



Borrowing to Save: Perspectives from *Portfolios of the Poor*

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Introduction²

It's not surprising that saving is hard for many of us. We're impatient, temptations are at hand, and savings devices are seldom ideal. By the same token, it should not be surprising to find that dis-saving is easy. But, puzzlingly, people dis-save less often than neoclassical economic theory suggests they should.³ And, paradoxically, it is often the same people who had trouble saving who also have trouble drawing down their savings. They are often so reluctant to dis-save that they willingly borrow at expensive interest rates to avoid touching their savings.

This note describes simultaneous borrowing and saving, and it provides evidence highlighting an explanation rooted in difficulties re-building savings. The explanation suggests why high interest rates on loans may even be a desirable attribute for some borrowers. In this context, a product innovation that commits savers to re-building their accounts after major withdrawals would be welfare improving.

The pattern of borrowing while saving is a regularity in the "financial diaries" collected over a year in villages and poor urban neighborhoods in India, South Africa, and Bangladesh. The diaries are a mix of high-frequency quantitative and qualitative financial data brought together in

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² I'm in debt to Daryl Collins, Stuart Rutherford and Orlanda Ruthven, who devised, supervised, and decoded the financial diary data at the heart of *Portfolios of the Poor*. I've also drawn on conversations with Michal Bauer, Julie Chytilová, Jacob Goldston, Dean Karlan and Sendhil Mullainathan, but I take responsibility for views and interpretations.

³ See, e.g., the optimal saving simulations in Deaton (1991), in which households actively save and dis-save. There, households at times face binding liquidity constraints which curtail borrowing, but dis-saving remains critical even when the constraints do not bind.

Portfolios of the Poor: How the World's Poor Live on \$2 a Day (Collins, et al. 2009). If the simultaneity of borrowing and saving is surprising, it should be especially so in the Delhi or Dhaka slums, where logic suggests that families would be particularly vigilant about avoiding seemingly gratuitous extra costs.

Likewise, for the US population carrying credit card debt. Gross and Souleles (2000), for example, use the 1995 Survey of Consumer Finance to calculate that over 90 percent of holders of credit card debt simultaneously held very liquid assets, primarily in checking and savings accounts. More striking, for one third of debt-holders, their liquid assets summed to over one month's worth of income, allowing nearly all to eliminate their debt if they wanted.

New work in behavioral economics gives explanations for why people save and borrow simultaneously. The stories explain specific cases, but the general phenomenon remains a puzzle. Laibson, Repetto and Tobacman (2003) root one explanation in the use of contractual savings products. They begin with individuals with hyperbolic preferences. As in Strotz (1955) and Ainslie (1992), individuals exhibit "present-bias" in that they are more impatient with regard to current trade-offs than with regard to future tradeoffs. The resulting time inconsistency undermines saving, since even if present-biased individuals feel that it would be best to save in a few months time, their choice to save gets reversed once the decision point arrives and action occurs in the present. If individuals are self-aware enough to anticipate the internal conflict and reversal, they can often do better by creating a commitment to save which ties their hands, committing themselves to a saving plan that cannot be easily undone (Mullainathan 2005). Laibson, Repetto and Tobacman (2003) argue that sophisticates with present-bias will lock down their saving in illiquid vehicles like contractual savings products. Borrowing is then necessary to provide liquidity in emergencies.

There is certainly demand for illiquidity (e.g., Ashraf, Karlan, and Yin 2006), but the argument fails to explain the Gross and Souleles credit card data, in which people fail to draw down *liquid* assets (Basu 2007). *Portfolios of the Poor* reveals similar stories:

In a slum in Vijayawada, a town in southern India, Seema negotiated a loan of \$20 from a moneylender, at 15 percent a month, just after leaving a meeting of her local savings cooperative where she had \$55 in a liquid savings account. This struck us as an expensive, perhaps even an irrational choice. But asked

why she had done it, Seema said, “Because at this interest rate I know I’ll pay back the loan money very quickly. If I withdrew my savings it would take me a long time to rebuild the balance.” (pp.110-111)

Gross and Souleles (2000) speculate that “some people might need to undertake costly actions to limit their “impulse” spending (or spending by their spouses). One example could be not fully paying off card balances, in order to reduce the temptation of available credit.” This may explain part of the credit card story, but it does not explain Seema’s case. Gross and Souleles suggest that mental accounts could also play a role: the saving balance might be earmarked for education, say, while credit card debt is earmarked for clothing. The broad idea of mental accounts rings true, but seems insufficient here. If the idea of mental accounts has teeth, it is because saving for education was difficult, and re-building savings after a withdrawal is similarly difficult. It is a small stretch to accept that ear-marking saving accounts for particular goals is helpful in creating discipline, but it is a large stretch to accept that ear-marking saving accounts is, in itself, so fundamental that it can justify borrowing at high cost; for Seema, the annualized interest cost was 180 percent per year without compounding.⁴ The basic issue—as articulated by Seema—is not mental accounts but the difficulty in re-building savings. The operative question is: why is it easier to repay loans than to re-build savings? What does the moneylender and the credit card company do right?

What do lenders do?

One of the main services provided by nearly all moneylenders is to create a workable installment plan (Rutherford 2000). Loans can be paid off in small bits, with flexibility as needed. An example is given by one of the Indian diarists, Mohammed Laiq, who borrowed five interest-bearing loans over the research year (Collins, et al. 141). Laiq earned on average \$40 per month, though the sum was uncertain. Consider his first loan, for \$32 from a professional moneylender, used for house repairs. The moneylender arranged to break the sum into 50 daily

⁴ Basu (2007) provides an interesting alternative model of simultaneous saving and borrowing. The model is built for a context in which households are funding investment opportunities and savings are not fully secure. The model describes strategies that sophisticated decision-makers with present-bias might undertake to insure optimal incentives to save in the future, including saving and borrowing simultaneously. The challenge in the present paper is to explain simultaneous borrowing and saving when savings are secure and investment is not necessarily a concern. Other possibilities include maintaining the option value of savings while borrowing and the possibility that borrowing brings a *de facto* risk sharing element if repayments are effectively state-contingent, while dis-saving and re-saving does not include these properties.

payments of 75 cents each (of which 11 cents per day was interest: a very high annual interest rate of about 125 percent).

The lender also serves as a counterpart with a keen interest in the success of the transaction. The installment structure and the “partnership” provide discipline and a measure of support. It turned out that Mohammed Laiq could not meet the installment schedule:

By early July he'd paid 27 days, and by early August, a further 8 days. In late September, he still had \$8.50 to pay. It was not until mid-February, more than 330 days after he took the loan, that he cleared the debt. However, he still paid interest only on 50 days, not 330 days...He explained to us that he repaid the loan in “batches of days,” generally giving \$4-\$6 at a time, with long gaps in-between. Mohammed Laiq said that the moneylenders don't worry about the gaps – they expect it and it's nothing to them. (p.141)

While Laiq stretched out the repayments, he nevertheless met his obligations in the end. When you're saving, in contrast, you're typically on your own, with little structure or support. If anything, family members and neighbors undermine saving strategies by asserting their own needs.⁵

Microcredit institutions provide similar features in their loan products. While the “joint liability” features of microcredit contracts are most-celebrated in the economics literature (Ghatak and Guinnane 1999), joint-liability is receding in practice. The two early pioneers, Bangladesh's Grameen Bank and Bolivia's BancoSol, have largely dropped joint liability. Yet they maintain other innovative loan features, including structured repayment schedules that break repayments into weekly installments (sometimes fortnightly or monthly) and the harnessing of community support, to provide discipline and alignment with household cash flows (Armendáriz and Morduch 2010).

While commitment features are built into most informal-sector financial devices, they are uncommon in formal-sector saving devices. Ashraf, Karlan and Yin (2006) describe their

⁵ When available, ROSCAs and saving clubs can provide discipline and support for savers, but they can also be unreliable and the duration and structure may match poorly with household needs at a given moment (Collins et al. 2009).

potential through a randomized controlled trial with a rural bank in the Philippines that introduces new accounts (branded “SEED”: Save Earn Enjoy Deposits) that give the chance to commit to deposit money until either a given date or a given sum was saved. In all other regards, including the interest rate, the new accounts were identical to those already available to the sample. Twenty-eight percent of customers offered the “commitment” product accepted it. Women who demanded the product were more likely to have present-biased time preferences—and women given access substantially increased savings after a year (the measure of “intention to treat” yields that use of the accounts increased saving by 82 percent). When such devices are unavailable, “borrowing to save” becomes a more understandable strategy.

The notion is captured by the story of Khadeja, a young mother living in Dhaka on roughly \$2 a day:

Khadeja, who took a loan at 36 percent a year and spent much of it on gold jewelry that she saw as a vital store of value for her future, used the pressure that the weekly discipline of her microcredit provider exerted on her. Like Seema, Khadeja saw the truth of an odd-sounding paradox: if you’re poor, borrowing can be the quickest way to save. Khadeja knew that without some external force to help her, her chances of saving enough money to buy the gold necklace were small. So when a microfinance NGO offered her the chance to turn a year’s worth of small weekly payments into a usefully large sum, she took it. (p. 111)

If Khadeja had had a convenient contractual saving device, she might have been able to do achieve the same goal at lower cost. But, faced with few alternatives, microcredit borrowing turned out to be an effective, though indirect, way to build assets. Bauer, Chytilová, and Morduch (2009) offer evidence consistent with this notion. They use experimental measures of time discounting to generate proxies for present-bias in a sample of villagers in Karnataka in south India. About a third of the women exhibit present-bias in the experiments. The women with present-bias have lower saving rates as predicted. Moreover, conditional on borrowing from any source -- and after controlling for a range of observable individual characteristics, attitudes towards risk, village-level fixed effects, seasonal income patterns, health-related income shocks, and measures of intra-family decision-making power (i.e., “spousal control”

difficulties) -- women with present-biased preferences were more likely than others to borrow from their local microcredit institutions.

The discipline of high prices

All else the same, high interest rates on loans should deter borrowers. But in a context in which discipline is desired, the opposite can be true. This is Seema's logic when she explains her strategy: "Because at this [high] interest rate I know I'll pay back the loan money very quickly." It is also the logic of Satish, one of the wealthier respondents in the Indian financial diaries sample:

Delhi-based Satish's \$1,232 of cash assets at year end were the third highest in the whole Indian sample, after those of two wealthy farmers. And yet he loved to borrow, and to borrow above all on interest. He ended the year with \$575 worth of debts, over half of it interest-bearing. His explanation was that the pressure of interest charges encouraged him to repay quicker, which he liked. (p.111)

Empirical generalizations can't be drawn from a handful of examples, but the examples can help expand the scope of theory. The high borrowing cost functions as a penalty for shirking, much as collateral functions in a lending contract. But, in being self-imposed, the strategy shares the spirit of StickK.com, the website conceived by Dean Karlan, Ian Ayres, and Jonah Goldberg as an online "Commitment Store." StickK.com gives users the chance to create a commitment to fulfill a goal (say, to lose weight, to study more, to exercise regularly). The user pledges a sum of money, and if the user fails to meet their commitment, they lose their money (typically it goes to a registered charity). With high-priced loans from "professional" sources, failing to repay loans can entail taking a second loan to repay the first, adding extra costs for borrowers. The high interest rate on loans shifts increases the salience and urgency of repayment.

The strategy is easier to understand when needs are lumpy. If we assume non-convexities in needs, being short of having a given sum imposes major costs. In that context, the high cost of borrowing balances against the high cost of missing an asset-building target. But while reasonable in theory, it is not clear why and how such non-convexities exist empirically.

A second tension in the strategy entails the credibility of the threat. High-price may be a stand-in for credibility in enforcing loan agreements. Credibility is weaker among lenders who are not “professional” and who charge lower prices:

...It is the intermittent lenders, those doing it for a favor or out of a sense of obligation, who show more willingness to forgive the monthly interest rates stated at the outset. In the Bangladesh and Indian diaries, interest stated at the outset was paid in full in less than half of all the private interest-bearing loans reported.¹⁰ In a third or more of all loans, the interest was discounted, forgotten, forgiven, or ignored, and in the remaining cases the position over interest remains unclear. In South Africa, in addition to the 57 moneylender loans we discuss above, we also tracked a total of 45 loans taken from ASCAs (accumulating savings and credit association, a kind of saving club...). The South African moneylender loans were frequently rescheduled, although in only five of the 57 cases was the interest forgiven entirely. However, in ASCA loans, where the lenders were better-off members of the community, interest was forgiven much more frequently – in 13 of the 45 loans. (p. 142)

Yet even the professionals re-schedule loans frequently, as seen in the case of Mohammed Laiq. In Laiq’s case, it appeared that repayment delays were factored into the nominal price, and, looking backward, Laiq ended up only paying “an annual interest rate of about 19 percent, far better than the onerous 125 percent per month he was quoted.” (Collins, et al. 141). The India research team surveyed three moneylenders operating in west Delhi, finding evidence of frequent rescheduling (Patole and Ruthven 2001):

At first glance, the *stated* interest rates charged by moneylenders (ranging between 61 percent and 700 percent when annualized) appear extremely high. However, the *actual* rate of interest comes down dramatically once the repayment period is considered. One branch manager of an informal moneylending business described his clients’ behavior. “Half of the poor clients drag the repayments on a one-month term loan up to 90 to 100 days. Most delinquencies occur when the clients are away visiting their villages.” Of each 100 poor clients, five are likely to default completely, he told us. “We follow up at the most for three months beyond the scheduled loan period. We try to renegotiate the installment size [making it smaller], but in the end the whole

business runs on trust and there's no other means to recover our money." (p. 140)

Thus, "the customer who repays on time pays the highest price. This inverted pattern of incentives can be seen as one of the more unsatisfactory aspects of informal loan finance." (Collins, et al. 141). To this degree, the strategies of Satish and Khadeja are difficult to fully reconcile with the evidence on moneylender behavior.

"The Re-builder contract"

The anecdotes described above point to a gap in the product landscape. The stories show that even poor households (perhaps *especially* poor households) willingly take expensive steps to avoid dis-saving.

A simple product innovation can address the problem: a contractual saving device that is earmarked for rebuilding savings. When a substantial sum is drawn from a savings account, the depositor would have the option to enter a Rebuilder contract with a clear schedule and set of incentives that facilitate re-building the amount that was withdrawn. It might be tempting to add bonuses to such a mechanism, but that could give incentives to game the bonus by simply withdrawing funds and then replacing them from the withdrawn deposit. Instead, a system of penalties may be enough, imposing costs but on much less onerous terms than the alternative of borrowing from the local moneylender.

In the end, the aim would be to replace "borrowing to save" with "dis-saving to save", a small but fundamental step forward for households working to achieve discipline.

References

- Ainslie, George W. 1992. *Picoeconomics*. Cambridge, UK: Cambridge University Press.
- Armendáriz, Beatriz and Jonathan Morduch. 2010. *The Economics of Microfinance*, Second edition. Cambridge, MA: MIT Press.
- Ashraf, Nava, Dean Karlan, and Wesley Yin. 2006. "Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines." *Quarterly Journal of Economics*, 121(2): 635-672.
- Basu, Karna. 2007. "A Behavioral Model of Simultaneous Borrowing and Saving." http://www.cid.harvard.edu/neudc07/docs/neudc07_s3_p07_basu.pdf.
- Bauer, Michal, Julie Chytilova, and Jonathan Morduch. 2009. "Behavioral Foundations of Microcredit: Experimental and Survey Evidence from Rural India." Manuscript.
- Collins, Daryl, Jonathan Morduch, Stuart Rutherford and Orlanda Ruthven. 2009. *Portfolios of the Poor: How the World's Poor Live on \$2 a Day*. Princeton, NJ: Princeton University Press.
- Deaton, Angus. 1991. "Saving and Liquidity Constraints." *Econometrica* 59, 1221-1248.
- Laibson, David. 1997. "Golden Eggs and Hyperbolic Discounting." *Quarterly Journal of Economics*, 112(2): 443-477.
- Laibson, David, Andrea Repetto, and Jeremy Tobacman. 2003. "A Debt Puzzle." In *Knowledge, Information, and Expectations in Modern Economics: In Honor of Edmund S. Phelps*, Eds. Philippe Aghion, Roman Frydman, Joseph Stiglitz, and Michael Woodford. Princeton, NJ: Princeton University Press.
- Ghatak, Maitreesh, and Timothy Guinnane. 1999. "The economics of lending with joint liability: Theory and practice." *Journal of Development Economics* 60(1): 195–228.
- Gross, David and Nicholas Souleles. 2000. "Consumer Response to Changes in Credit Supply: Evidence from Credit Card Data." Wharton Financial Institutions Center. Working paper.
- Mullainathan, Sendhil. 2005. "Development economics through the lens of psychology." In *Annual world bank conference in development economics 2005: Lessons from experience*, ed. Francois Bourguignon and Boris Pleskovic, Oxford, UK: Oxford University Press.
- Patole, Meenal and Orlanda Ruthven. 2001. "Metro Moneylenders: Microcredit providers for Delhi's poor." *Small Enterprise Development* 13 (2): 36-45.
- Rutherford, Stuart. 2000. *The Poor and their Money*. Delhi: Oxford University Press.
- Strotz, Robert H. 1955. "Myopia and Inconsistency in Dynamic Utility Maximization." *The Review of Economic Studies*, 23(3): 165-180.