B
1-1	Receive 120,000 dong in 1 week	Receive 20,000 dong today
1-2	Receive 120,000 dong in 1 week	Receive 40,000 dong today
1-3	Receive 120,000 dong in 1 week	Receive 60,000 dong today
1-4	Receive 120,000 dong in 1 week	Receive 80,000 dong today
1-5	Receive 120,000 dong in 1 week	Receive 100,000 dong today
2-1	Receive 120,000 dong in 1 month	Receive 20,000 dong today
2-2	Receive 120,000 dong in 1 month	Receive 40,000 dong today
2-3	Receive 120,000 dong in 1 month	Receive 60,000 dong today
2-4	Receive 120,000 dong in 1 month	Receive 80,000 dong today
2-5	Receive 120,000 dong in 1 month	Receive 100,000 dong today
3-1	Receive 120,000 dong in 3 months	Receive 20,000 dong today
3-2	Receive 120,000 dong in 3 months	Receive 40,000 dong today
3-3	Receive 120,000 dong in 3 months	Receive 60,000 dong today
3-4	Receive 120,000 dong in 3 months	Receive 80,000 dong today
3-5	Receive 120,000 dong in 3 months	Receive 100,000 dong today
4-1	Receive 300,000 dong in 1 week	Receive 50,000 dong today
4-2	Receive 300,000 dong in 1 week	Receive 100,000 dong today
4-3	Receive 300,000 dong in 1 week	Receive 150,000 dong today
4-4	Receive 300,000 dong in 1 week	Receive 200,000 dong today
4-5	Receive 300,000 dong in 1 week	Receive 250,000 dong today
5-1	Receive 300,000 dong in 1 month	Receive 50,000 dong today
5-2	Receive 300,000 dong in 1 month	Receive 100,000 dong today
5-3	Receive 300,000 dong in 1 month	Receive 150,000 dong today
5-4	Receive 300,000 dong in 1 month	Receive 200,000 dong today
5-5	Receive 300,000 dong in 1 month	Receive 250,000 dong today
6-1	Receive 300,000 dong in 3 months	Receive 50,000 dong today
6-2	Receive 300,000 dong in 3 months	Receive 100,000 dong today
6-3	Receive 300,000 dong in 3 months	Receive 150,000 dong today
6-4	Receive 300,000 dong in 3 months	Receive 200,000 dong today
6-5	Receive 300,000 dong in 3 months	Receive 250,000 dong today
7-1	Receive 30,000 dong in 1 week	Receive 5,000 dong today
7-2	Receive 30,000 dong in 1 week	Receive 10,000 dong today
7-3	Receive 30,000 dong in 1 week	Receive 15,000 dong today
7-4	Receive 30,000 dong in 1 week	Receive 20,000 dong today
7-5	Receive 30,000 dong in 1 week	Receive 25,000 dong today
8-1	Receive 30,000 dong in 1 month	Receive 5,000 dong today
8-2	Receive 30,000 dong in 1 month	Receive 10,000 dong today
8-3	Receive 30,000 dong in 1 month	Receive 15,000 dong today
8-4	Receive 30,000 dong in 1 month	Receive 20,000 dong today
8-5	Receive 30,000 dong in 1 month	Receive 25,000 dong today

## (Continued)

•	Option A	Option B
9-1	Receive 30,000 dong in 3 months	Receive 5,000 dong today
9-2	Receive 30,000 dong in 3 months	Receive 10,000 dong today
9-3	Receive 30,000 dong in 3 months	Receive 15,000 dong today
9-4	Receive 30,000 dong in 3 months	Receive 20,000 dong today
9-5	Receive 30,000 dong in 3 months	Receive 25,000 dong today
10-1	Receive 240,000 dong in 3 days	Receive 40,000 dong toda
10-2	Receive 240,000 dong in 3 days	Receive 80,000 dong toda
10-3	Receive 240,000 dong in 3 days	Receive 120,000 dong toda
10-4	Receive 240,000 dong in 3 days	Receive 160,000 dong toda
10-5	Receive 240,000 dong in 3 days	Receive 200,000 dong toda
11-1	Receive 240,000 dong in 2 weeks	Receive 40,000 dong toda
11-2	Receive 240,000 dong in 2 weeks	Receive 80,000 dong toda
11-3	Receive 240,000 dong in 2 weeks	Receive 120,000 dong toda
11-4	Receive 240,000 dong in 2 weeks	Receive 160,000 dong toda
11-5	Receive 240,000 dong in 2 weeks	Receive 200,000 dong toda
12-1	Receive 240,000 dong in 2 months	Receive 40,000 dong toda
12-2	Receive 240,000 dong in 2 months	Receive 80,000 dong toda
12-3	Receive 240,000 dong in 2 months	Receive 120,000 dong toda
12-4	Receive 240,000 dong in 2 months	Receive 160,000 dong toda
12-5	Receive 240,000 dong in 2 months	Receive 200,000 dong toda
13-1	Receive 60,000 dong in 3 days	Receive 10,000 dong toda
13-2	Receive 60,000 dong in 3 days	Receive 20,000 dong toda
13-3	Receive 60,000 dong in 3 days	Receive 30,000 dong toda
13-4	Receive 60,000 dong in 3 days	Receive 40,000 dong toda
13-5	Receive 60,000 dong in 3 days	Receive 50,000 dong toda
14-1	Receive 60,000 dong in 2 weeks	Receive 10,000 dong toda
14-2	Receive 60,000 dong in 2 weeks	Receive 20,000 dong toda
14-3	Receive 60,000 dong in 2 weeks	Receive 30,000 dong toda
14-4	Receive 60,000 dong in 2 weeks	Receive 40,000 dong toda
14-5	Receive 60,000 dong in 2 weeks	Receive 50,000 dong toda
15-1	Receive 60,000 dong in 2 months	Receive 10,000 dong toda
15-2	Receive 60,000 dong in 2 months	Receive 20,000 dong toda
15-3	Receive 60,000 dong in 2 months	Receive 30,000 dong toda
15-4	Receive 60,000 dong in 2 months	Receive 40,000 dong toda
15-5	Receive 60,000 dong in 2 months	Receive 50,000 dong toda

	+ Demographic	+ Demographic
	variables for r	variables for $\beta$
r (Discount rate)	0.340	0.144
β (Present bias)	0.904 ***	0.769***
θ	6.370 ***	6.411***
Age	-0.004	0.003
Gender (1=male)	-0.121*	0.050
Education	0.012	-0.004
Acquaintance ratio	-0.081	-0.188
Trusted agent	-0.048	0.004
Farm/livestock	-0.084*	0.041
Fishery	-0.159 ***	0.073
Trade	-0.093	0.005
Business	0.459	-0.123
Government officer	-0.109*	-0.015
Relative income	0.079*	-0.004
Mean income	-0.009**	0.006
Distance to market	0.018	0.003
ROSCA	-0.191*	0.132
ROSCA*Bidding	0.293 *	-0.214*
Log (savings)	0.001	0.008
Exp/income ratio	0.003	-0.002
Loss aversion $(\lambda)$	0.001	-0.013
Value fctn curve ( $\sigma$ )	0.029	-0.030
South	-0.019	-0.005
Observations	2670	2670
$R^2$	0.78	0.77

Table A.7: Determinants of Present Bias and discount rates (Data include inconsistent choices)

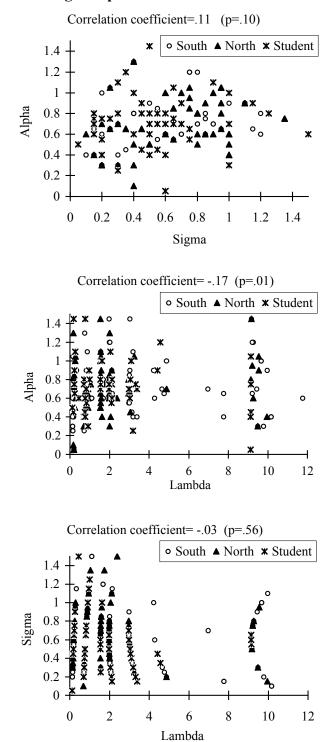
Note: \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. We conducted robust regressions, and adjusted standard errors for correlations within individuals. 3 subjects who completely randomized their answers are excluded from the estimations.

	+ Demographic	variables for r	+ Demographic	variables for $\beta$
	South	North	South	North
r (Discount rate)	0.417	-0.004	0.041*	1.441
β (Present bias)	0.888 ***	0.874 ***	0.561	1.491
θ	4.811 ***	4.917 ***	4.598 ***	5.982 ***
Age	-0.006 **	0.002	0.01 **	-0.001
Gender (1=male)	-0.021	-0.078	0.043	0.09
Education	-0.007	0.008	0.015	-0.024
Acquaintance ratio	0.006	0.004	-0.169	-0.201
Trusted agent	0.649	-0.058	-0.102	0.181
Farm/livestock	0.005	-0.031	-0.08	0.171
Fishery	-0.038	-0.109*	0.038	0.233
Trade	-0.011	0.03	-0.036	-0.157
Business	0.131*	-0.057	-0.223 *	0.04
Government officer	-0.017	0.003	-0.133	0.117
Relative income	-0.085 **	0.051	0.057	-0.138
Mean income	-0.002	-0.007	0.002	0.011
Distance to market	-0.011	0.027	0.017	-0.089
ROSCA	0.109	-0.151*	-0.059	0.343
Log (savings)	0.01	-0.001	-0.002	0.01
Exp/income ratio	0.002	0.001	-0.002	0.001
Loss aversion ( $\lambda$ )	0.001	0.009	-0.01	-0.03
Value fctn curve ( $\sigma$ )	-21	-0.007	-0.027	-0.17
Observations	1113	1245	1113	1245
$R^2$	0.77	0.83	0.75	0.82

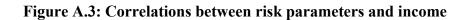
# Table A.8: Determinants of Present Bias and discount rates by region (Nonlinear regressions)

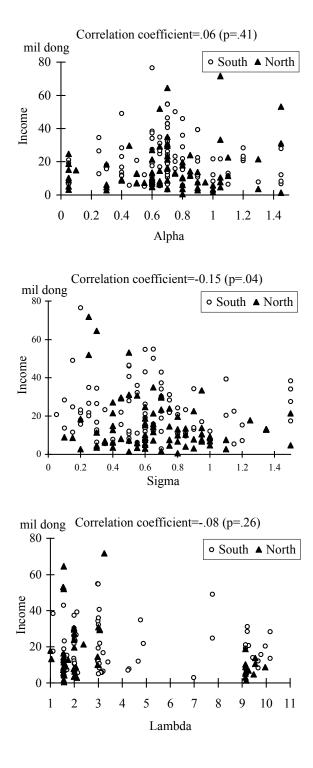
Note: \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. We conducted robust regressions, and adjusted standard errors for correlations within individuals. For the South, 312 data points with inconsistent answers are excluded from the estimations. There is no inconsistent answer in the north because research assistants suggested subjects to reconsider their choices when they found inconsistent choices.

Figure A.2: Correlations among risk parameters



56





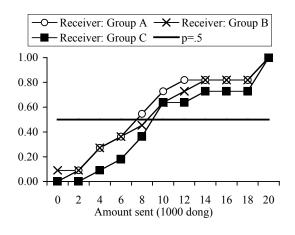
# Figure A.5: Cumulative distribution of amount set by Player 1 by session (by group of receiver)

#### **Student Subjects**

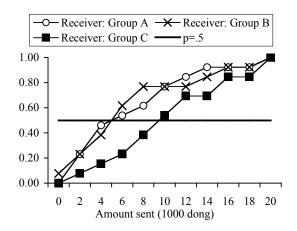
#### **SS1**

#### 

SS2

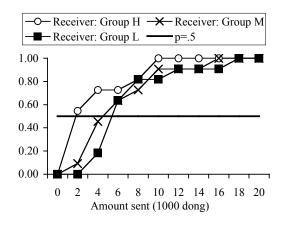


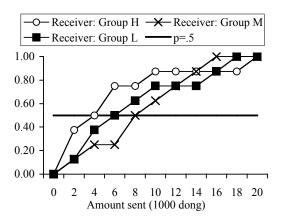
SN1



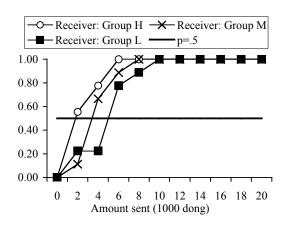
#### South

#### **S1**

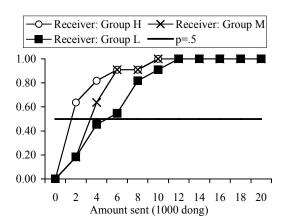




**S3** 

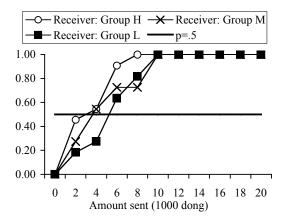


**S5** 



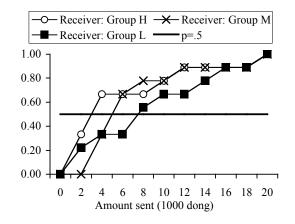
### **S4**

**S2** 

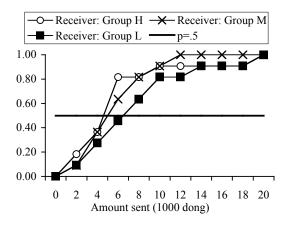


#### North

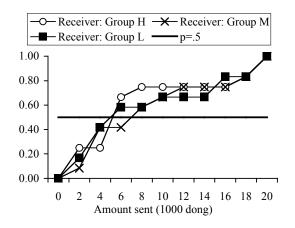
#### N1



#### N2



N3



N4

