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14.74 Foundations of Development Policy  
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14.74

## Savings Constraints

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Last time we discussed what a household would do to smooth risk with borrowing and savings. We saw that if they can borrow and save, they will try to maintain a smooth consumption profile, especially if the shocks are temporary. We discussed what would happen if people were credit constrained.

However, we did not discuss what would happen if households had difficulty to save.

Two sources for those possible difficulties:

- External:
- Internal:

### 1 Savings Constraints

If you want to save, where can you keep the money?

Why may a bank be reluctant to keep small savings account? Is this because they are evil? is there an easy solution to this problem?

Poor households use all sorts of ways to save:

- Self Help Groups
- Rotating Savings and Credit Associations (roscas)
- Productive assets (e.g.: Bullocks)

Possible sources of inefficiency:

- Roscas: you don't get the money when you need it.
- Deposit collectors (who will charge negative interest rates to take the money)
- Productive assets : what will you do with ONE bullocks! (Rosenzweig and Wolpin).

An experiment which try to test the idea that households may be "savings constrained" (Dupas and Robinson, 2009).

Open free savings account for small business owners at a local bank (waive the opening fee, which is normally \$7 (for business owners who make on average about \$2 a day). The accounts have no interest and a withdrawal fee of 50 cents for transfers below \$8, 80 cents for withdrawals between \$8 and \$15 and \$1.5 above.

At baseline, 2% of people had an account.

Researchers did a baseline with 300 people, and randomly selected half of them, to whom they offered to pay the opening fees for a savings account.

After 6 months, they had people fill daily log-books on business activities and expenditures, for about 3 months. Attrition was high, so resulting sample is only 185.

Usage:

- Women
  - Mean: 3,700 Ksh (US \$57)
  - 25%: 0 Ksh
  - 50%: 150 Ksh (US \$2)
  - 75%: 1,900 Ksh (US \$29)
  - 90%: 11,500 Ksh (US \$176)
- Men
  - Mean: 1,200 Ksh (US \$18)
  - 25%: 0 Ksh
  - 50%: 50 Ksh (US \$0.67)

- 75%: 400 Ksh (US \$6)
- 90%: 1,600 Ksh (US \$24)

## Results

- Increase in investment in the business.
- Some increase in consumption
- Decrease in sensitivity to shocks.

## 2 Savings and Self Control

We just reviewed "external" savings constraints. In fact there may also be "internal" constraints. The results we saw last time assume that the individual has a utility function with a constant discount rate  $\beta$ . In fact, there is evidence that individuals may be "present biased", i.e. they discount tomorrow with respect to today more than they discount day after tomorrow with respect to tomorrow.

Such preferences lead to "preference reversal" when people are asked to choose between a certain amount today and a higher amount in the future.

- Would you prefer P200 today or P300 guaranteed in a month?

- Would you prefer P200 in 6 months or P300 guaranteed in 7 months?

In the table in the handout, the light grey indicates preference reversal in the "expected" order.

Note that people also reverse their preferences in the opposite order ■

Could be time-inconsistencies, or mistakes, or worry that the future is uncertain.

Such preferences are sometimes represented as "hyperbolic discounting": with 3 periods, the individual maximizes:

$$\text{Max } u(c_1) + \beta[u(c_2) + \delta u(c_3)]$$

Write down the traditional exponential utility function to compare:

Such individuals will not save enough. Why?

Example: saving for fertilizer in Kenya.

- Two seasons a year: at the end of harvest, you have lots of maize.
- You need go keep the maize for eating, and you can decide to buy fertilizer at some point before next planting season.
- Early on, you have enough to eat, so you are planning to eat today, save in period 2 and buy fertilizer then (there is no reason to buy it today since you do not need it today, so why bother to go to the shop now, when you can go later!! –note: it is not about spending the money, since you are planning to save in period 2 anyway, it is about the cost of going to the shop).
- However, later on, you are now impatient, and you may eat everything, instead of purchasing the fertilizer.
- In this way, most people make plans to use fertilizer early in the season but do not end up actually doing it.
- In kenya it is the case in the data: about 98% of farmer plan to use fertilizer early on, but 20%-30% end up doing it !
- What kind of interventions could help period 1 farmer to use fertilizer.
- The SAFI program: offer farmers to buy fertilizer right after harvest, and get free delivery.
- Why should it work?
- Results in table for different version of the program:
  - SAFI
  - free delivery at harvest time
  - SAFI with choice of timing
  - See results in table.

### 3 Sophisticated hyperbolic discounters and the demand for commitment

If they know that they suffer from hyperbolic discounting, they can decide to force themselves to save, starting tomorrow: such persons should enjoy products that force them to save regularly, and such products will lead them to save more (like in stickK.com).

(note that if they did not have access to such devices, they may save even less: the Kenyan farmer who KNOWS he won't save in period 2, and is not able to store the fertilizer, would just decide to eat everything up to day!).

Work with 1,700 clients of a microfinance institution in the Philippines, which offers savings account. Introduce a new savings product with a commitment feature.

Questions:

- Will anybody take it up?
- Will individuals identified as hyperbolic be more likely to take it up? Will it result in increased savings (for those offered/for those who take up)
- Can we make sure it is the effect of the commitment and not something else?

Experimental design:

1,700 existing clients are randomly assigned to one of three groups:

- Treatment group (offer of commitment savings product is made during home visits)
- Marketing group (value of commitment is extolled during home visits but no product is offered).
- Control group: nothing is offered.

Before anything is offered, individuals are surveyed, including questions to evaluate whether individuals are likely to be hyperbolic. Savings in this bank and other banks are measured after 6 and 12 months

Commitment Treatment:

Individuals can choose to set either a time goal (I will leave the money in the account until X date) or a amount goal (I will not take the money out until I have reached a particular sum). The decision is theirs, but once they have decided they cannot withdraw the money until the target is achieved. They are given a certificate which says for what they are savings. They are also offered a lockbox to put accumulate their savings before they go deposit it to the bank (low barrier commitment).

Marketing treatment:

Individuals receive a home visit, and they are encouraged to set themselves a goal (either time or an objective). They are given a similar certificate. However, they are not offered an account with commitment features. (they are not allowed to open one even if they hear about it).

Results:

- Did anybody take this up

202 accounts were opened

-50% of the account stayed at the minimum deposit after 12 months

-Half of clients did more than one contribution.

-Fewer people (62) chose the amount goal than the time goal (147)

- Those who did the amount goal saved much more

- Nobody tried to withdraw before maturity

- Accounts who reach time or amount maturity all rolled over.

- Did the people who are hyperbolic take it up? Yes for females, not for males.

- Savings: Balances after 6 months are significantly higher in commitment savings group. Large effect in proportion (savings in control groups are rather small). Effect is due to commitment: there is no significant increase in balance for the marketing group (though the estimate is large too...)