Savings

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Reasons to save

- Consumption smoothing
- Life-cycle
- Any others?

Constraints on savings

- ## Efficient not to save
  - Under what circumstances is this true?
- ## Lack of income
  - Under what circumstances is this a constraint?
- ## Lack of access to savings accounts
  - Why should this be true?
- ## Challenges of saving at home
  - Self-control issues
  - "Spouse-control" issues
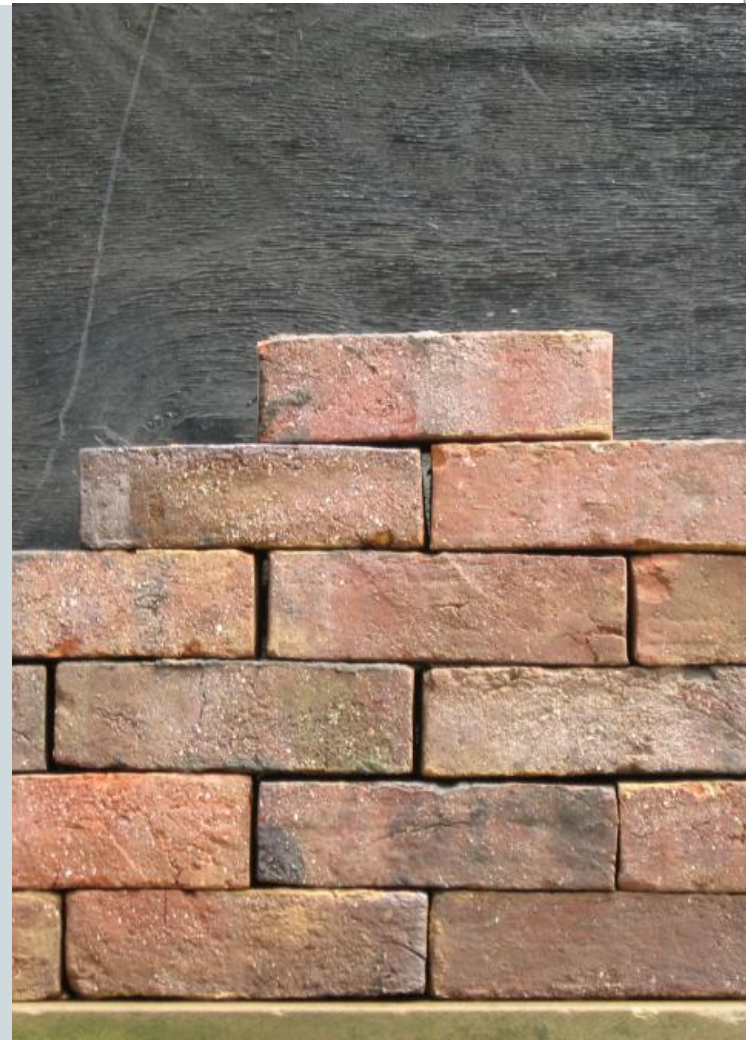
How do the poor save: ROSCAs

- ## What are ROSCAs?
  - Fixed order ROSCAs
  - Bidding ROSCAs
  - ASCAs
- ## What are the advantages of ROSCAs?
  - ?
  - ?
- ## What are limitations of ROSCAs?
  - ?
  - ?

How do the poor save: 2

- Brick by brick
  - Potential limitations?
- Financial savings
  - Money-guards: What are they?
  - Savings collectors: What are they?
  - Self-help groups: What are they
- Potential limitations of these?

How do the poor save: 3

- **Microcredit as a savings instrument**
  - How does that work?
  - What are its main advantages?
  - Does it make sense?

Why do we think its not efficient?

- Euler Equation

$$U'(c_t) = \delta(1 + r)U'(c_{t+1})$$

- Assume

$$U(c) = c^{1-\sigma} / (1 - \sigma)$$

- Therefore
- Or
- Then

$$(c_{t+1} / c_t)^{\sigma} = \delta(1 + r)$$

$$c_{t+1} / c_t = (\delta(1 + r))^{1/\sigma}$$

$$r = 0.8, \delta = 0.9, \sigma = 3 \rightarrow c_{t+1} / c_t = 1.17$$

Basically

- The interest rates that the poor pay are so high that someone who borrows must expect a massive growth in consumption
- Poverty must be on the way out
- And has been for a long time.

An experiment to understand borrowing

- Karlan and Mullainathan wanted to understand why borrowers do not save their way out of poverty
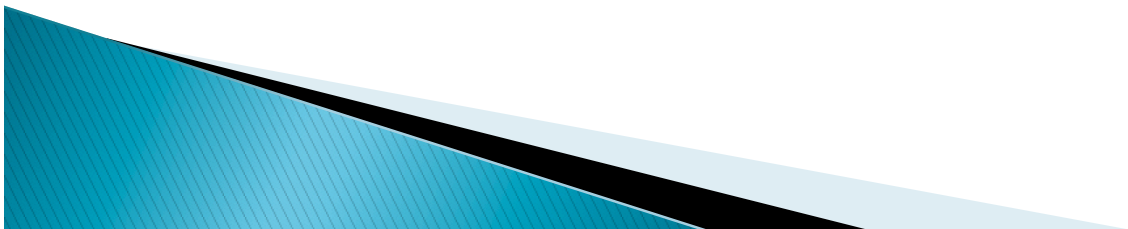- Experiment with fruit/ vegetable vendor in India and Philippines

Fruit Vendor

Vendors

- Simple production function
  - Purchase fruit in the early morning
  - Sell through day
- Key features of this production function:
  - Continuous
  - Daily
 - Need for working capital
- How do they finance it?

Vendors

Table 1-Business Characteristics of sample population			
Detail	Percentage of respondents	Average amount purchased*	Profits per day*
1. One trip a day to the market- normal days	89.7%	Rs. 1075.3 (589.2)	Rs.110.5 (54.7)
2. twice or more trips a day(total amount purchased per day)	8 %	Rs.707.5 (422.6)	Rs.95.6 (46.1)
3. once in two days trip to the market (amount purchased per trip)	2.3%	Rs. 1034.8 (515.8)	Rs.97.2 (44.3)
4. good days a week	98.9%	Rs. 1666.3 (834.3)	Rs. 186.6 (83.4)
5. festival days	91.5%	Rs. 2580.7 (1543.7)	Rs. 318.2 (187.3)

Vendors

Table 3- Meter loans for financing	
1. % of sample size that takes daily loans	**69.4%**
2. % of sample size that takes daily loans for more than 15 days a month	65.7%
3. average number of days in a month that respondent takes a daily loan for working capital	25.8 days
4. average number of years of taking daily loans	**9.5 years**
5.average daily interest rate	**4.9%**
6. % of total meter loan borrowers who borrow from the same moneylender daily	67.7%
7. Average of maximum that can be borrowed as a daily loan	Rs. 4098.6
8. % of meter loan borrowers who feel there is no other way of doing business and the interest is unavoidable	63.8%

Benefits of Savings

- Hard to comprehend what 5% a day actually *means*
- Consider the following strategy
  - Drink one less cup of tea every day (or some thing else small).
  - Reinvest this money back into business
  - Compounding implies: in **30 days** will have doubled **income.**
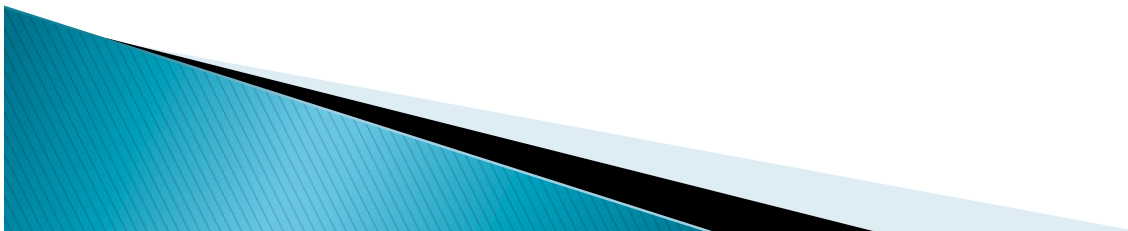
Possible explanations

- Artifacts:
  - Mismeasuring 'true cost' of the loan
    - Desire to keep relationship with money lender
    - Default rates high
  - Can't borrow a little less
- Conceptual explanations
  - Inability to cut back on consumption (Stone-Geary)
  - Vendors discount the future *a lot*
  - Vendors don't understand compounding
  - Vendors don't have access to savings
    - Vendors face within family conflicts that lower returns to savings
  - Vendors face self-control problems

Testing these Hypotheses

- Our Experiment
  - Buyout the debt
  - Provide literacy

|		Financial Literacy	
		No	Yes
Debt Buyout	No	1/4	1/4
	Yes	1/4	1/4

Interventions

- Buyout
  - Give a cash grant enough for individuals to buyout their debt
  - Working capital on a good day (gotten from the baseline survey). As high as 3000Rs.
- Training
  - Half day class where we:
    - Worked out how much they've spent in total on interest rate
    - Benefits of cutting down: illustration
    - Discussed what they could have done with the money
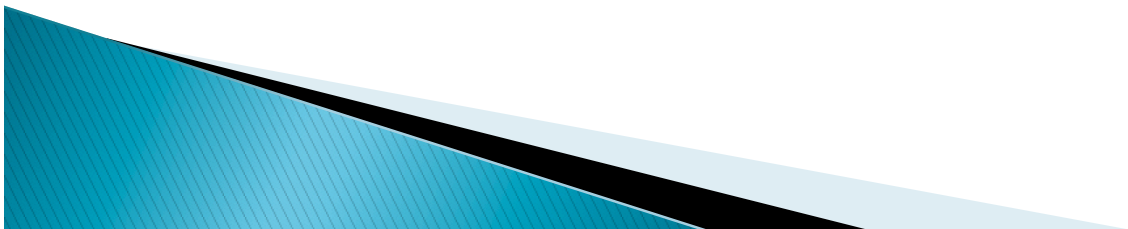   - Brainstorm on ways to cut down
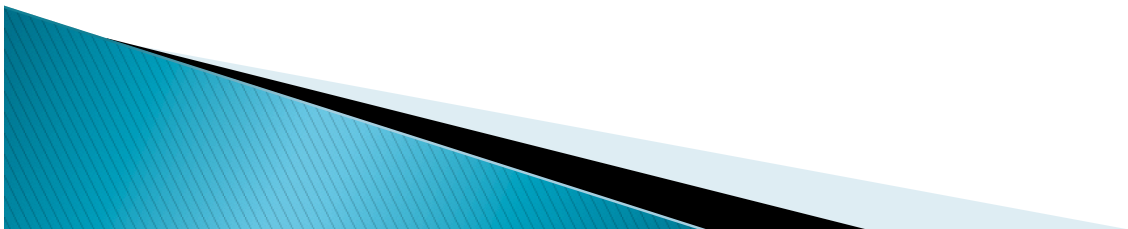
Test of Possible explanations

- Artifacts:
  - Mismeasuring 'true cost' of the loan
  - Can't borrow a little less
- Conceptual explanations
  - Inability to cut back on consumption– Stone Geary
  - Vendors discount the future *a lot*
    - Do vendors fall back *very fast?*
  - Vendors don't understand compounding
    - Training
  - Vendors don't have access to savings
    - Vendors face within family conflicts that lower returns to savings
    - Do vendors fall back *fast?* What causes vendors to fall back?
  - Vendors face self-control problems
    - Do vendors fall back *at all or slowly?*
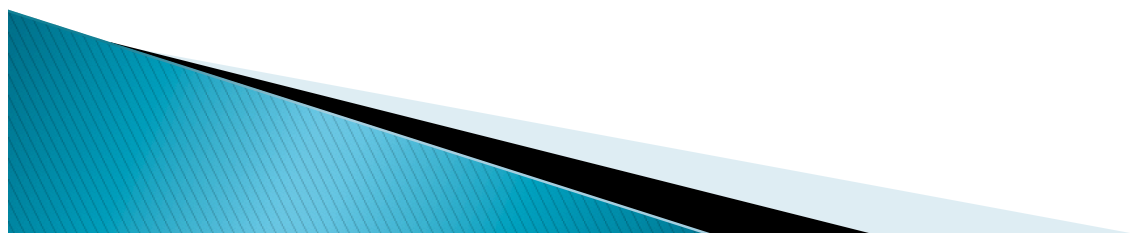   - What causes vendors to fall back?

Sites

▸ Philippines: Follow up surveys occur
- 2 weeks
- 6 weeks
- 10 weeks

▸ India: Follow up surveys occur
- 3 months
- 6 months
- 12 months

	Summary Statistics, Baseline				
	Control	Training	Debt pay-off	Both	Total
	(1)	(2)	(3)	(4)	(5)
Panel A: India					
Thandal Loan	0.620	0.640	0.664	0.672	0.649
	(0.031)	(0.030)	(0.030)	(0.030)	(0.015)
Thandal Loan amount	2838.40	3006.80	3303.80	3458.00	3151.75
	(226.31)	(256.11)	(248.63)	(259.63)	(124.06)
Moneylender loan	0.844	0.804	0.780	0.780	0.802
	(0.023)	(0.025)	(0.026)	(0.026)	(0.013)
Moneylender Loan amount	21948.13	18349.64	21633.74	26477.54	22102.26
	(2110.67)	(1616.54)	(1773.82)	(4219.66)	(1324.53)
Buying goods on credit	0.388	0.380	0.416	0.418	0.400
	(0.031)	(0.031)	(0.031)	(0.031)	(0.016)
Amount of goods bought on credit	747.938	677.947	773.269	771.683	744.075
	(57.057)	(65.627)	(64.582)	(55.487)	(30.351)
Coping mechanism when hit by a negative income shock					
Saving	0.032	0.040	0.024	0.028	0.031
	(0.011)	(0.012)	(0.010)	(0.010)	(0.005)
Borrowing from moneylenders	0.160	0.180	0.184	0.220	0.186
	(0.023)	(0.024)	(0.025)	(0.026)	(0.012)
Borrowing from someone	0.348	0.372	0.324	0.376	0.355
	(0.030)	(0.031)	(0.030)	(0.031)	(0.015)
Means other than borrowing	0.192	0.140	0.132	0.156	0.155
	(0.025)	(0.022)	(0.021)	(0.023)	(0.011)
Total household expenditures in the past month	5688.72	5399.84	5543.02	5516.55	5536.94
	(389.56)	(171.98)	(169.48)	(173.83)	(122.46)
Total food expenditures in the past month	2807.20	2424.40	2428.40	2535.60	2548.90
	(364.00)	(69.39)	(70.01)	(68.39)	(95.80)
Number of observations	250	250	250	250	1000

|	Control	Training	Debt pay-off	Both	Total
	(1)	(2)	(3)	(4)	(5)
Panel B: Philippines					
Moneylender loan	0.984	0.968	0.984	0.952	0.972
	(0.016)	(0.023)	(0.016)	(0.027)	(0.010)
Moneylender Loan amount	3658.730	3975.806	3661.290	3711.111	3751.200
	(267.46)	(323.47)	(300.22)	(339.06)	(153.63)
Buying goods on credit	0.333	0.258	0.371	0.270	0.308
	(0.06)	(0.06)	(0.06)	(0.06)	(0.03)
Amount of goods bought on credit	232.667	30.081	356.484	264.127	221.060
	(130.01)	(19.42)	(159.04)	(192.89)	(70.79)
Coping mechanism when hit by a negative income shock					
Saving	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Borrowing from moneylenders	0.032	0.032	0.016	0.032	0.028
	(0.022)	(0.023)	(0.016)	(0.022)	(0.010)
Total household expenditures in the past month	7037.576	7505.524	6012.747	6951.414	6877.756
	(470.68)	(577.11)	(452.18)	(483.02)	(249.73)
Total food expenditures in the past month	4259.690	4297.629	3488.032	4467.582	4130.117
	(327.83)	(227.90)	(269.89)	(315.61)	(145.41)
Number of observations	63	62	62	63	250

Results – Borrowing

Dependent variable:	Follow up 1 (2 weeks after the intervention)		Follow up 2 (6 weeks after the intervention)		Follow up 3 (10 weeks after the intervention)	
Specificaion:	Probit	OLS	Probit	OLS	Probit	OLS
	Moneylender	Log (loan amount)	Moneylender	Log (loan amount)	Moneylender	Log (loan amount)
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Pay off	-0.332***	-0.275*	-0.302**	-0.368**	-0.201*	-0.340**
	(0.126)	(0.164)	(0.122)	(0.151)	(0.112)	(0.149)
Post x Training	0.042	-0.130	0.009	-0.109	0.044	-0.166
	(0.055)	(0.153)	(0.068)	(0.143)	(0.065)	(0.145)
Observations	500	417	500	412	500	404
R-squared	0.323	0.045	0.314	0.06	0.271	0.057
Dep.var.mean	0.834	8.160	0.824	8.167	0.808	8.158

Results – Borrowing

Specification	probit	OLS	probit	OLS
	Followup 1 (3 months)			
Dependent Variable	Thandal loan	Log(thandal loan amount)	Moneylender loan	Log(Moneylender loan)
	(1)	(3)	(2)	(4)
Post x Training	-0.038	-0.288	0.045	-0.030
	(0.045)	(0.367)	(0.030)	(0.285)
Post x Debt pay off	-0.103**	-0.856**	-0.027	-0.370
	(0.045)	(0.367)	(0.038)	(0.285)
Observations	2000	2000	2000	2000
R-squared	0.013	0.01	0.165	0.19
Dep.Var.Mean	0.591	4.905	0.830	7.506
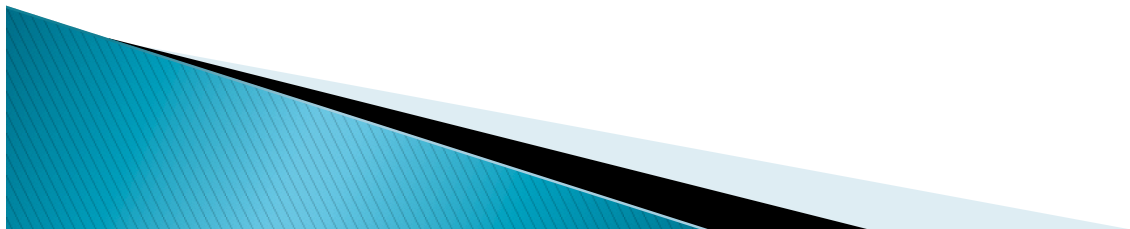
Results–Borrowing

	Followup 2			
Specification	probit	OLS	probit	OLS
Dependent Variable	Thandal loan	Log(thandal loan amount)	Moneylender loan	Log(Moneylender loan)
	(5)	(7)	(6)	(8)
Post x Training	-0.015	-0.119	0.068*	0.075
	(0.047)	(0.334)	(0.040)	(0.284)
Post x Debt pay off	-0.021	-0.263	-0.015	-0.142
	(0.047)	(0.334)	(0.047)	(0.284)
Observations	2000	2000	2000	2000
R-squared	0.121	0.17	0.281	0.47
Dep.Var.Mean	0.449	3.649	0.729	6.472

Hand Loans

Dependent Variable	Followup 1 only		Followup 2 only	
	Bought goods on credit	amount bought on credit	Bought goods on credit	amount bought on credit
	(1)	(2)	(3)	(4)
Post	-0.154***	-42.159	-0.205***	-96.898***
	(0.023)	(32.192)	(0.025)	(30.019)
Post x Training	-0.012	11.198	-0.003	12.407
	(0.028)	(34.848)	(0.030)	(33.826)
Post x Debt pay off	-0.078***	-106.116***	-0.034	-65.613*
	(0.028)	(34.874)	(0.030)	(33.839)
Observations	1940	2000	1922	2000
R-squared	0.185	0.057	0.200	0.070
Dep.Var Mean	0.301	244.86	0.295	229.598
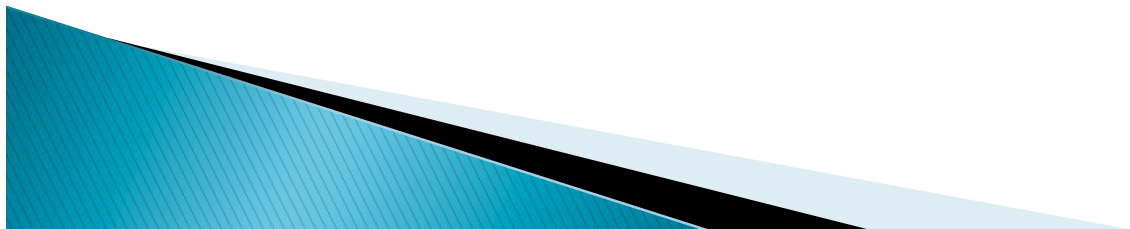
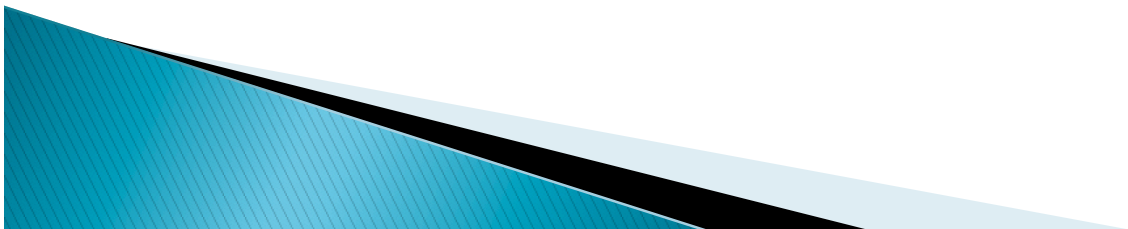# Some Open Questions

- Is the movement on intensive margin telling us about heterogeneity?
- What characteristics are interesting?
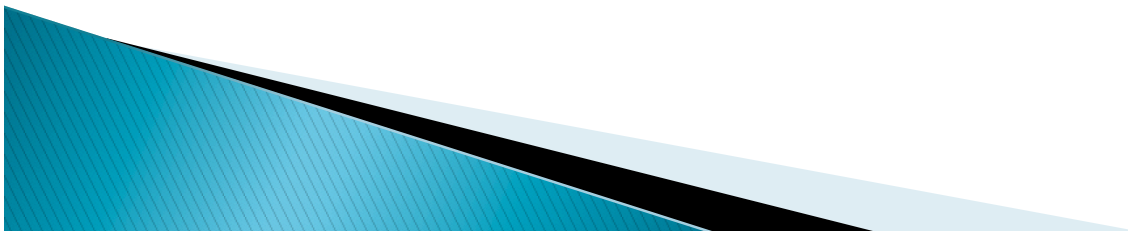
How are people slipping?

- What drives the long term fall?
- In India we see the biggest fall
- We have some *very preliminary* evidence
  - Question: How did you cope with shocks last month?

Results – Coping With Shocks by..

Dependent Variable	Followup 1 only			
	Savings	Loan	Any Loan	Savings or Non-Loan Source
	(1)	(2)	(3)	(4)
Post x Training	-0.027	-0.033	-0.055	0.002
	(0.020)	(0.035)	(0.042)	(0.036)
Post x Debt pay off	0.074**	-0.081**	-0.060	0.083**
	(0.034)	(0.033)	(0.042)	(0.040)
Observations	2000	2000	2000	2000
R-squared	0.078	0.010	0.005	0.015
Dep.Var.Mean	0.081	0.220	0.375	0.195
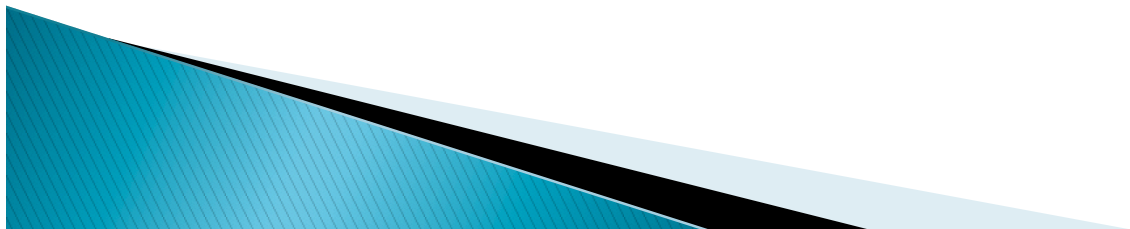
Results– Coping with Shocks by…

Specification	Followup 2 only			
Dependent Variable	Savings	Loan	Any Loan	Savings or Non-Loan Source
	(5)	(6)	(7)	(8)
Post x Training	-0.016	-0.058*	-0.050	0.005
	(0.018)	(0.034)	(0.042)	(0.032)
Post x Debt pay off	0.019	-0.035	0.011	0.043
	(0.024)	(0.036)	(0.044)	(0.035)
Observations	2000	2000	2000	2000
R-squared	0.035	0.011	0.003	0.002
Dep.Var.Mean	0.058	0.226	0.381	0.150

Interpretation of Findings

- Vendors appear to fall back down
  - But it takes a long time
  - Inconsistent with
    - Very high discount rates
    - Inability to save
  - Need a water torture model of self-control
    - Shocks play a key role. Interact with temptation?
- Little effect of training
  - No complementarity with debt either
  - Compounding alone may not have been the problem?
  - How do you "train" someone to resist the urge to deal with a shock by eating into savings?