



The Determinants of Microsaving

A Field Study in Nepal

—

Cecilia Kahn

Bachelor Thesis Autumn 2012

Tutor: Yves Bourdet

Department of Economics

Preface

The idea of doing a field study about micro savings was born in the spring of 2012. I reached the conclusion to focus on micro savings and the behavioral explanations to seemingly irrational behavior that the very poor display in their decision making about savings from talks with my tutor Yves Bourdet and from the books recommended by him.

The book *Poor Economics* by Banerjee and Duflo was a stepping stone and gave me insight in the problems the poor face daily and without the institutional protection the rich are used to. The poor are vulnerable and savings is a way to protect oneself to a changing environment. But it is easier said than done. The obstacles the poor face in shape of time inconsistent preference or temptation goods are not unique for them. But they have less help to come around personal shortcomings and are more likely to fall into behavioral traps. In order to design efficient financial products for the poor, this understanding of the lives and decision making of the poor is vital.

I had friends in Nepal since earlier trips and contacted them to make inquiries about contacts at the university and Micro Finance Institutions. I owe thanks to Raj Kumar Dhamala and Sadeep Dhungana who helped to get in contact with the Micro Finance Cooperative Chundevi Saccos and Niranjan Raut. I carried out my field study in cooperation with Chundevi Saccos and owe many thanks to all of their employees.

I want to thank the Swedish International Development Cooperation Agency for supporting me and my study by granting me the Minor Field Study grant. It would not have been equally successful without the help of Yves Bourdet and I thank him for his input and help.

The process from the decision about the subject to the completion of the thesis was long but well worth every moment. The experience of conducting a field study alone and abroad taught me independence, innovation and flexibility. I made many new friends and learned about Nepalese culture and tradition. In every way, I feel happy and thankful about the experience.

Abstract

It is more difficult for the poor to save money than for the wealthy. The poor have no institutions to help them such as state pensions and they are left to fight their personal shortcomings themselves. One consequence is that the poor save under their ability. Savings is important to respond to changes in the environment and to avoid incurring debt. Two of the behavioral obstacles the poor face in order to save are inconsistent time preferences in the form of hyperbolic time preferences and temptation goods. Such time preferences cause self-control issues and procrastination of important decisions.

By controlling for various socioeconomic variables such as schooling and age I targeted certain behavioral determinants of saving, notably hyperbolic time preferences and temptation goods, in my study. It turns out that the individuals with hyperbolic time preferences displayed signs of having problems of self-control in regards of temptation goods. Where financial instruments were not available the existence of inconsistent time preferences posed a large hindrance to saving in comparison to the area where formal saving was available. This confirms earlier research and stresses the importance of access to formal savings.

Keywords: Micro Saving, Behavior, Hyperbolic Time Preference, Temptation, Risk Aversion

Contents

- 1. Introduction**
- 2. Theoretical considerations and previous studies**
 - 2.1 Theory**
 - 2.1.1 Time Preference**
 - 2.1.2 Temptation Goods**
 - 2.1.3 Risk**
 - 2.2 Previous Studies**
 - 2.2.1 Time Preference**
 - 2.2.2 Temptation Goods**
 - 2.2.3 Risk**
- 3. Method and Data**
 - 3.1 The Survey**
 - 3.1.1 Distribution**
 - 3.2 Uptake Areas**
 - 3.2.1 Surya Vinayak and Chundevi Saccos**
 - 3.2.2 Challing**
 - 3.3 Complications**
 - 3.4 Description of data**
- 4. Econometrics, results and analysis**
 - 4.1 Determinants of Saving**
 - 4.2 Determinants of Preferences**
 - 4.3 Sensitivity Analysis**
 - 4.4 Discussion**
- 5. Summary**
- 6. List of references**

1. Introduction

Micro savings enable the poor and very poor to save very small amounts of money at a time, amounts that no ordinary bank would accept because of the costs associated with running bank accounts for small sums. Having savings is important for everyone regardless of the size of disposable income but it is extra important for the poor as the returns to saving are especially large for them.

But even as availability of formal savings products for the poor has increased the last years as micro finance has boomed, not all poor take advantage of the possibility. Because of different personal characteristics saving any considerable amounts may prove difficult. Inconsistent time preferences and temptation can contribute to problems of saving as well as previous experience and general outlook on life. Family size, education, age and many more factors play a role as an individual make her decision about saving or not, or how much to save.

In many ways, the poor face more problems in order to save than the rich who for example have automated pension savings. For Micro Finance Institutes (MFI's) understanding the individual's decision process is essential to develop savings products that are suitable for the poor.

In this study I map 286 individuals in Nepal divided into two samples, one urban and one rural, with the aim to track these personal traits and put them in correlation with socioeconomic data provided by the individuals and their decisions about savings. I cooperate with the micro finance cooperative Chundevi Saccos and their members as well as the villagers in rural Challing where no micro finance is available.

Chapter two is a presentation of theory for the obstacles the poor face in the shape of time preferences, temptation and more. I also provide empirics and the results of previous studies. Chapter three is a description of my study and the data and in chapter five I use econometric analysis to treat the data. My conclusions and a discussion are presented in the sixth chapter.

2. Theoretical considerations and previous studies

The poor live in environments of constant risk compared to the wealthy. They are exposed to the weather, to other people and to illness. The poor's vulnerability is evident when they are hit by an adverse income shock and must take measures such as take the children out of school which in turn results in low accumulated human capital and creates a future poverty trap for the children (Jacoby and Skoufias 1992) or cut meals which the poor state makes them unhappy (Banerjee & Duflo, 2011, s. 185). Conversely, a favorable income shock has positive effects. For instance, more resources can be spent on the young girls of the household, normally a neglected group, and increase their survival rate compared to boys (Rose, 1999). These examples demonstrate how imperfect credit markets have lots of spillover effects. A family with a buffer in form of savings is more likely to handle unforeseen situations and adverse income shocks without incurring debt or resorting to actions such as those described above. Yet not everyone have savings. In this chapter I provide theory and empirics to support the importance of savings and to understand the difficulties the poor face in order to save.

2.1 Theory

Saving is important to everyone who has a future and most people want to have savings in one form or another (Banerjee & Duflo, 2011, s. 184). To have savings is a way for the individual to minimize risk, adapt consumption patterns according to income levels and changes and reduce unwanted expenses.

If given enough time, any individual should be able to save themselves out of poverty (Morduch & Aghion, 2005, s. 148) and if only the credit markets were fully functioning, households would not be vulnerable to changes in income (Murdoch, 1995). But there is always the problem of personal behavior that comes in the way of the economic success of the poor. Some research has been carried out in the field of behavioral economics and psychology so as to understand why individuals make seemingly illogical decisions or fail to act in a rational way. Time preferences are often pointed out in the context of saving and can explain economic behavior that seems irrational at first glance, for example instances of temptation goods.

2.1.1 Time Preference

To make decisions about the present and the future, we all use our time preferences. This means that we do not value events equally depending on what period of time they take place. Consistent time preferences entail a constant discount rate of future events whereas inconsistent time preferences mean that our discount rate of future utility varies differently in different time periods. Impatience is one way to describe time preference. An impatient person gets more utility from an immediate reward than a future one, even if the future reward is larger. The theory of discounted utility provides a way to understand people's choices between utility now or later.

To save is an intertemporal choice, which is an activity with consequences in several time periods, and for understanding that process economists use models of discounted utility. A model like this has two main components; the discount rate and the discount factor. The former values the rate of decline of the utility from the object and the later the actual value of a discounted object. Different models exist that suggest different ways of discounting. The most frequently used model of discounted utility is the exponential discount function with a constant discount rate inferring that the utility of an object declines with the same speed irrespective of when the consumer gain utility. Consequently the exponential discount function implies a dynamic consistency, entailing that individuals never change their minds about an investment (or decision to start saving) as time passes and as long as no new information arrives (Laibson, 2003).

An alternative model that instead involves dynamic inconsistency uses mathematical hyperbolas to explain time preference. That construction allows preferences to switch as time goes by. Economists call this type of time preference hyperbolic time preference after the use of the hyperbolas or quasi-hyperbolas in the discount function (Laibson, 1997) (Harris & Laibson, 2001). In this model the discount rates decrease sharply for time periods in the future compared to the present. For an individual with hyperbolic time preference this means impatience in the present but patience for decisions about the future. One consequence is that important decisions are constantly procrastinated in the conflict between future and present selves, first pointed out by Strotz (1956) and can also be referred to as present-biased time preferences (Ainslie, 1992) (Chabris, Laibson, & Schuldt, 2008).

Individuals with inconsistent time preference difficulties can be categorized as sophisticated or naïve (Strotz, 1956). The sophisticated realize their problem and try to overcome it while the naïve ones fail to take action and thus fail to overcome their weaknesses.

Hyperbolic time preferences give rise to several implications that are associated with problems to save money. One example is problems of self-control (Laibson, 2003). The traditional micro economic assumption is that people act rationally. But the poor do not seem very rational, in fact they spend money on unnecessary goods and they fail to make vital investments. Hyperbolic time preferences play a vital part in understanding this seemingly irrational behavior.

2.1.2 Temptation Goods

Temptation is something everyone can fall for, poor as well as rich. But for the poor spending on temptation goods, such as sweet tea, cigarettes, alcohol or chocolate, can have large consequences on the personal finances. These are goods that we want to consume in the moment, but we do not enjoy the utility from the product other than at the precise time of consumption. We can hope that our future selves do not spend money on the temptation good, but today we know that we will fall for temptation tomorrow again. The implication is a problem of self-control. *Why put away savings today if a large part of it will go to goods that give me no pleasure looking forward to anyway? I may as well spend today.* This behavior generates a so called temptation tax. Research shows that the poorer you are, the larger fraction of your money goes to temptations goods and the higher is the tax. So *it is* harder for the poor to be patient and to save instead of spend on unnecessary goods (Banerjee & Mullainathan, 2010).

2.1.3 Risk

For planning and looking ahead, an individual must be able to appreciate the implications of the future. By intuition, this is not easy for someone who may have trouble planning for next week's food for the family. If an individual does not understand the costs and needs they will have in the future, the incentives to save are likely smaller. Becker and Mulligan (1997) put forth the theory that in order to be patient one has to invest in imagining the future. The future costs and for the poor it is not always affordable. Money goes into planning and preparing for

the future. Costs such as schooling, newspaper, or the cost of time to spend with aging parents can be too much for the poor and put a limit to a person's farsightedness (Becker & Mulligan, 1997). This approach is an attempt to endogenize hyperbolic time preference. In addition, more difficult decisions seem to be more expensive than easier ones. The more evident the difference between the expected utility of two possible choices is the less amount of time does the individual have to spend to make the choice. A choice which is more complicated takes more time, demands more resources and is more expensive (Chabris, Morris, Taubinsky, Laibson, & Schuldt, 2009).

Risk aversion also poses an impediment to the poor to escape poverty. Wealthier people are prepared to take more risk than the poor. Riskier activities yield higher returns but many poor cannot afford the risk. Thus they are stuck at investments, in agriculture for example, with low returns and fail to escape poverty as a consequence (Tomomi, Camerer, & Nguyen, 2010). This is a poverty trap which could be escaped with higher savings. I will now move on to empirics and will return to the connection between risk aversion and poverty.

2.2 Previous studies

Savings from poor people may be very small one by one, but they make out a not negligible part of the gross domestic savings and should therefore not be ignored in the macroeconomic setting (Morduch & Aghion, 2005, s. 147). Even if the saved amount is small, it enables households to respond to changes in their environment without resorting to loans (Morduch & Aghion, 2005, s. 148). Theory and empirics show that the returns to saving are large for the poor which the recent boom in micro finance is proof of (Bauer, Chytilová, & Morduch, 2012) (Dupas & Robinson, 2011). The benefits for the individual to save are convincing, but far from everyone saves or saves sufficiently. The most intuitive answer to why the poor do not save is that they obviously cannot because they have no money – they are poor! But as it turns out, even the extremely poor save or want to save (Banerjee & Duflo, 2011, s. 186). Hyperbolic time preference, impatience, temptation tax and risk aversion all pose problems for the poor.

2.2.1 Time Preferences

Empirics show no support for the exponential discount model. Instead, the model which use hyperbolas (Laibson, 1997) have support from empirics (Frederick, Loewenstein, & O'Donoghue, 2002) (Chabris, Laibson, & Schuldt, 2008). The brain mechanism that causes

hyperbolic time preferences stems from two different systems in the human brain, the “hot” and the “cool” system. The cool system is more logical and rational and the hot system more impulsive and want immediate rewards. They fight each other for decisions in the present and the hot system often wins; however, the cool system wins over the hot one for decisions about the future (Albrecht, Volz, Sutter, Laibson, & von Cramon, 2010)¹. This type of present-bias is present regardless of the level of wealth (Tomomi, Camerer, & Nguyen, 2010). Some studies find that the percentage of hyperbolic individuals in a population is as high as a third (Bauer, Chytilová, & Morduch, 2012).

This results in that the poor with hyperbolic preferences choose to take loans and pay high interest rates instead of saving, which makes their financial choices very expensive (Morduch & Aghion, 2005). For example, it can be easier for someone with hyperbolic preferences to repay a loan than to save up any significant sum of money (Basu, 2008). In that case, the interest rate of the loan is the cost of not being able to save (Karlan, Yin, & Ashraf, 2006). Further examples of cases when hyperbolic time preference causes troubles are in those of fertilizers (Duflo, Kremer, & Robinson, 2011) and of school attendance (Mullainathan, 2005). People often know that these are good investments but in the present it is too hard to commit to them and so the decisions are pushed to a future self who looks stronger and more patient from the view of the present.

When households use a savings account regularly, they save more and spend less on unnecessary and unwanted goods or services than without similar services (Dupas & Robinson, 2011). Saving at home is difficult. Money lying around the house tends to go to unplanned expenses, such as relatives coming over to eat or temptations such as cigarettes and alcohol (Banerjee & Duflo, 2011, s. 192). If the money is stored in a savings account households can avoid this scattering of money. Instead they can save up to larger sums and invest in what gives the highest return in the longer run, like preventative medicine, nutritious food or schooling (Banerjee & Duflo, 2011, s. 193). If poor families spent more on preventive medical care (such as anti-malaria mosquito nets) or escaped malnutrition, they could avoid falling ill, a catastrophe that can ruin a family’s economy and encumber them with debt (SVT, 2012-09-06).

¹ This type of research is common within the field of neuroeconomics and border to behavioral economics. I will not go deeper into this but brain functions like these are essential to comprehending the human decision making process.

Earlier research suggests that hyperbolic preferences are linked to difficulties to save and also to higher likeliness to use commitment-savings products if the individual is sophisticated (Strotz, 1956). The sophisticated individuals find ways to “lock themselves” to a difficult decision while the naïve fail to undertake any measures and get into trouble (Strotz, 1956) (Akerlof, 1991) (O'Donoghue & Rabin, 2001). One way to do this is with a commitment savings product that requires the saver to make certain deposits at certain intervals. Research that lets men and women with hyperbolic preferences open a commitment savings account show that the women were more likely to take the offer when men were too but not significantly. Women in the Philippines with low discount rates were for example more inclined to open a commitment savings account (Karlan, Yin, & Ashraf, 2006) and research find that hyperbolic women keep less savings at home, are more likely to take loans and more likely to join MFI's (Bauer, Chytilová, & Morduch, 2012). For the men, hyperbolism did not play a part with regards to saving but for women they did (Bauer, Chytilová, & Morduch, 2012).

2.2.2 Temptation Goods

Hyperbolic preferences can lead to more problems for the poor other than to start saving. For many poor who rely on micro loans to run their business and fail to get out of their debt, or feel powerless faced to the temptation they always seem to fall for, hyperbolic time preferences can explain the impatience that give rise to their difficulties. One example of this impatience is demonstrated by economists Banerjee and Duflo in their book *Poor Economics*. Some women in Bangladesh take daily loans at the interest rate 4,7 percent *per day* to keep their business running. Whilst paying this extreme interest, they consume several cups of tea every day. If the women only cut back on their expenses for tea and invested in their business instead, they could be debt free after three months! But they decided to keep drinking their tea and took daily loans. (Banerjee & Duflo, 2011, s. 190) This is of course irrational at a first glance and if the poor have to rely on loans to keep their daily lives going, as the women in Bangladesh, they have little opportunity to see an increase of their income and thus the possibility to expand their savings.

Wealthier people do seem to be more patient than poor and a higher mean income in one's surroundings is also related to more patience (Tomomi, Camerer, & Nguyen, 2010) but research is not unanimous and some studies find no correlation between income and patience

(Kirby, o.a., 2002) Men and women have in common that the more patient they are, the more they save. Patience also increases with age (Green, Fry, & Myerson, 1994). Women seem to be more patient than men (Hamoudi & Thomas, 2006) but the effect of education on patience is strong, especially for men, for women the effect is similar although weaker (Bauer, Chytilová, & Morduch, 2012).

It is harder to manage savings on a life time perspective compared to a season-to-season perspective. As theory predicts, decision making about future investments is a time consuming and costly exercise (Chabris, Morris, Taubinsky, Laibson, & Schuldt, 2009).

2.2.3 Risk

Correlation between risk aversion and personal characteristics is not always conclusive. Since the early research of Binswanger (1980), many other field experiments and collections of data has been undertaken. Gender had no specific effect on risk aversion but those who were older and more educated were more risk averse while income had no effect. The mean village income however had a correlation with loss aversion (Tomomi, Camerer, & Nguyen, 2010). Other research show that men are less adverse to financial risk than women but that research often fail to control for differences between the sexes such as education, wealth and status within the household (Eckel & Grossman, 2008) and (Wik, Tewodros, Bergland, & Holden, 2004). The later study found no correlation between age and risk aversion.

Risk, uncertainty and vulnerability due to income fluctuations are part of the definition of being poor and they are in themselves a negative spiral. If the poor could minimize their exposure to risk they could make more profitable investments (Kanbur & Squire, 2001). The riskier investments generate higher returns, but these are often restricted to wealthier families (Rosenzweig & Binswanger, 1993). But results for wealth and risk aversion are not entirely clear and sometimes positive correlation between risk and wealth could be found (Nielsen, 2001), sometimes negative (that is increased wealth is correlated with decreased risk aversion) (Wik, Tewodros, Bergland, & Holden, 2004) (Mahmud, 2004) and sometimes none at all (Mosley & Verschoor, 2005) and (Binswanger, 1980).

Family size can be both positively and negatively correlated with risk aversion, depending on whether the family size is a sign of wealth or not. For poor families, a large family can mean more wealth and less risk aversion as more people can work (Dillon & Scandizzo, 1978) but it

can also mean more mouths to feed and thus more risk aversion (Feinerman & Finkelshtain, 1996).

Expectations		
Surya Vinayak	More savings, because of access to savings products	More patient than Challing due to higher mean income in the area.
Challig	Less savings because of low access to savings products	
Women	When hyperbolic preferences are present, less savings for naïve and more for sophisticated individuals	More patient than men.
Men	Hyperbolism plays a smaller part when it comes to saving than for women	
Patience	More savings. The older should be more patient.	Higher education and more risk averse
Hyperbolic	Little or much savings depending on level of sophistication and access to comittment savings products. High costs for temptation goods.	
Risk aversion	Unclear relation to wealth and family size	

3. Method and Data

In this study I intend to see how inconsistent time preferences, risk aversion and temptation tax affect the individuals wealth and savings. I further investigate possible endogenous explanations to the personal characteristics. This study is a contribution of field evidence to the literature of behavioral foundations of personal finances of the poor.

3.1 The survey

The participants in the study come from the urban and suburban area Surya Vinayak, a part of the city Bhaktapur and from Challing, a village five kilometers from the same town. The inhabitants of the two areas differ from each other in aspects of for example education, income, and experience of micro finance, including savings. The two samples allow me to observe how the surroundings affect choices about saving and track systematic differences for urban and rural environments. In the following sections I provide a full description of the samples.

Firstly I designed the survey according to the personal and socioeconomic aspects as well as the personal preferences that were of interest to me. The translation from English to Nepalese was made by two employees at the Saccos office. I reviewed the translation with a friend who studies at the university and speaks very well English to ensure that the translation did not differ from the original version.

Socioeconomic information

The questions concerning socioeconomic information and observable economic behavior were straight forward. To capture personal preferences I used hypothetical situations or proxies.

The alternatives for age were divided into categories such as 0-19, 20-30 etc. The same method with categories was employed for education, income and savings. When analyzing the data, I use the value of the full category divided by two, which is the value in the middle of the category. I have chosen to do this because I have no reason to believe that the data should be distributed according to a certain distribution, t-distribution for example, within the category and it is a convenient way to analyze the bulk of data. The average value is calculated with this formula:

$$\frac{(high\ boundary) - (low\ boundary)}{2} + low\ boundary$$

For handling savings as part of income, I have excluded the values over one that infers that the individual saves more than his income every month. I have kept all values close to one but smaller although they are unrealistic. The surveys have probably been misunderstood or the individuals have tried to impress by exaggerating the numbers.

Personal Preferences

The personal preferences I targeted were time preferences, risk behavior, the importance of saving for the individual and expectations for the future. I also asked about trust for their income to arrive in time as a proxy for their security in their life situation. I use dummies for all these variables.

In a typical discount rate study, the study has to satisfy three assumptions. First, the rewards offered to the subjects are assumed to be consumed directly and secondly the utility function must be linear in consumption which means that the utility from a reward changes linear with

the size of the reward. The third assumption is that subjects must trust in the rewards to be paid as promised (Laibson, 2003). This is the one I breach as no rewards were actually paid. But there is no “gold standard” for measuring discount functions (Chabris, Laibson, & Schuldt, 2008). More complicated models are often used for measuring discount rates with as many as 75 questions and where money is handed out to all participants (Tomomi, Camerer, & Nguyen, 2010). I do not use some of the more sophisticated methods of measuring time preferences because I do not have the competence to employ it nor the resources as in the case of Bauer et al (2012) who used ten trained research assistants to help carry out the experiments and actual payments were made. Therefore I have one variable for different types of time preference and one for risk aversion and since I am not interested in measuring the exact discount rates but only the existence or non-existence of hyperbolic preferences I believe my model is sufficient.

I had two questions that aimed at capturing time preferences, and especially hyperbolic preferences. The first one was “If you could choose one of the following, which one would you choose? 1. 1000 rupees tomorrow. 2. 2000 rupees in a month” and the second was “If you could choose one of the following, which one would you choose? 1. 1000 rupees in a year. 2. 2000 rupees in a year and one month”. The aim was to find out how impatient the individual was at different points of time. An answer like 1 and 1 shows impatience no matter the time and similarly, 2 and 2 indicate patience at both times. If the individual would answer 1 and 2 that suggests hyperbolic preferences, that is impatience now but patience for a decision about the future. For hyperbolic preferences I invented a new dummy variable to handle the different scenarios. Answer 1, 1 or 2, 2 signifies no hyperbolic preferences and is symbolized by a value of 0. Answer 1, 2 correspond to value 1 and indicate hyperbolicism. To measure patience and impatience, I use the dummy 0 for impatience and 1 for patience.

To capture risk preferences, I employed a simulation of different lotteries. The participant chose between different lotteries with different outcomes that suggested different level of risk. By choosing which lottery the participant would want to be in they also revealed their level of risk aversion. This lottery was not conducted in real life and that might mean that the results are slightly biased towards more risk taking and less risk adverse. Because the situation was not real, there was little reason for the participants to not take any risks. Nevertheless many chose a “lottery” with less risk than other alternatives which indicates that result is relevant but must be handled with care. The dummy is 0 for risk aversion and 1 for risk takers. A more complicated model could have included lotteries that also had risks of losses, or monotonic

switching (Tomomi, Camerer, & Nguyen, 2010), but I chose a simpler model to get indications of the subject risk preferences rather than with the aim to value a loss aversion parameter.

I included questions about spending; what the participants spent on and what they would like to cut back on. From ranking their expenses and which ones they would like to decrease I could gain some understanding for their relation to temptation goods and how that was correlated to the existence of hyperbolic time preferences.

3.1.1 Distribution

The surveys were distributed by the employees of micro finance cooperative Chundevi Saccos and by me. The distribution differed depending on the participant and on which sample group the participant belonged to. For uptake group 1, which was the members of Chundevi Saccos, all distribution happened either at the office or through the marketers of the Saccos. The marketers visit their clients daily or weekly according to their mutual agreement and they carried the surveys with them. The marketers can be responsible for more than 200 members. I sent out surveys with the marketers and they collected them at their next appointment with the member.

The members who did not work with a marketer but visited the office to make deposits or loan payments had the choice to fill out a survey in the office. Most members who visited the office filled out a survey.

For uptake group 2, the surveys were distributed by me and one employee from Chundevi Saccos who accompanied me to the village Challing. There we went from house to house and asked if they wanted to participate. It is not a random walk method in either cases but I still judge the samples to be representative of the members of Chundevi Saccos and of Challing.

168 surveys were filled in Surya Vinayak and 126 surveys were conducted in Challing. A number of surveys were incomplete due to unwillingness to share certain information or simply by misunderstanding the instructions to answer every question. This causes the sample size to vary depending on which variables I investigate. The missing answers are of stochastic nature and therefore I have no reason to entirely exclude the surveys that were not completely filled out.

3.2 Uptake Areas

3.2.1 Surya Vinayak and Chundevi Saccos

Surya Vinayak is an area by the edge of the town Bhaktapur and one hour away from the capital Kathmandu. It is a bustling urban area as well as more suburban with fields of different crops that stretch between the multistory buildings. The two parts are on different sides of a large high way.

I had access to the inhabitants of Surya Vinayak through the cooperative Chundevi Saccos (Saccos stands for Savings and Credit Cooperative). Chundevi Saccos have about 700 members, all of whom keep savings and many have loans. The members of Chundevi live on both sides of the highway and represent a mixture of urban and suburban people. I restricted my survey to the members of the Saccos because it facilitated the administration to reach a large number of people. Obviously this sample does not represent the inhabitants of Surya Vinayak but rather a group of people who all keep savings and have taken action to join the micro finance cooperative.

3.2.2 Challing

Challing is a village on the hillside, five kilometers from the town Bhaktapur and approximately seven kilometers from Surya Vinayak. In this village, farming is the main source of income but some people are employed in town. Electricity is available in many homes but not all. Most families get water from village springs. The children generally read and write but for older generations illiteracy is wide spread. No financial institutions of any kind are present in Challing. As comparison, in Surya Vinayak more than four Saccos operate, but the inhabitants of Challing have until recently not had access to financial products. One Saccos is slowly starting in the area now but very few I talked to had heard of it.

3.3 Complications

Honesty of the participants was of course essential to gain truthful answers to the survey questions. Before the distribution started, I held meetings with the marketers and the employees at the Saccos office and gave instructions where I emphasized the importance of honesty when the participants filled out the surveys.

To avoid the situation where the participants fill out the survey in the presence of any official or person that may affect their answers, I followed the strategy of distributing the surveys in

envelopes. The participant could return the survey in a closed envelope. By putting a small physical hinder to opening the survey, in the form of the closed envelope, I hope the participants trust the information to be confidential. By letting the participants being anonymous I hoped they would feel comfortable to be honest about submitting personal information.

This strategy is only successful as long as the participant is literate. The level of literacy was low and this made confidentiality difficult to uphold. Because of the widespread illiteracy, the survey's questions and answers had to be read out loud by an employee of Chundevi Saccos and thus the problem arise of the participants being influenced by a marketer's presence and their honesty diverted. There is also the possibility that the employees subconsciously affect the answers of the participants. In Challing, the level of illiteracy was considerably higher than in Surya Vinayak. Almost all surveys had to be translated orally.

When discussing the issues with the marketers at Chundevi Saccos, they showed little understanding for why the answers could be dishonest. According to my coworkers there is not a big culture of lying or being dishonest in Nepal, but I cannot exclude the possibility of some answers being polished when the participant filled out the form in the presence of an official.

The different ways of distribution are separated so that I can track systematic differences as well as they are separated depending on which marketer distributed the surveys. However, I had no possibility to know which surveys were actually filled out with the help of a marketer or which ones the participant filled without help.

Chart 1 Representation of distribution at Chundevi Saccos

	Office	Indira	Tulsi	Niru
Total	12	17	34	105
Mean personal inome	9271	16458	15147	13403
Age (mean)	38	33	33	30
Education (mean)	7	6	7	7
Number of hyperbolic	5	11	13	12
Average savings	4256	1027	5508	2958

Chart 2
Responses to hypothetical time preference questions

		Reward in a year or 13 months		Total
		Patience	Impatience	
Reward now or in one month	Patience	54	14	68
		19%	5%	
	Impatience	71	140	211
		25%	50%	
Total		125	154	279

3.4 Description of data

In Challing the income is 63 percent of the average income in Surya Vinayak and the same difference is present between men and women. On average the participants from Surya Vinayak have 2 years more in school than those in Challing. The women in Challing have the fewest years of schooling while men in Surya Vinayak have twice as many. But the numbers of years spent in school actually tells me nothing about the general level of education. Average levels of savings differ hugely between the participants from Surya Vinayak and Challing, also in relation to income. Once again, the women in Challing come up short with smallest savings, only a tenth of that of men but it is the men from Challing that save the smallest fraction of their income.

Chart 3
Descriptive statistics

	Challing		Chundevis		Men		Women		Total
	Challing	Chundevis	Men	Women	Challing	Chundevis	Challing	Chundevis	
Total number of subjects	126	160	138	68	65	73	61	87	286
Mean personal income	5061	8074	9283	9627	7460	10856	2500	5712	6766
Mean household income	11610	14269	16495	19646	14404	18356	8583	10799	13099
Mean income /person and day	74	94	112	126	98	124	50	68	85
Age (mean)	35	32	34	34	36	32	35	31	33
Education (mean)	5	7	7	6	7	8	4	6	6
Average family size	6	6	6	6	6	6	6	5	6
Average savings	507	2381	1929	1817	663	3279	341	1650	1487

Chart four to six describe the distributions of hyperbolic, patient and impatient individuals. The individuals with hyperbolic time preferences are evenly distributed over sex and sample and constitute about a fourth of the entire population. They have generally income and savings above average for their subsample. They also have about the same amount of years of schooling as their comparable groups with the exception of hyperbolic women who had spent notably fewer years in school than other women. Especially the hyperbolic women from Challing who went to school about half the amount of years as the average of all women in Challing. The individuals with hyperbolic time preferences all have in common that they value the importance of savings slightly less than the average.

About a fifth demonstrated patience in both the present and one year ahead but the distribution of the women differ as one third of the women in Challing are patient and only a tenth of the women in Surya Vinayak. These groups of women are similar to each other in almost every aspect that I've measured apart from education where the patient Challing women have less the half the average amount of years in school then the sample average and the patient Surya Vinayak women have just above their average. At the same time they are patient to a higher degree which is usually related to more education. The women also differ on the account of income.

Patient women in Challing have 0,6 the average income of their sample and patient women in Surya Vinayak have 1,4 times their average income. In Challing the patient individuals are also often risk takers while they are not in Surya Vinayak. But there they tend to worry about their income to a high degree. The patient men distinguished themselves by having 1,5 times the average savings for men. Patient women show the opposite behavior with less than half the average savings for women. Generally, the patient individuals have education and income above average, with the exception of women from Challing who are low under their average.

About half the entire sample showed impatience at both moments of time. The impatient also state that they worry about their income to the same degree as the patient do. The impatient in Challing are often also risk takers while the opposite is true about the impatient in Surya Vinayak. The impatient give a smaller weight to the importance of savings than the average but they have savings on the same level as the average. However there are big differences between the subsamples.

Chart 4 Distribution of hyperbolic time preference

	All	Men	Women	Challing	Surya Vinayak	Women Challing	Women Surya Vinayak	Men Challing	Men Surya Vinayak
Number of individuals	68	36	32	30	38	12	20	18	18
	24%	26%	22%	24%	24%	20%	23%	28%	25%
Worry	25	14	11	8	17	2	9	6	8
	37%	39%	34%	27%	45%	17%	45%	33%	44%
Risk taking	31	15	16	25	7	12	4	13	2
	46%	42%	50%	83%	18%	100%	20%	72%	11%
Considered importance*	1,34	1,29	1,40	1,41	1,30	1,40	1,40	1,41	1,18
	1,08	1,02	1,14	1,06	1,09	1,10	1,17	1,03	1,00
Mean savings	1817,2	2129,0	1459,3	633,3	3085,7	533,3	2200,0	700,0	4107,7
	1,22	1,10	1,35	1,25	1,30	1,56	1,32	1,06	1,25
Mean education	6,3	8,4	3,9	5,2	7,2	1,9	5,2	7,3	9,5
	1,00	1,12	0,76	0,97	1,02	0,49	0,85	1,11	1,15
Mean age	33,7	31,6	36,0	34,7	32,8	35,3	36,5	34,4	28,8
	1,01	0,93	1,10	0,98	1,03	1,01	1,16	0,96	0,90
Mean income	9626,9	13854,2	4717,7	5333,3	13108,1	3020,8	5789,5	7265,6	20833,3
	1,42	1,49	1,07	1,05	1,62	1,21	1,01	0,97	1,92
Mean family size	5,7	5,7	5,7	5,8	5,6	6,2	5,4	5,6	5,8
	1,02	1,02	1,02	1,03	1,01	1,08	0,99	1,00	0,70

Chart 5 Distribution of Patient Individuals

	All	Men	Women	Challing	Surya Vinayak	Women Challing	Women Surya Vinayak	Men Challing	Men Surya Vinayak
Number of individuals	55	28	27	36	19	20	8	16	11
	19%	20%	18%	29%	12%	33%	9%	25%	15%
Worry	43	19	24	30	13	17	7	13	6
	80%	70%	86%	83%	68%	85%	88%	81%	55%
Risk taking	28	14	14	26	2	13	1	13	1
	51%	52%	50%	72%	11%	65%	13%	81%	9%
Considered importance*	1,25	1,33	1,15	1,32	1,11	1,22	1,00	1,44	1,18
	1,00	1,05	0,94	1,00	0,93	0,96	0,84	1,05	1,00
Mean savings	1638,8	2906,5	517,3	330,6	5261,5	152,5	1733,3	553,1	8285,7
	1,10	1,51	0,48	0,65	2,21	0,45	1,04	0,83	2,53
Mean education	7,0	7,8	6,2	6,3	8,3	6,0	6,7	6,6	9,5
	1,11	1,04	1,19	1,18	1,18	1,52	1,10	1,00	1,16
Mean age	32,9	34,2	31,6	33,4	32,0	31,8	31,1	35,3	32,5
	0,99	1,01	0,96	0,94	1,01	0,92	0,99	0,99	1,01
Mean income	6795,5	10277,8	3437,5	5416,7	9407,9	1500,0	8281,3	10312,5	10227,3
	1,00	1,11	0,78	1,07	1,17	0,60	1,45	1,38	0,94
Mean family size	6,1	6,5	5,7	6,2	5,8	5,7	5,8	6,9	5,9
	1,09	1,16	1,03	1,10	1,06	1,00	1,06	1,22	0,72

Charts 4-6 are read as follows: 36 men show hyperbolic time preferences and correspond to 26 % of all men. 14 men who are hyperbolic also worry and out of all hyperbolic men that is 39 %. For example: out of the hyperbolic women in Challing, all are risktakers. Among the hyperbolic, mean income is 9627 which is 1,4228 times the mean income for the whole sample, etc.

*Importance is measure 1-4 with 1 corresponding to "Very Important" and 4 "Not Important". This means that 1,0789 times the average entails a lowered considered importance of savings among the hyperbolic.

Chart 6 **Distribution of Impatient Individuals**

	All	Men	Women	Challing	Surya Vinayak	Women Challing	Women Surya Vinayak	Men Challing	Men Surya Vinayak
Number of individuals	136	66	70	45	91	19	51	26	40
	48%	48%	47%	36%	57%	31%	59%	40%	55%
Worry	99	46	53	27	72	14	39	13	33
	73%	70%	76%	60%	79%	74%	76%	50%	83%
Risk taking	52	24	28	37	15	16	12	21	3
	38%	36%	40%	82%	16%	84%	24%	81%	8%
Considered importance*	1,16	1,18	1,13	1,23	1,12	1,17	1,12	1,28	1,13
	0,93	0,93	0,92	0,93	0,94	0,92	0,93	0,93	0,95
Mean savings	1363	1525	1205	611	1743	579	1445	634	2112
	0,92	0,79	1,11	1,20	0,73	1,70	0,86	0,96	0,64
Mean education	6,14	6,58	5,72	4,91	6,74	4,05	6,34	5,54	7,25
	0,98	0,88	1,10	0,92	0,96	1,03	1,05	0,84	0,88
Mean age	33	35	31	38	31	37	29	38	33
	1,00	1,04	0,96	1,07	0,97	1,07	0,93	1,06	1,03
Mean income	5611	6816	4493	5506	5659	3889	4706	6719	6875
	0,83	0,73	1,02	1,09	0,70	1,56	0,82	0,90	0,63
Mean family size	5,28	5,21	5,34	5,29	5,27	5,63	5,24	5,04	5,33
	0,95	0,93	0,96	0,93	0,96	0,98	0,96	0,90	0,65

Impatient women in Challing save 1,6 times the average savings for women in Challing while impatient men in Surya Vinayak only save 0,65 that of their average. The income of the impatient was a little below average and women of Challing and men of Surya Vinayak distinguish themselves again with 1,6 and 0,6 respectively of their averages.

In Challing a majority wants to cut down on their expenses and the cost most of them would like to cut back on was clothes and food. This can be read from chart 7. Clothes and food does not necessarily mean temptation goods. In Surya Vinayak, the expense the most wanted to cut back on was festival and celebrations. The survey was carried out after the year's two largest festivals so the result may be biased towards those costs.

Festivals cannot be considered temptation goods as they are often looked forward to and planned for a long time in advance. Temptation on the other hand is something one falls for often, if not daily.

Out of all who wants to cut back, 44 percent showed hyperbolic time preferences compared to the whole sample where 24 percent were hyperbolic. Nothing conclusive can be said about

that group whose costs to cut are similar to the entire sample. But the fact that the hyperbolic were overrepresented in the sample tells me a lot. The hyperbolic should be more prone to fall for temptation and they do seem to have a larger problem holding on to their money than the average.

Chart 7 Expenses and temptation

Would like to cut back on your expenses?		Percentage that want to cut back		
		Yes:	No:	
	Surya Vinayak	69	89	44%
	Challing	87	39	69%

What on?

	Festival /celebration	Medical	Education	Vacation	Vehicles	Business investment	Housing construction	Household	Clothes /food	Other
Surya Vinayak	22%	0%	13%	35%	7%	0%	0%	7%	13%	4%
Challing	15%	10%	24%	3%	1%	2%	17%	0%	29%	1%
Men Surya Vinayak	23%	0%	0%	59%	0%	0%	0%	5%	9%	5%
Men Challing	65%	5%	3%	18%	0%	0%	8%	0%	3%	0%
Women Surya Vinayak	24%	3%	21%	10%	10%	0%	3%	7%	14%	7%
Women Challing	69%	9%	3%	3%	0%	0%	9%	0%	6%	3%
Hyperbolic	35%	3%	13%	10%	10%	0%	10%	0%	13%	6%

4. Econometrics, results and analysis

In this chapter about the econometric analysis of the data I first present my hypothesis. Then I look at the personal traits, current socioeconomic situation and personal characteristics and their respective relationship with savings using Ordinary Least Squares (OLS). Third I make a binary analysis to try to endogenize time preference. Lastly, I make a sensitivity analysis by dividing the data into subgroups depending on sex and age to see if the results from the OLS are robust and to track differences for different groups.

4.1 Hypothesis

The hyperbolic of Chundevi Saccos have higher savings than the hyperbolic in Challing.

Hyperbolic preferences affect the savings decisions of women more positively than those of men.

The patient individuals have more savings and they are older as well as more educated. The hyperbolic have higher costs for temptation goods.

I intend to answer my hypothesis and gain further understanding about the participants by mapping their savings decisions made and finding their common denominators with regard to personal traits, socioeconomic basis and personal preferences.

4.2 OLS-regressions

I start with a set of regressions for linear numerical relationships between my depending and explaining variables in the model Ordinary Least Squares (OLS). The depending variables are savings in absolute numbers and savings as a part of income. Through the OLS-estimations I intend to examine how the dependent variable varies when I add on the groups in the model. More specifically, the groups are personal traits (sex, age and education), socioeconomic traits (income, family size, savings experience) and preferences (hyperbolism, risk aversion, considered importance of savings, optimism, worry). This is the standard model⁵:

$$Y = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + (\dots) + \beta_n X_n$$

I cannot exclude possible heteroscedasticity and I conduct White's test for all regressions. When I detect heteroscedasticity at five percent significance I perform White's Heteroscedasticity-consistent Standard Errors on those regressions.

One problem that I must be aware of is multicollinearity, which is linearity among the X-variables. Tables over correlation for all variables and over different samples are presented in the appendix. I accept correlation up to 0.8.

The men had higher savings in the range of 600 rupees per month over the whole sample but the difference between men and women was over 1000 rupees in Surya Vinayak than in Challing. For savings as a proportion of income, the result was not as clear and I found no significant differences between the sexes.

Age gave no conclusive results. In Surya Vinayak the older saved more and in Challing, it was opposite. But age, as education, income and savings, was determined by an interval which made the estimates unclear and not decisive. The effect of education on savings was not clear. In regressions including only group one education had a positive correlation with savings. But when I expanded the regressions the effect of education diminished or became negative.

⁵ Tables over my OLS-regressions are presented in the appendix.

A raised income contribute positive but slight to savings and had a negative effect for savings as part of income. Experience from saving has very positive effect on savings and those who had experience from saving also saved a larger proportion of their income. The family size had different impacts on savings in Challing and Surya Vinayak respectively. For inhabitants of Challing, an extra family member meant smaller savings and the opposite as true for the members of Chundevi Saccos in Surya Vinayak.

Hyperbolic preferences seem to have a negative effect on savings for the rural area and for the urban area it was positive. This is in line with my hypothesis and can be contributed to the fact that the individuals in Surya Vinayak are members of Chundevi Saccos and thus have taken steps to overcome their time preference problem. The people in Challing do not have that possibility which makes hyperbolic time preferences a disadvantage for them.

Risk takers saved considerably less per month (1617 rupees less per month) than risk adverse. Also considering savings as a proportion of income, risk takers saved less. There was no difference to be found between rural and urban areas when it came to risk taking but it was notably over the whole sample that the correlation emerged.

The considered importance of savings did not show a significant impact on savings in absolute numbers. For savings as a proportion of income on the other hand, the result is positive. The less important an individual considers savings, the smaller proportion of their income do they also save.

Worrying about losing ones' income turned out to have a negative effect on saving both in absolute numbers and in proportion to income. This effect was especially large and significant in the rural village Challing. For the entire sample, worrying was negative for savings as proportion of income at five percent significance.

Family size answered to savings similar to what empirics suggest. The effect of a large family was negative in Challing but positive in Surya Vinayak. This can mean that in Surya Vinayak a large family was positive as more people could contribute to the wealth of the family while in Challing, a large family means more mouths to feed as less money to put away as savings.

4.3 Determinants of time preference

By employing a binary choice model on the time preferences, I see how much the variables I measured contributed to determining whether or not an individual displayed the characteristic.

The model I use is a binary probit model (Quadratic hill climbing) and I alternated the determining variables according to same model as I used for the OLS-estimations to find statistically significant patterns.

I did not pay out any rewards for the hypothetical questions concerning time preference. It is difficult to estimate how that would have affected my results, but most likely the effect was a bias towards patience. If the individual knew now money would be paid anyway, then why state impatient preferences? It is easier to be smart when there are no actual stakes on the table. I have to take this into consideration as I value my results.

Education had a small positive and significant effect on the likeliness to be patient in Surya Vinayak while education had no specific effect on the likeliness for a person to have hyperbolic preferences. This can mean that educated are more likely to have consistent time preferences but can also in part be an endogenous effect as more education increases income which contributes positively to the patience of people. People with larger families were more likely to be patient. Age had no conclusive effect on people's patience but did contribute positively to the likelihood of someone having hyperbolic preferences in Surya Vinayak and the opposite was the case for people in Challing.

The effects from wealth on both hyperbolic time preferences and patience were small but income is measured in units of one rupee so the effects can in fact be rather large. In Challing, income had no effect but in the other cases does it make a positive contribution. The question of causality is not answered by my charts however.

People with experience of saving were more inclined to be hyperbolic in both samples. People who considered savings important had a strong negative relationship with the probability to be hyperbolic. The negative correlation was present in both Challing and Surya Vinayak but it was stronger in Surya Vinayak. However, the case is opposite for the likelihood of being patient in Surya Vinayak. To worry had a strong negative relation with the existence of hyperbolic preferences in both samples and was particularly strong in Challing

Chart 8 Determinants of time preference

	Hyperbolism						Patience					
	Challing			Surya Vinayak			Challing			Surya Vinayak		
C	-0.212	-0.783	-0.252	-1.126	-1.353	-2.016	0.164	-0.677	-0.985	-2.047	-2.337	-0.859
S.E	0.558	0.835	1.118	0.501	0.593	0.807	0.665	0.887	1.084	0.665	0.788	1.130
Sex	0.341	0.296	0.340	0.011	-0.098	-0.114	-0.348	-0.323	-0.058	0.252	-0.014	-0.229
S.E	0.277	0.342	0.392	0.231	0.242	0.272	0.291	0.343	0.381	0.307	0.339	0.384
Age	-0.013	-0.016	-0.017	0.009	0.012	0.017	-0.008	-0.015	-0.013	0.012	-0.014	-0.014
S.E	0.012	0.015	0.016	0.011	0.012	0.014	0.014	0.017	0.017	0.015	0.021	0.022
Education	-0.038	-0.007	-0.011	0.016	-0.002	0.020	0.031	0.003	-0.031	0.073*	0.076*	0.095**
S.E	0.037	0.044	0.051	0.031	0.032	0.037	0.041	0.048	0.053	0.041	0.043	0.047
Family size		-0.001	0.033		0.006	-0.033		0.147*	0.143*		0.136	0.142
S.E		0.070	0.076		0.060	0.071		0.077	0.079		0.086	0.091
Income		0,000	0,000		2.26E-05*	1.70E-05		3.69E-06	3.24E-06		7.41E-05**	7.56E-05**
S.E		1.42E-05	1.57E-05		1.01E-05	1.13E-05		1.28E-05	1.30E-05		3.14E-05	3.33E-05
Experience		0.244	0.202		0.045	0.174		0.226	0.281		-0.058	0.029
S.E		0.218	0.249		0.152	0.172		0.234	0.256		0.225	0.246
Importance of saving			0.097			0.678			0.083			-1.090
S.E			0.295			0.305			0.274			0.712
Worry			-1.103***			-0.757***			0.551			-0.669
S.E			0.345			0.273			0.500			0.420
Risk taking			-0.106			0.170			-0.430			-0.077
S.E			0.429			0.353			0.440			0.524

*Significant at ten percent, **significant at five percent, ***significant at one percent

4.4 Sensitivity analysis

To test the strength of my hypotheses and the robustness of my results I divide the sample into subsamples and try the hypothesis for each group in the same way as I did with the whole sample. I test for women, men, young and old people as a whole and depending on where they were from. The results are visible in table 2.2-2.5.

For women, age had a positive effect on savings but decreased as I added more variables and became negative with very low significance when all variables were in the regression indicating that age then made up for the effect of other variables. In the end, the effect of age for women's savings is unclear and for all men it is also unclear. For men in Challing, age had a negative effect on the savings and the opposite was the case in Surya Vinayak. For the young age is positively and for old age is negatively related to age indicating a non-linear relationship between age and savings.

For all men and women one more year of education resulted in respectively 131 and 59 more rupees saved per month but as I added more variables the effect shrunk and even became negative, but with very low significance. This suggests that education in the first regressions covered the effect of something else. In this case I believe it can be income or experience which both had positive correlation with savings. For both young and old education is negatively correlated with savings. The question remains this correlation is more or less true for all samples as education should be positive for savings.

Concerning the family size, all sub samples show the same tendencies except for the young. It was negative for everyone in Challing to have a large family while it was positive in Surya Vinayak. For the sample of young individuals, the case was the inverse.

The samples did not differ much on the relation between income and savings. Women in Surya Vinayak were the only ones who stood out with a negative correlation. There is no evident explanation to why this is the case. One possibility is that when women finally earn larger amounts of money they change priorities and saving is not as important anymore while men are used to their income and increase savings with increased income.

Experience turns out to be very important to the women and men in Surya Vinaya. In Challing on the other hand experience could turn out negative or insignificant at best. For the young the relationship was very positive in both locations while the older had an almost neutral relationship.

Hyperbolicism affected the people in Challing and Surya Vinayak differently. In Challing hyperbolic time preferences was related to smaller monthly saving while the hyperbolic in Surya Vinayak instead had higher savings. Men and women both follow this pattern, women to a larger extent than men. The young on the other hand had a negative relationship regardless of location while the old had a strong positive relation. The result from chapter 4.2 may in this case be off target because of differences between age groups.

Risk taking turned out to be negative for the savings of all subsamples in accordance with the whole sample. The largest negative effect of being a risk taker was for everyone living in Surya Vinayak.

Worrying was very negative for all women regardless of where they lived. Women who worried saved almost 1000 rupees less than those who do not worry about losing their income. They also save a smaller proportion of their income. For the men in Challing who

worry about their income, their savings were affected very negatively whereas the effect slightly positive. For the young and old, worrying was consistently negative.

Regarding considered importance, the OLS for the entire sample showed a positive correlation. Remember that importance was measured on an inverted scale so that a minus mark for the correlation means increasing importance. For men and women this was true and notably in Challing. But for the young the results were not so clear and for the old the correlation was negative.

I can conclude that some of my OLS-results for the entire sample are not robust because of the large differences among the subgroups. The variables that show most difference between the subsamples are age, income, hyperbolic time preferences and stated importance.

4.5 Discussion

From the data I can draw some conclusions about the population's preferences and the relation to savings. However, the differences between the subgroups that I looked into in my sensitivity analysis are large and contribute to the low robustness of the results for the entire sample or the samples of Surya Vinayak and Challing.

The hyperbolic were over represented for the group that wanted to cut back on their expenses which proposes that they indeed had some self-control issues. But to draw any conclusions from my material is precarious as the quality is rather low.

Other fallouts were surprising, for example that patient women in Challing save much less than other women in the village. Anomalies like that are difficult to explain but on the other hand the sub samples are so small that they cannot be considered significant and applicable to other groups of people.

The difference between the sexes was striking but this can be contributed to the income differences. Men make more money and save more, about twice as much as women for both earnings and savings, but viewed as a proportion of their income they do not save more than women do. Furthermore, I have not controlled for differences between women and men such as education and role in the household which may in part explain the difference. In general, it is hard to say anything about the causality between the variables. For example, do those with higher income save more because they simply have more money? Or is it because they can afford to be forward-looking and plan ahead? Most likely it is a mixture of the two and of

other explanations. The individual can for example have higher earnings as a result of longer education which in itself made the individual aware of the importance of saving money. These types of questions are applicable to all of my results. If the results should be interpreted in order to improve savings product's or estimate the need for formal savings products similar to those accessible in Surya Vinayak it is vital to critically assess the actual directions of causality.

Having said that, there are some main points I can draw from my data especially concerning hyperbolic individuals. In my sample, hyperbolism is equally frequent in Challing and for the members of Chundevi Saccos. The link between hyperbolism and savings was opposite in the different areas which confirms theory that where financial products are available (as in Surya Vinayak) sophisticated people can overcome weaknesses and actually turn them into strengths. Similarly, patience does not necessarily lead to higher savings. This may be my most important result as it shines a light on the importance of savings products tailored for the poor and their needs.

One legitimate question would be that if these limitations to the poor's rationality in the shape of hyperbolic time preferences hinder them to save, should not savings just be mandatory for all members of MFI's? At Chundevi Saccos this is the case and that is why I do not look at the presence of savings but rather the size. But as always, there is no quick-fix solution to the problem of low savings among the poor. In the case of Chundevi Saccos, the mandatory savings worked well, but it seems this is not the answer for all MFI's. Most have to instead find other ways to encourage savings (Banerjee & Duflo, 2011, s. 197) (Morduch & Aghion, 2005, s. 149). Based on my results, the mere availability of savings products do a great deal for the poor.

Additionally, understanding the variances between different costumers of the MFI's can also be essential. Women turned out to be more inclined towards inconsistent time preference which would make them good candidates for commitment savings products for example. Risk aversion and earlier experience was positively correlated with savings and worry was negatively correlated. This type of information can be used to market and educate about savings among the poor and thus increase the usage of savings products.

Some of my outcomes are in line with earlier findings and my hypothesis such as that hyperbolic members of Chundevi Saccos save more than hyperbolic in Challing. I can confirm the hypothesis that women are more positively affected by hyperbolic time

preferences than men with regard to savings. Behavior for time preference was not unequivocal as my hypothesis was not entirely confirmed. Patient people had larger savings than average if they were members of Chundevi Saccos but if they lived in Challing their savings were way below average and age had no specific effect. Education contributed a little to patience but the effect was mostly visible in Surya Vinayak.

5. Summary

I can conclude that personal preferences did play a role for the savings for people in Surya Vinayak and Challing and that the different preferences sometimes have endogenous explanations. The hypothesis I could accept or not are presented in the discussion.

However, my study has limitations and the result is not detailed to the extent I would have liked it to be. My findings are not exhaustive and sometimes imprecise. To a large extent, I relate this to the use intervals for some of the data in the survey. Therefore, my results cannot be considered exact estimates, more like indications towards which direction the correlation lies.

Behavioral economics like this have a large role to play for making financial products suitable for the poor. There is no one size fits all when it comes to finance and products that look like the ones in rich countries are not necessarily what the poor need. Nevertheless, the availability of financial products do a great deal for the process of poor people breaking poverty traps and escaping poverty.

6. List of references

- Banerjee, A. V., & Duflo, E. (2011). *Poor Economics*. PublicAffairs (?).
- Ainslie, G. (1992). *Picoeconomics: The Strategic Interaction of Successive motivational States within the Person*. New York: Cambridge University Press.
- Akerlof, G. A. (May 1991). Procrastination and Obedience. *The American Economic Review*, 81(2), 1-19.
- Albrecht, K., Volz, K., Sutter, M., Laibson, D., & von Cramon, Y. (2010). What is for me is not for you: brain correlates of intertemporal choice for self and others. *Social Cognitive and Affective Neuroscience*, 6(2), 207-217.
- Banerjee, A., & Mullainathan, S. (2010). *The Shape of Temptation - Implications for the Economic Lives of the Poor*. Massachusetts: National Bureau of Economic Research.
- Basu, K. (2008). *A Behavioral Model of Simultaneous Borrowing and Saving*. Department of Economics. University of Chicago.
- Bauer, M., Chytilová, J., & Morduch, J. (april 2012). Behavioral Foundations of Microcredit: Experimental and Survey Evidence from Rural India. *The American Economic Review*, 102(2), 1118-1139.
- Becker, G. S., & Mulligan, C. B. (August 1997). The Endogenous Determination of Time Preference. *The Quarterly Journal of Economics*, 112(3), 729-758.
- Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2008). *How are Preferences Revealed?* Cambridge: National Bureau of Economic Research.
- Binswanger, H. P. (1980). Attitudes toward Risk: Experimental MEasurement in Rural India. *American Journal of Agricultural Economics*, 62(3), 395-407.
- Chabris, C. F., Laibson, D. I., & Schuldt, J. P. (2008). Intertemporal Choice. i *The New Palgrave Dictionary of Economics*.
- Chabris, C. F., Morris, C. L., Taubinsky, D., Laibson, D., & Schuldt, J. P. (April-May 2009). The Allocation of Time in Decision-Making. *Journal of the European Economic Association*, 7(2-3), 628-637.
- Dillon, J. L., & Scandizzo, P. L. (1978). Risk Attitudes of Subsistence Farmers in Northeast Brazil: A Sampling Approach. *American Journal of Agricultural Economics*, 60, 425-434.
- Duflo, E., Kremer, M., & Robinson, J. (October 2011). Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya. *101(6)*, 2350-2390.
- Dupas, P., & Robinson, J. (2011). Why Don't the Poor Save More? Evidence from Health Savings Experiments. *The National Bureau of Economic Research*.
- Eckel, C. C., & Grossman, P. J. (2008). Men, Women and Risk Aversion: Experimental Evidence. *Handbook of Experimental Economics Results*, 1061-1073.

- Feinerman, E., & Finkelshtain, I. (1996). Introducing Socio-economic Characteristics into Production Analysis under Risk. *Agricultural Economics*, 149-161.
- Frederick, S., Loewenstein, G., & O'Donoghue, T. (June 2002). Time Discounting and Time Preference: A Critical Review. *Journal of Economic Literature*, 40(2), 351-401.
- Green, L., Fry, A., & Myerson, J. (1994). Discounting of Delayed Rewards: A Time-span Comparison. *Psychological Science*, 33.36.
- Hamoudi, A., & Thomas, D. (2006). *Do You Care? Altruism and Inter-Generational Exchanges in Mexico*. California: California Center for Population Research On-Line Working Paper Series.
- Harris, C., & Laibson, D. (July 2001). Dynamic choices of hyperbolic consumers. *Econometrica*, 69(4), 935-957.
- Kanbur, R., & Squire, L. (2001). The Evolution of Thinking about Poverty: Exploring the Interactions. In G. M. Meier, & J. E. Stiglitz, *Frontiers of Development Economics: The Future in Perspective* (ss. 183-226). Oxford: Oxford University Press.
- Karlan, D. S., Yin, W., & Ashraf, N. (May 2006). Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines. *Quarterly Journal of Economics*, 121(2), 635 - 672.
- Kirby, K. N., Godoy, R., Reyes-Garcia, V., Byron, E., Apaza, L., Leonard, W., o.a. (2002). Correlates of Delay-Discount Dates: Evidence from Tsimane' Amerindians in the Bolivian Rain Forest. *Journal of Economic Psychology*, 291-316.
- Laibson, D. (1997). Golden Eggs and Hyperbolic Discounting. *Quarterly Journal of Economics*, 112(2), 443-477.
- Laibson, D. (2003). Intertemporal Decision Making. *Encyclopedia of Cognitive Science*.
- Mahmud, Y. (2004). *Risk, Time and Land Management under Market Imperfections: Applications to Ethiopia*. Göteborg: Göteborg University.
- Morduch, J., & Aghion, B. A. (2005). *The Economics of Microfinance*. Massachusetts: MIT Press.
- Mosley, P., & Verschoor, A. (2005). Risk Attitudes and the "Vicious Circle of Poverty". *European Journal of Development Research*, 17(1), 59-88.
- Mullainathan, S. (2005). Development Economics Through the Lens of Psychology. *Annual World Bank Conference in Development Economics 2005*.
- Murdoch, J. (1995). Income Smoothing and Consumption Smoothing. *Journal of Economic Perspectives*, 9(3), 103-114.
- Nielsen, U. (2001). *Poverty and Attitudes Towards Time and Risk: Experimental Evidence from Madagascar*. Denmark: Royal Veterinary and Agricultural University of Denmark.
- O'Donoghue, T., & Rabin, M. (2001). Choice and Obedience. *The Quarterly Journal of Economics*, 116(1), 121-160.

- Paxson, C. (1996). Saving and Growth: Evidence from Micro Data. *European Economic Review*, 40(2), 255-288.
- Rose, E. (February 1999). Consumption Smoothing and Excess Female Mortality in Rural India. *The Review of Economics and Statistics*, 81(1), 41-49.
- Rosenzweig, M. R., & Binswanger, H. P. (January 1993). Wealth, Weather Risk and the Composition and Profitability of Agricultural Investment. *Economic Journal*, 103(416), 56-78.
- Strotz, R. H. (1956). Myopia and Inconsistency in Dynamic Utility Maximization. *The Review of Economic Studies*, 23(3), 165-180.
- SVT (Producent), & SVT (Regissör). (2012-09-06). *Korrespondenterna, del 1* [Film]. Sverige.
- Tomomi, T., Camerer, C. F., & Nguyen, Q. (2010). Risk and Time Preferences: Linking Experimental and Household Survey Data from Vietnam. *American Economic Review*, 100(1), 557 - 571.
- Wik, M., Tewodros, A. K., Bergland, O., & Holden, S. (2004). On the Measurement of Risk Aversion from Experimental Data. *Applied Economics*, 36(21), 2443-2451.

Appendix:

Table 1.1 Correlation All

Kolumn1	Age	Education	Family	Income	Income /person	Exper	Import	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings/ income
Sex	0,044	0,257	0,009	0,208	0,196	0,147	0,040	0,025	-0,098	0,045	0,005	-0,022	0,141	-0,050
Age		-0,512	0,102	-0,051	-0,093	0,167	0,164	-0,102	-0,077	0,010	-0,011	0,167	-0,012	0,016
Education			0,006	0,217	0,219	0,079	-0,098	0,119	0,075	-0,003	0,087	-0,304	0,127	0,006
Family size				-0,021	-0,158	0,005	0,099	-0,042	-0,056	0,031	0,185	0,065	0,045	-0,017
Income					0,625	0,170	-0,010	0,110	-0,079	0,133	0,061	-0,092	0,282	-0,014
Income/person						0,164	-0,018	0,011	-0,044	0,171	0,054	-0,026	0,196	0,069
Experience							-0,058	-0,038	0,006	0,081	0,059	0,030	0,186	0,088
Importance								-0,040	0,005	0,096	0,082	0,103	-0,049	-0,138
Trust									-0,138	-0,028	-0,159	-0,044	0,022	0,115
Worry										-0,340	0,044	-0,149	-0,070	-0,138
Hyperbolism											-	0,043	0,054	0,046
Patience												0,114	0,044	-0,170
Risk taker													-0,254	-0,218
Savings														0,584

Table 1. 2 Correlation Challeng

Kolumn1	Age	Education	Family size	Income	Income/ person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Sex	0,042	0,291	-0,022	0,254	0,237	0,237	0,074	0,118	-0,154	0,077	-0,133	-0,005	0,122	-0,014
Age		-0,586	0,082	-0,050	-0,201	0,031	0,179	-0,043	-0,135	-0,044	-0,165	0,082	-0,100	-0,090
Education			-0,023	0,242	0,325	0,066	-0,139	0,131	0,124	-0,024	0,147	-0,275	0,154	0,056
Family size				-0,109	0,026	-0,106	0,117	-0,016	-0,036	0,041	0,216	0,048	-0,184	-0,129
Income					0,726	0,111	-0,086	0,095	0,074	0,008	-0,004	-0,018	0,172	0,016
Income per person						0,019	-0,019	0,054	0,046	0,046	-0,094	0,003	0,145	0,100
Experience							-0,158	0,035	-0,066	0,111	0,081	0,084	0,184	0,122
Importance								0,061	0,037	0,061	0,071	0,128	-0,157	-0,113
Trust									-0,142	0,095	-0,059	0,106	0,044	0,015
Worry										-0,398	0,257	-0,116	-0,147	-0,191
Hyperbolism											-	0,070	0,045	0,109
Patience												-0,120	-0,104	-0,158
Risk taker													-0,097	-0,058

Table 1.3 Correlation Surya Vinayak

Kolumn1	Age	Edu	Family size	Income	Income /person	Experience	Importance	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Sex	0,031	0,261	0,034	0,199	0,198	0,098	-0,018	-0,054	-0,042	0,020	0,106	-0,174	0,216	-0,031
Age		-0,407	0,112	-0,022	-0,004	0,263	0,115	-0,132	0,012	0,055	0,037	0,081	0,102	0,201
Education			0,052	0,174	0,138	0,085	0,003	0,027	-0,008	0,019	0,147	-0,217	0,064	-0,151
Family size				0,047	-0,164	0,274	-0,003	-0,146	-0,212	0,065	-0,018	0,132	-0,106	0,081
Income					0,573	0,194	0,094	0,093	-0,203	0,215	0,237	-0,024	0,283	-0,131
Income per person						0,238	0,080	-0,063	0,048	0,147	-0,130	-0,099	0,097	0,071
Experience							0,024	-0,106	0,048	0,065	0,056	0,033	0,201	0,071
Importance								-0,166	-0,011	0,147	-0,018	-0,142	0,080	-0,071
Trust									-0,195	-0,163	-0,130	0,132	-0,146	-0,061
Worry										-0,284	-0,127	-0,094	-0,098	-0,191
Hyperbolism											-	0,015	0,097	0,081
Patience												-0,064	0,350	0,071
Risk taker													-0,098	0,101
Savings														0,501
Savings														0,769

Table 1.4 Correlation All Women

Kolumn1	Edu	Family size	Income	Income /person	Exp	Imp	Trust	Worry	Hypbolism	Patience	Risk	Savings	Savings /income
Age	-0,635	0,042	-0,097	-0,107	0,217	0,237	-0,125	-0,198	0,139	0,011	0,191	0,047	0,100
Education		-0,012	0,199	0,176	-0,051	-0,127	0,145	0,163	-0,154	0,045	-0,294	0,068	0,008
Family size			-0,006	-0,060	-0,031	0,121	-0,065	-0,100	0,033	0,085	0,096	0,018	-0,055
Income				0,572	0,303	0,003	0,386	-0,120	0,192	-0,115	0,021	0,303	0,003
Income per person					0,299	-0,136	0,016	-0,024	-0,001	0,023	-0,060	0,213	-0,077
Experience						-0,066	0,117	-0,044	0,118	0,003	0,138	0,296	0,135
Importance							-0,118	0,031	0,172	0,023	0,033	-0,016	-0,108
Trust								-0,104	0,045	-0,252	-0,012	0,118	0,154
Worry									-0,383	0,115	-0,206	-0,192	-0,188
Hyperbolism										-	0,063	0,101	-0,009
Patience											0,091	-0,188	-0,317
Risk taker												-0,202	-0,154
Savings													0,706

Table 1.5 Correlation Women Challenging

Kolumn1	Edu	Family size	Income	Income /person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Age	-0,709	0,010	-0,191	-0,257	0,283	0,251	-0,019	-0,218	-0,006	-0,217	0,123	0,113	-0,005
Education		0,039	0,344	0,329	-0,269	-0,197	0,010	0,236	-0,234	0,198	-0,285	-0,030	-0,081
Family size			-0,131	-0,012	-0,100	0,135	-0,048	-0,173	0,099	0,015	-0,020	-0,129	-0,054
Income				-0,012	-0,100	0,135	-0,048	-0,173	0,099	0,015	-0,020	-0,129	-0,054
Income per person					0,063	-0,158	-0,162	-0,117	-0,103	-0,221	-0,083	0,144	-0,003
Experience						-0,175	0,136	-0,080	0,225	-0,075	0,273	0,177	0,213
Importance							-0,047	0,060	0,090	0,045	0,087	-0,129	-0,151
Trust								-0,088	0,249	-0,077	0,238	0,012	-0,081
Worry									-0,548	0,204	-0,171	-0,177	-0,162
Hyperbolism										-	0,273	0,085	0,194
Patience											-0,220	-0,211	-0,087
Risk taker												-0,029	0,092
Savings													0,725

Table 1.6 Correlation Women Chundevi Saccos

Kolumn1	Edu	Family size	Income	Income /person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Age	-0,556	0,055	0,000	0,056	0,205	0,218	-0,185	-0,175	0,255	0,071	0,108	0,115	0,271
Education		-0,029	0,068	0,050	0,025	-0,035	0,176	0,097	-0,115	0,027	-0,151	-0,020	-0,142
Family size			0,083	-0,085	0,014	0,094	-0,033	-0,028	-0,014	0,101	0,100	0,146	0,031
Income				0,657	0,440	-0,125	0,172	-0,244	0,006	0,232	0,183	0,131	-0,266
Income per person					0,392	-0,118	0,125	-0,126	0,054	0,294	0,057	0,192	-0,208
Experience						0,000	0,080	-0,026	0,072	0,123	0,190	0,323	0,080
Importance							-0,203	0,005	0,263	-0,133	-0,144	0,136	-0,022
Trust								-0,105	0,039	-0,045	0,111	-0,025	0,039
Worry									-0,274	0,057	-0,243	-0,260	-0,255
Hyperbolism										-	-0,019	0,140	-0,042
Patience											-0,091	0,050	-0,199
Risk taker												0,007	0,106
Savings													0,634

Table 1.7 Correlation All Men

Kolumn1	Edu	Family	Income	Income /person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Age	-0,439	0,161	-0,054	-0,114	0,111	0,095	-0,080	0,038	-0,114	-0,035	0,148	-0,043	-0,057
Education		0,023	0,196	0,202	0,162	-0,096	0,080	0,043	0,141	0,138	-0,326	0,131	0,030
Family size			-0,030	-0,230	0,043	0,078	-0,015	-0,016	0,029	0,288	0,035	0,064	0,023
Income				0,621	0,074	0,016	0,087	-0,042	0,177	0,140	-0,101	0,256	-0,006
Income /person					0,067	0,026	-0,002	-0,026	0,256	0,080	-0,004	0,165	0,169
Experience						-0,053	-0,219	0,074	0,035	0,111	-0,077	0,127	0,057
Importance							0,043	-0,010	0,024	0,132	0,172	-0,081	-0,161
Trust								-0,171	-0,108	-0,049	-0,080	-0,026	0,074
Worry									-0,296	-0,015	-0,100	0,000	-0,106
Hyperbolism										-	0,024	0,027	0,107
Patience											0,138	0,169	-0,001
Risk taker												-0,307	-0,288
Savings													0,626

Table 1.8 Correlation Men Chundevi Saccos

Kolumn1	Edu	Family	Income	Income /person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Age	-0,250	0,174	-0,044	-0,038	0,332	-0,018	-0,074	0,216	-0,178	-0,027	0,062	0,125	0,136
Education		0,147	0,196	0,137	0,119	0,078	-0,125	-0,124	0,200	0,255	-0,253	0,041	-0,155
Family size			0,031	-0,235	0,144	0,026	-0,063	-0,103	0,060	0,124	-0,110	0,212	0,193
Income				0,538	0,092	0,232	0,093	-0,203	0,331	0,214	-0,096	0,272	-0,092
Income per person					0,151	0,077	-0,137	-0,117	0,388	0,213	0,131	0,170	0,145
Experience						0,066	-0,274	0,139	0,057	-0,025	-0,193	0,153	0,072
Importance							-0,133	-0,033	-0,006	0,068	-0,144	0,066	-0,150
Trust								-0,222	-0,142	-0,069	0,102	-0,161	-0,120
Worry									-0,310	-0,271	0,099	-0,036	-0,175
Hyperbolism										-	0,074	0,087	0,210
Patience											0,021	0,501	0,375
Risk taker												-0,122	0,088
Savings													0,559

Table 1.9 Correlation Men Challing

Kolumn1	Edu	Family	Income	Income /person	Exp	Imp	Trust	Worry	Hypbol	Patience	Risk	Savings	Savings /income
Age	-0,551	0,149	-0,035	-0,182	0,182	-0,166	0,124	-0,069	-0,071	-0,075	-0,099	0,051	-0,229
Education		-0,077	0,167	0,265	0,234	-0,150	0,204	0,135	0,111	0,123	-0,287	0,235	0,201
Family size			-0,117	-0,230	0,094	0,109	0,032	0,077	-0,002	0,433	0,110	-0,223	-0,200
Income				0,780	0,043	-0,124	0,063	0,143	-0,032	0,114	0,028	0,087	-0,029
Income per person					0,076	0,017	0,139	0,066	0,087	0,000	0,041	0,118	0,160
Experience						-0,174	-0,150	-0,009	0,002	0,261	-0,056	0,153	0,067
Importance							0,151	0,044	0,030	0,119	0,160	-0,192	-0,080
Trust								-0,167	-0,071	0,008	-0,036	0,043	0,126
Worry									-0,276	0,278	-0,069	-0,109	-0,226
Hyperbolism										-	-0,089	0,011	0,045
Patience											0,006	-0,025	-0,206
Risk taker												-0,145	-0,188
Savings													0,813

Table 2.1: Full sample

	Surya			Surya			Surya			Surya			Surya			Surya		
	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All
C	502	-239	206	741	-1691	-678	2529**	-1019	1109	0.09*	0.164	0.139**	0.098	0.101	0.119	0.22**	0.31*	0.346***
	529	1386	949	804	2051	1294	1035	2481	1506	0.05	0.113	0.068	0.070	0.127	0.085	0.091	0.162	0.096
Sex	226	1516**	653	97.4	1221**	5189	15.2	1245**	609	-0.003	-0.006	-0.028	-0.012	0.0055	-0.0255	-0.028	0.0122	-0.022
S.E	249	650	398	334	604	390	366	597	411	0.022	0.053	0.032	0.030	0.0541	0.0359	0.032	0.0548	0.035
Age	-6.5	47.5	13.1	-6.16	21	2.2	-11.4	7.6	-38	-0.001	0.004*	0.0007	-0.0004	0.0037	0.0011	-0.0009	0.0021	0.0004
S.E	11.6	32.2	19.3	14.9	29.2	18.9	15.6	32.7	19.8	0.001	0.003	0.0015	0.0013	0.0029	0.0018	0.001	0.0029	0.002
Education	16.8	65.8	85.4	14.1	-3.3	19.4	1.95	-37.0	-39.8	0.0002	-0.006	0.002	0.0002	-0.0054	-0.0005	0.0002	-0.0081	-0.005
S.E	34.3	85.2	65.9	43.2	94.2	61.8	47.95	107	70.2	0.0030	0.007	0.0042	0.0038	0.0071	0.0047	0.004	0.0072	0.005
Family size	-	-	-	-90.1	267.8	109.9	-68	273	122	-	-	-	-0.0066	0.0117	-0.001	-0.005	0.004	-0.001
S.E	-	-	-	69.0	192.5	116.2	73	221	122	-	-	-	0.0059	0.0147	0.009	0.006	0.015	0.008
Income	-	-	-	0.014	0.06	0.056	0.02	0.06	0.05	-	-	-	-4.21E-07	-2.27E-06	0.07	-9.87E-08	-2.40E-06	-1.09E-06
S.E	-	-	-	0.015	0.06	0.048	0.014	0.07	0.048	-	-	-	1.24E-06	1.86E-06	1.34E-06	1.26E-06	1.92E-06	1.27E-06
Experience	-	-	-	222	526	510*	124	686	610**	-	-	-	0.022	0.020	0.031	0.011	0.033	0.030
S.E	-	-	-	220	437	282	237	511	309	-	-	-	0.020	0.034	0.023	0.021	0.035	0.023
Hyper-bolism	-	-	-	-	-	-	-123	226	93	-	-	-	-	-	-	0.011	0.041	0.021
S.E	-	-	-	-	-	-	417	937	618	-	-	-	-	-	-	0.036	0.071	0.044
Risk taking	-	-	-	-	-	-	-486	-759	-1617***	-	-	-	-	-	-	-0.0182	0.0363	-0.10***
S.E	-	-	-	-	-	-	399	522	380	-	-	-	-	-	-	0.0342	0.0728	0.035
Importance	-	-	-	-	-	-	-212	.12397	-198	-	-	-	-	-	-	-0.007	-0.073	-0.06*
S.E	-	-	-	-	-	-	263	1177	418	-	-	-	-	-	-	0.023	0.073	0.033
Worry	-	-	-	-	-	-	-1079***	-286	-745	-	-	-	-	-	-	-0.10***	-0.0887	-0.096**
S.E	-	-	-	-	-	-	384	1114	645	-	-	-	-	-	-	0.034	0.061	0.039
R2	0.0016	0.0406	0.0186	0.0053	0.1110	0.0799	0.0769	0.0900	0.1259	-0.0181	0.0231	-0.0093	-0.0335	0.0185	-0.0123	0.0540	0.0257	0.0629
F-statistic	0.9371	2.8927	2.6261	1.0823	3.7257	4.2543	1.7001	2.2072	3.9819	0.3132	1.8820	0.2981	0.5191	1.3488	0.5932	1.4567	1.2721	2.2354

Table 2.2: Women

X-variables	Surya			Surya			Surya			Surya			Surya			Surya		
	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All
Savings in absolut numbers																		
C	-276	734	71	-349	-500	-567	791	1603	1189	0.115	0.079	0.0407	0.106	0.052	0.032	0.157	0.422	0.33**
	668	1017	697	836	1194	857	1190	1764	971	0.072	0.145	0.101	0.109	0.169	0.124	0.163	0.258	0.145
Age	15	25	21	19	9,4	14	15	-32	-6	-0.001	0.0064	0.0032	-0.0016	0.0056	0.0039	-0.00035	0.0026	0.001130
S.E	15	24	16	17	25	18	23	23	18	0.002	0.0038	0.0026	0.0023	0.0037	0.0027	0.0031	0.00516	0.0029
Education	22	23	59	-37	0.31	26	-17	-44	-2	-0.0037	-0.0022	0.0049	-0.0070	-0.0013	0.0038	-0.0027	-0.0025	9.40E-05
S.E	41	59	41	45	60	43	57	58	45	0.0043	0.00807	0.0056	0.00578	0.0086	0.0063	0.0074	0.00737	0.0067
Number of people in household				-31	126	22	-42	61	-13				-0.00019	0.0044	-0.0081	-0.0026	-0.0083	-0.0082
S.E				63	115	75	72	138	73				0.0080	0.0183	0.0112	0.0094	0.0240	0.012
Income				0.18***	-0.0018	0.061**	0.197***	-0.038	0.035				6.80E-06	-1.33E-05**	-3.97E-06	7.55E-06	-2.00E-05***	-7.49E-06
S.E				0.04	0.039	0.030	0.045	0.049	0.045				5.13E-06	5.57E-06	4.37E-06	5.94E-06	4.76E-06	4.56E-06
Experience				-46	713**	463**	-195	10935***	664**				0.0256	0.065	0.046	-0.0134	0.123**	0.065*
S.E				238	307	227	289	367	266				0.0321	0.046	0.035	0.0406	0.0520	0.037
Hyperbolism							-239	633	465							0.074	-0.076	-0.0046
S.E							710	667	553							0.095	0.086	0.0713
Risk taking							310	-420	-741**							0.039	0.050	-0.059
S.E							412	461	314							0.055	0.087	0.0504
Importance							-150	234	-29							-0.029	-0.109	-0.068
S.E							294	996	360							0.0386	0.0682	0.048
Worry							-1016*	-1233**	-880*							-0.051	-0.194**	-0.13**
S.E							567	589	474							0.080	0.0963	0.065
Adjusted R2	-0.0165	-0.0121	0.0041	0.3079	0.0543	0.0872	0.3572	0.1328	0.1620	-0.0231	0.0430	-0.0008	-0.0153	0.0949	0.0059	-0.01379	0.1717	0.0423
F-test	0.5223	0.5592	1.1110	4.9146	1.8149	3.2153	3.3459	2.0889	3.2131	0.3684	2.3696	0.9522	0.8732	2.2580	1.1227	0.9456	2.2442	1.4469

Table 2.3: Men

	Surya			Surya			Surya			Surya			Surya					
	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All			
X-variables	Savings in absolut numbers																	
C	1061	304	756	1614	-1382	-335	4123**	-715	2080	0.046	0.242	0.183*	0.0998	0.143	0.149	0.258*	0.288	0.350**
S.E	867	2840	1582	1338	3997	2472	1769	5226	2908	0.071	0.177	0.103	0.1031	0.195	0.125	0.136	0.266	0.148
Age	-19	68	6	-19	19	-10	-26	3.8	-10	-0.00039	0.0026	-0.0010	1.11E-05	-1.89E-05	-0.0011	-0.000764	0.0013	-0.00012
S.E	17	63	32	22	53	29	22	59	29	0.0013	0.0040	0.00204	0.00166	0.0047	0.0024	0.001685	0.0050	0.002171
Education	34	108	131	43	-50	11	-1.39	-87	-73	0.0045	-0.0093	3.39E-05	0.0059	-0.0115	-0.0034	0.00168	-0.0154	-0.0108
S.E	54	187	100	71	208	122	78	238	128	0.0043	0.0112	0.0063	0.0055	0.0121	0.0074	0.00598	0.0120	0.0091
Familysize				*-120	484	225	-79	566	239				-0.0122	0.0308	0.0082	-0.0069	0.0225	0.00607
S.E				118	411	242	126	490	245				0.0088	0.024	0.0131	0.00928	0.0244	0.0115
Income				0.0042	0.071	0.056	0.0083	0.071	0.052				-1.08E-06	-1.03E-06	-4.18E-07	-4.70E-07	-1.40E-06	-6.44E-07
S.E				0.0176	0.072	0.053	0.0183	0.078	0.052				1.32E-06	2.15E-06	1.46E-06	1.35E-06	2.42E-06	1.07E-06
Experience				69	554	522	-57	506	471				0.0042	0.025	0.0221	0.00071	0.0173	0.0149
S.E				354	838	495	368	946	510				0.0270	0.058	0.034	0.0278	0.058	0.040261
Hyperbolism							-296	-9.3	-152							-0.0244	0.126	0.0339
S.E							586	1784	965							0.0437	0.115	0.0725
Risk taking							-876	-1600	-2430***							-0.0646	0.0089	-0.1426**
S.E							658	1419	718							0.0488	0.163	0.0479
Importance							-3945	-273	-223							-0.00041	-0.083	-0.0382
S.E							417	2415	722							0.03112	0.132	0.0381
Worry							-1064*	438	-604							-0.1067**	-0.0610	-0.0902
S.E							550	2082	973							0.0420	0.0970	0.0577
Adjusted R2	0.0273	-0.0130	0.00039	-0.0209	0.0470	0.0361	0.0259	-0.0231	0.0780	0.0081	-0.0078	-0.0152	-0.0298	-0.0303	-0.0428	0.0478	-0.0485	0.0512
F-statistic	1.8712	0.6203	0.9765	0.8039	1.5822	1.8086	1.1327	0.8569	1.9687	1.2397	0.8057	0.1772	0.7341	0.7062	0.2034	1.2398	0.7531	1.5512

Table 2.4: Young

	Surya			Surya			Surya			Surya			Surya			Surya		
	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All
X-variables	Savings in absolut numbers																	
C	-1451	-2301	-1850	-3778	-1874	-2410	-2523	-3126	-2344	0.0549	0.094	0.063	0.085	0.0201	0.035	0.077	0.1410	0.174
	1700	1849	1312	2951	2097	1708	3188	4006	2266	0.1407	0.257	0.165	0.173	0.2803	0.196	0.284	0.3113	0.232
Sex	802*	949	904	690	780	708	864	903	946	0.0110	0.0402	0.039	-0.0120	0.0554	0.0409	-0.0065	0.0109	0.023
S.E	417	865	568	590	754	605	609	918	723	0.0355	0.0650	0.041	0.028	0.0677	0.0470	0.0592	0.0700	0.049
Age	68	197**	133**	140	135	139*	198**	141	173*	-0.0012	0.0076	0.004	-0.0033	0.0076	0.0051	0.0020	0.0088	0.007
S.E	668	95	62	99	118	78	96	142	87	0.0055	0.0103	0.007	0.0069	0.0112	0.007	0.0090	0.0108	0.0072
Education	9	-102	-44	-9	-128	-68	23	-159	-104	0.0042	-0.00990	-0.004	0.0060**	-0.0085	-0.003	0.0087	-0.0151*	-0.008
S.E	57	154	94	71	158	109	78	122	122	0.0047	0.0089	0.006	0.0029	0.0091	0.0061	0.0071	0.0089	0.007
Family Size				-29	-81	-84	79	-80	-67				-0.0020	0.00092	-0.0043	0.0054	-0.0168	-0.008
S.E				121	227	138	125	236	137				0.0051	0.0183	0.011	0.0111	0.0193	0.010
Income				0.075*	0.004	0.018	0.087**	0.0079	0.017				6.35E-07	-2.33E-06	-1.17E-06	1.55E-06	-2.13E-06	-1.25E-06
S.E				0.039	0.025	0.026	0.037	0.0309	0.030				2.38E-06	1.96E-06	1.57E-06	3.27E-06	2.15E-06	1.14E-06
Experience				448	1075	704	363	1511**	924*				0.023	0.04489	0.0255	0.0218	0.0676	0.037
S.E				422	713	466	408	651	495				0.0317	0.0491	0.0313	0.0367	0.0507	0.0365
Hyperbolism							-1810**	-1647	-1220*							-0.085	-0.1131	-0.092
S.E							679	1273	704							0.0667	0.09418	0.061
Risk taking							-429	-1546	-1238**							0.0017	-0.0987	-0.095**
S.E							612	1256	510							0.0546	0.1020	0.043
Importance							-605	1003	50							-0.033	0.0663	-0.0048
S.E							480	1309	720							0.0425	0.0964	0.051
Worry							-2533***	33	-527							-0.152*	-0.1030	-0.107*
S.E							716	1115	753							0.069	0.0837	0.064
R2	0.0204	0.0244	0.0246	0.0641	0.0363	0.0471	0.2867	0.0520	0.0873	-0.0359	-0.0149	-0.0140	-0.0990	-0.0296	-0.0332	-0.0807	-0.0135	0.0382
F-test	1.3743	1.5841	2.0510	1.4794	1.4268	1.9134	2.4871	1.3513	1.9752	0.4341	0.7117	0.4981	0.3994	0.7225	0.4691	0.7386	0.9283	1.3572

Table 2.5: Old

X-variables	Surya			Surya			Surya			Surya			Surya					
	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All	Challing	Vinayak	All			
	Savings in absolut numbers									Savings as proportion of income								
C	561	5893*	3262***	736	3176	1910	1986	3668	4248***	0.151*	0.2963	0.239*	0.1567	0.306	0.2276	0.3042**	0.6485**	0.5264***
S.E	803	3237	1207	1079	2639	1209	1281	2799	1475	0.081	0.2842	0.142	0.113	0.292	0.1704	0.1279	0.307	0.1758
Sex	-317	2160**	332	-525	1294	277	-476	1982**	769	-0.0089	-0.0567	-0.095*	-0.0108	-0.0491	-0.0898	-0.0092	0.0314	-0.0204
S.E	320	1041	4627	457	836	545	481	849	509	0.0333	0.09044	0.0503	0.0483	0.0938	0.0597	0.0486	0.0909	0.0587
Age	-4	-110	-58**	5	-116*	-71**	-2.87	-176***	-102***	-0.0018	0.0013	-0.0013	-0.0013	-0.0024	-0.0011	-0.0026	-0.0089	-0.0051
S.E	17	72	27	24	60	34	25	61	36	0.0018	0.0064	0.0031	0.0026	0.0069	0.0039	0.00257	0.0067	0.0038
Education	60	147	191**	70	15	69	49	-18	-20	-0.0017	-0.0011	0.0092	-0.0032	-0.0004	0.0048	-0.0042	-0.0012	-0.0035
S.E	43	129	79	59	109	71	62	115	63	0.0044	0.012	0.0062	0.0061	0.0117	0.0076	0.0061	0.0117	0.0077
Family Size				-124	535**	302*	-106	531**	321*				-0.0083	0.0378	0.00304	-0.0052	0.0343	0.0095
S.E				83	209	173	87	221	176				0.00865	0.0257	0.0135	0.0087	0.0255	0.0131
Income				0.0043	0.209***	0.094	0.0065	0.195***	0.086				-5.37E-07	-4.28E-06	-8.15E-07	-1.73E-07	-6.57E-06	-1.92E-06
S.E				0.0144	0.0402	0.095	0.0147	0.040	0.081				1.48E-06	4.37E-06	2.35E-06	1.44E-06	4.15E-06	2.21E-06
Experience				141	-395	85	50	-102	130				0.026	-0.0182	0.018	-0.00017	0.0356	0.0157
S.E				267	462	377	305	465	383				0.0288	0.0517	0.0354	0.0320	0.0509	0.0345
Hyperbolism							657	1953	1808**							0.0826	0.1787	0.1418**
S.E							528	1036	879							0.0524	0.1099	0.0682
Risk taking							-502	281	-17485***							-0.0121	0.1496	-0.0689
S.E							498	1056	490							0.0490	0.10843	0.0533
Importance							-39	1573	223							0.0012	-0.1542	-0.0735
S.E							289	946	397							0.0284	0.1158	0.0461
Worry							-652	-1287	-1186*							-0.0983	-0.1127	-0.0869
S.E							413	863	704							0.0417	0.0954	0.0584
Adjusted R2	0.0019	0.1353	0.108	-0.0332	0.4696	0.2009	0.0350	0.3266	0.3266	-0.0209	-0.0410	0.0259	-0.0655	-0.0567	-0.0246	0.0974	0.0862	0.0863
F-statistic	1.0428	4.2857	6.3049	0.7321	10.1479	5.7341	1.1669	6.0434	6.0434	0.5491	0.1748	2.0531	0.5079	0.5351	0.5951	1.4749	1.8780	1.8780