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Do children make women more patient? Experimental evidence from Indian villages

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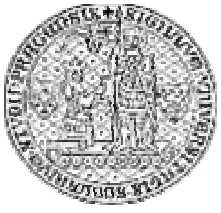

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Do children make women more patient? Experimental evidence from Indian villages

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Abstract:
This paper studies gender heterogeneity in preferences. We used experimental methods to elicit the subjective discount rate and attitude toward risk in Indian villages. Results show that women made more patient choices than men and that their discount rate is related to number of children. No gender difference is found for individuals without children. Women's discount rate declines up to four children, whereas men's does not decline. Our findings suggest that conflictual interactions within a household are more likely when a couple has young children, and hence, spousal heterogeneity in patience is at its greatest.

Keywords: subjective discount rate; gender; experiment; India

JEL: C93, D13, 012

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I. Introduction

The idea that men and women have heterogeneous preferences has been a cornerstone of a growing literature on intra-household resource allocation. Many empirical observations of behavior in various contexts support the view that women often make more development-germane choices than men[1]. It has been reported that a greater income share in the hands of women leads to higher child survival probability (Thomas, 1990), enhances anthropometric status of girls (Duflo, 2003), increases educational expenditures (Quisumbing and Maluccio, 2003), and reduces the budget shares of alcohol and cigarettes (Hoddinott and Haddad, 1995)[2]. The experience of microfinance institutions gives women an equally favorable record. Armendáriz and Morduch (2005) provide numerous examples of substantially lower repayment difficulties for women compared to men. Pitt and Khandker (1998) report a larger positive effect of microcredit on schooling and household assets when women are participants.

What drives these behavioral differences remains unclear, however. It could be that women are more patient, have fewer self-control difficulties, are more risk averse, or simply feel more concern about others.[3] Muhammad Yunus (2002, p.374), for example, mentions all these components of the utility function in his explanation of the positive experience of the Grameen Bank with women: "…women have a longer vision than men. Men are more likely to enjoy what they've got right away, and they are generally more impulsive. But a woman is more likely to have a very consistent vision for the future. She wants a better life and to build security for her and for her family." Moreover, we do not know if the preference heterogeneity between genders is immutable or if it varies throughout the lifetime and could be explained by observable economic characteristic or family background.

Lab experiments organized in the field can be a powerful tool to shed light on these questions and complement the literature on intra-household decision-making, which is primarily concerned with the bargaining process within the household and assumes preference heterogeneity. Our study applies an experimental methodology in field labs[4] organized in villages in Karnataka, India, to elicit individual time discounting and attitude toward risk on a sample of more than 500 individuals. We complemented the experimental responses with a

[1] This idea also affected policy. For example, the conditional cash transfers (PROGRESA) in Mexico are given to women and many microfinance initiatives are specifically targeted at women.
[2] For a surveying article on intra-household models and evidence, see Xu (2007).
[3] Complementary to our paper is a study of Ashraf (2005) whose experiments in the Philippines show that contextual differences have substantial effect on intra-household decisions and may potentially exacerbate the intrinsic differences in preferences.
[4] Artefactual field experiments using the classification of Harrison and List (2004).

detailed survey of individual economic and demographic characteristics. We find significant gender differences in the level of patience, but not in the likelihood of having hyperbolic time preferences (being more impatient now than in the future) or attitude toward risk. In accordance with the observed patterns of behavior mentioned above, women emerged more patient than men in making choices between current tradeoffs and future tradeoffs.[5] Interestingly, the observed gender heterogeneity in patience is closely related with the number of children in a family.

In developed countries, many economic experiments are conducted using the student population. Although some studies identify gender differences in subjective discount rate (e.g. Kirby and Marakovic, 1996), for obvious reasons, this setting is not conducive to studying a link based on the number of children. Studies conducted by psychologists capture a wider variety of populations and the overall conclusion (Silverman 2003) is that women are better able than men to delay gratification. A few interesting studies in developing countries measured individual time discounting, although they did not focus on gender differences. Rubalcava et al. (2007) in Mexico and Ashraf et al. (2006) in the Philippines find that women are more patient than men; on the other hand Tanaka et al. (2007) in Vietnam and Pender (1996) in India do not find this relationship.

The remainder of this brief paper is organized as follows: In Section 2 we describe the sample and experimental methodology. Section 3 summarizes the main results. Section 4 discusses alternative explanations for the observed pattern and Section 5 concludes.

II. Sample and experimental methodology

The selection procedure was designed to generate an unusually varied sample of the rural population of the south-western Indian state of Karnataka. Data were collected in June 2007 in cooperation with the Indian NGO, BPKS[6] in Honavar and Haliyal taluks, (an administrative unit akin to a county, part of a larger district within a state). Figure 1 provides a map. Nine villages were selected from each taluk and in each village, 35 people older than fifteen years

[5] During the experimental meetings the participants were given a lunch. Notably in this context, the majority of women did not eat the meal, but waited until the end of the session and brought it home to share it with their children. Men ate the lunch immediately.

[6] BPKS is an Indian NGO whose mission is to support education for needy children. The organization was founded in 1991 and administers a child sponsorship program (school fees, uniforms and health care) for 5 000 children in northern Karnataka using funding from donors in the Czech Republic, the Slovak Republic, the Netherlands and Belgium.

were selected using a random walk method.[7] Those identified were invited to participate in the study, and 90 percent participated. Of the total number of 573 participants, there were no fewer than 25 from each village.

We used village meeting halls, typically schools, as field labs. Table 1 compares the sample characteristics with 2001 Karnataka census averages restricted to the population older than 15 years. Average age and education levels are not statistically different, but our sample has a higher proportion of married respondents (79 percent as compared to 67 percent in the entire state). This may reflect higher age of marriage in the urban areas included in the Karnataka average, while our respondents are villagers and therefore more likely to be married. Although the selection strategy was not intended to generate a sample representative of the entire rural Karnataka population, it captures most of its variety and in our opinion is exceptional for an experimental study with real rewards.

We employed a simple protocol to elicit discount rates, drawing on practices common in developed and developing countries (e.g. Harrison et al., 2002; Tanaka et al., 2007).[8] Respondents were asked to choose between receiving a smaller monetary amount earlier in time or a larger amount with a three months delay. For example: "Do you prefer Rs. 250 tomorrow or Rs. 300 three months later?"[9] We posed five such questions to each individual, each question increasing the future amount while keeping the earlier amount constant. Thus, we made the choice to delay increasingly more attractive in each subsequent binary choice. The point at which an individual switched from choosing the earlier reward to the future reward gives an interval of her discount rate. In the analysis we use the arithmetic means of these intervals to approximate individual discount rates. If a participant switched more than once, nothing could be inferred about the discount rate and the observation was excluded from the analysis.[10]

[7] The villages were randomly selected based on the 2001 Indian Census database. In three villages in each taluk , however, the BPKS did not have good access to or knowledge of the village head. These villages were replaced with others that were similar in size, distance to town and educational facilities to the ones originally selected.
[8] In their surveying article, Cardenas and Carpenter (2005) classify this methodology as the "choice task method." For a discussion on relative advantages of using "choices task method" vs. alternative "matching-task method" see Frederick, et al. (2002). Our decision was largely made for simplicity given the low education levels in the area.
[9] In July 2007 the exchange rate was 1USD= 40.2 Indian Rupees. In the area of our study Rs. 250 is approximately a week's wage.
[10] There were five percent of inconsistent responses, which are uncorrelated with observable characteristics. An additional four respondents did not answer other questions of interest. Both sets of respondents were excluded from the analysis, leaving a final sample size of 540 individuals.

The same series of binary choices were made at a further time frame: "Do you prefer Rs. 250 in one year time or Rs. 300 in one year and three months?" The time frame was shifted by exactly one year to avoid the possibility of confounding factors due to the seasonality of agricultural incomes or the regularity of local celebrations. For a complete list of binary choices involved, see Table 2. We denote the discount rate calculated from the current tradeoffs as the *current discount rate*, and that calculated from the future tradeoffs as the *future discount rate*.

We applied the front-end-delay method (Harrison et al., 2005; Pender, 1996) in the earlier time frame to control for potential confounds due to lower credibility and higher transaction costs associated with future payments. If participants lacked confidence that they would receive a reward in the future, they might tend to prefer the current reward irrespective of their actual discount rate. Therefore, no choices included payments on the day of the experimental session so that all rewards faced a similar "credibility discount". The future payments were guaranteed by cash certificates signed by the chief of the NGO, a local leader and a social worker familiar to the community.

To elicit aversion to risk we used a close replication of the simple protocol designed by Binswanger (1980) for peasants in ICRISAT villages and later used by Barr (2003) in Zimbabwe, among others. Each participant was asked to select one of six different gambles. Every gamble yielded either a high or a low payoff with a probability of 0.5. In each subsequent gamble the expected value increased jointly with the variance, allowing us to assign a degree of risk aversion.[11] Two sets of prizes were used. The first one was set at the level of amounts studied in the discount rate questions. The expected value of the least risky gamble was Rs. 250 and the higher payoff in the most risky gamble was Rs. 1000. The second set of prizes was lower, with the expected value of Rs. 30 for the least risky gamble and with the maximum payoff of Rs. 120 in the most risky gamble. The exact numbers for all the gambles are in Table 3.

Given the high proportion of illiterate respondents, much care was devoted to ensuring that participants correctly understood the experimental choices. Ten trained research assistants helped the illiterate respondents complete the questionnaire. Before the experimental choices were made, all rules were explained publicly. The experimenter also explained the principle of

[11] We did not impose any particular structure on the individual utility function to derive an index of risk aversion. Instead, we labeled the gambles from 1 to 6, where 6 is the most risky gamble.

cash certificates and simulated the randomization procedure based on simple tossing of ping-pong balls. At the end of the session 20 percent of randomly selected respondents were paid or received certificates according to one of their choices.

III. Results

Table 4 presents the means and the standard deviations of subjective discount rates, likelihood of having hyperbolic preferences and attitude toward risk. Women are on average more risk averse, although the difference is not significant at any reasonable level. Adding controls for economic characteristics and family background does not change this result (not reported). We *do* observe substantial difference in the level of subjective discount rates. The current 3-months discount rate for men is 27.2%, whereas for women it is 21.6%. For the future discount rate the averages are 22.5% and 15.9%, respectively. For both discount rates the differences are significant at the 1% level. Similarly to Ashraf et al. (2006), we consider a person as having hyperbolic time preferences if her current subjective discount rate is greater than her future discount rate.[12] One third of our respondents are more impatient now than in the future and hence more likely to face self-control difficulties. We do not observe any significant gender difference in the likelihood of having hyperbolic preferences. This result holds with or without adding controls.

Tables 5 and 7 show how the discount rates are correlated with observable characteristics. First, we consider economic characteristics such as education, wealth, income and income fluctuations that are traditionally regarded as determinants of patience (Becker and Mulligan, 1997; Kirby et al., 2002; Tanaka et al., 2007). We find that more educated men are significantly more patient. For women, we also find a negative correlation with respect to education, although it is not statistically significant.[13] None of the other economic characteristics is correlated with women's patience.

Next we explore the relationship between subjective discount rates and family characteristics. For women, we find a u-shaped relationship with respect to number of children.

[12] There are possible explanations other than hyperbolic preferences for why we observe more impatient choices with regard to current tradeoffs than for future tradeoffs, such as noise in the data, confusion of respondents or differential transaction costs and credibility of future payments. This issue is dealt with in bigger detail in other paper (Bauer et al., 2008), where it is shown that financial strategies of people with hyperbolic preferences comply with the predictions of psychological models and demand for commitment. We skip this discussion here, where the gender difference in the probability of having hyperbolic preferences is statistically insignificant.

[13] This finding may also be due to lower variance in women's education, as 45.1% of women in our sample are illiterate, compared to 34.2% of men.

In Figure 2 or Table 5 we observe that women without children younger than 18 years[14] have a current three-month discount rate of 25.1%, with one child 20.3%, and reach a minimum of 14.4% with four children. In our sample there are only eleven women who have more than four children younger than 18 years. These women seem to be overloaded by the needs of a large family in a sense that they need money immediately to satisfy the basic needs of the high number of children, and their discount rate ascends steeply to 30.6%.

This result could be due to other variables. In Table 7 we control for all other variables, in Table 8 we do the same for a sub-sample of married individuals.[15] We use a set of dummies, each for a different number of young children, to allow for a non-linear relationship. Our results (Table 7, columns 2 and 5) indicate the same u-shaped pattern for women as the simple averages; the effects are even more pronounced for married women (Table 8, columns 2 and 5).

It is interesting to note the small difference in the discount rates between men and women who do not have young children. With more children, the discount rates start to diverge as women's patience increases, whereas there is no such effect on men's patience (Figures 2 and 3). Having three or four young children, the difference is more than 10 percentage points for both the current and future average discount rate (for three children, the difference is significant at 1%; for four children, the difference is significant at 5%).

Columns 1 and 4 in Table 7 are ambitious in attempting to tease out gender difference by interacting the dummies for number of young children with being a female. Again, the interaction coefficients suggest that the heterogeneity in discount rates between men and women increases with the additional young children up to three, and the difference also remains high for larger numbers of children, although it is not always significant. The interaction coefficients for having three or four children are slightly larger (around 15 percentage points) than the differences inferred from simple averages. Again, the effects described are even stronger for a sub-sample of married individuals (Table 8, columns 1 and 4).

[14] Although it may sound as an unnecessary adjective, we will use a shorter term "young children" interchangeably with "children younger than 18 years". It should distinguish them from the total number of children (including adults).

[15] The reported regression results are based on OLS with standard errors clustered at the village level. We have performed several robustness checks. First, we have tested the sensitivity of results on village fixed effects, and very similar results were found. Secondly, the results could potentially be driven by calculation of discount rate values as arithmetic means of the inferred ranges. Using geometric means or ordered probit does not affect patterns discussed in the paper (not reported).

In line with numerous observations about differential treatment of sons and daughters in India, the association of discounting with children could be gender specific. For example, the dowry system may motivate parents to be more patient after having a daughter. Deolalikar and Rose (1998) show positive impact of a daughter relative to a son on household savings. In Table 8, instead of the number of children, we include indicator variables for the number of daughters and sons separately. The coefficients are negative for both. When the dependent variable is the future discount rate, women with two sons or two daughters are significantly more patient than women who do not have any children. For the current discount rate, the coefficients are statistically significant only for sons. These results suggest that the motivation to save for a dowry can only be part of the story behind the low discount rates of women with young children.

In order to assess the predictive power of our experimental measures, we examine several types of behavior and preferences outside the lab that one would expect to be closely linked to patience. The results are intuitively plausible. In Table 11 we show that higher patience predicts higher savings, higher likelihood of participation in self-help groups (local microfinance organizations), higher likelihood of having a future-oriented purpose for savings and greater desired level of schooling for children.

IV. Patience and number of children: alternative explanations

Let us consider why a woman with young children might emerge as more forward-looking. Being a parent may influence how people think about future, a proposition that we have emphasized so far. This relationship is predicted, for example, by the model of backward discounting with dual selves (Ray and Wang, 2001). It is also consistent with a situation when parents need to save for a certain high return investment opportunity that is available specifically to children, such as education. Alternatively, there may be a causal effect in the opposite direction; being patient may affect the number of children one would prefer to have. Or there could be an unobserved variable causing both. Our results - if interpreted as the causal effect of children - may be potentially biased due to considering children an investment, differences in outside opportunities available to men and women, life cycle effects and measurement error in wealth. Below we discuss the plausibility of these alternative explanations.

Following the traditional assumption of Becker and Tomes (1976) about altruistic parents, one could argue that more patient parents put greater weight on the quality of their children in the form of investment in their human capital. Since higher quality children are costly, more patient parents should prefer to have fewer children. In this case, our estimates of children's effect on subjective discount rates would be biased downwards. On the other hand, if parents were selfish[16] they might consider children a form of investment in better care for their old age. In this case, patient individuals should want more children and our estimates would be biased upwards.

Although we do not have an exogenous source of variation in fertility to test a causal effect on women's patience, we believe our results suggest that the downward-sloping part of the observed u-shape *is not* driven by patience causing a higher number of children. If children were an investment for old age we should observe a closer connection between patience and *total* number of children than between patience and *young* children.

In Table 10 the dependent variable is again the subjective discount rate, the sample is restricted to women and we focus on comparison of the results for total number of children and children younger than 18 years. In column 2, it is shown that the u-shape is much stronger for young children than for total number of children. A negative relationship could still exist, however, between the discount rate and total number of children, perhaps masked by the fact that women with more than four children become impatient by being overwhelmed by current needs. To control for this effect we include a dummy for having more than four young children (Table 10, columns 3 and 4). The negative coefficient is much stronger for young children. A similar exercise on the future discount rate produces qualitatively similar results, although of less statistical significance (Table 10, columns 5-8).

Another possible explanation of gender heterogeneity in the level of the discount rates could be related to different outside opportunities faced by men and women. If men intended to use the experimental rewards for a profitable investment and women with young children were less likely to do so, then women might opt for choices that make them look more patient. Contrary to this argument, our findings show that impatient men are more likely to save for consumption rather than for investment purposes (Table 11). Furthermore, if certain social norms prevented women from undertaking a profitable investment we would expect women

[16] The level of altruism/selfishness reflects the extent to which a person includes utility of her child into her own utility function.

with stronger decision-making power to make more impatient choices in our experiment. No clear relationship emerges between women's discount rate and a measure of the women's position within a household[17] (p-value=0.56, resp. 0.87 for current, resp. future discount rate) or with being a head of household (p-value=1.00, resp. 0.41 for current, resp. future discount rate).

Since number of children is tied to different stages of life cycle, the effect of children might be overestimated if it captured unobserved life cycle effects. For example, Becker and Mulligan (1997) predict a u-shaped relationship between age and patience due to the effects of learning to be future-oriented during youth and recognition of shortening life expectancy during aging. If the first effect overlapped with children being born and the second one with children becoming adults, we could also observe a positive correlation between number of young children and patience. We do not, however, observe statistically significant relationship between age and the discount rate for women even if we do not control for number of children (Table 10, columns 5 and 10).

Although the wealth index in our analysis is based on wide range of information about household assets, it is commonly argued that measures of wealth are particularly vulnerable to measurement error. Since the number of children is likely to be measured more precisely, we might be concerned about the regression coefficient of number of children being biased upwards if richer women had more children. In contrast, wealthier women in our sample have fewer children (the correlation coefficient is negative and significant at 1%).

V. Conclusions

We conducted a series of lab experiments in the field on time discounting and attitude toward risk in eighteen villages in India to study preference heterogeneity between men and women. We have not found any significant differences in attitude toward risk or the likelihood of having hyperbolic time preferences. In accordance with the earlier empirical work of others who observe more future-oriented use of income if in the hands of women, we find significantly lower subjective discount rates for women.

[17] An index based on thirteen questions from Demographic and Health Surveys on decision-making power and attitudes about wife beating was used as a proxy of women's position with a household.

Our findings suggest that gender differences in patience are not constant over a lifetime. Men and women have similar discount rates if they have no children, but the preference heterogeneity emerges when there are young children in the family. We find a strong u-shaped pattern between patience and the number of children women currently have, whereas men's patience is not very sensitive to the number of children.

We provide several arguments about why we believe our results indicate a causal effect of children on how women think about the future, although additional work needs to be done to establish this link more clearly. Panel data with experimental measures of patience for the same individuals in different stages of life would be particularly suitable.

The observed positive effect of children on women's patience is consistent with the psychological model of backward discounting with dual selves (Ray and Wang, 2001), where a parent maximizes, besides her own utility, the utility of her children positioned in the parent's stage of life. The well-known saying "I want my child to have a better life than I have" nicely illustrates parental concern about a child imprinted into their position. Alternatively, parents may become more patient if there are children-specific investments with high fixed costs and high return.

The findings may inform the growing literature that studies intra-household decision-making and strategies to cope with conflictual spending preferences of spouses in developing countries. For example, Anderson and Baland (2002) show that married women who earn an independent income are more likely to participate in rotating saving and credit associations (ROSCAs). They argue that women use the group commitment to save as a way to protect their savings against claims of their husbands for immediate consumption. Our findings suggest that strategies that aim to discipline divergent preferences of the spouses may be correlated not only with marital status and decision-making power. These actions should be more likely when a couple has young children; hence spousal heterogeneity in patience is likely to be at its greatest.

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Figure 1: Geographical location of Honavar and Haliyal Taluks

Figure 2: Current discount rate and number of children younger than 18 years

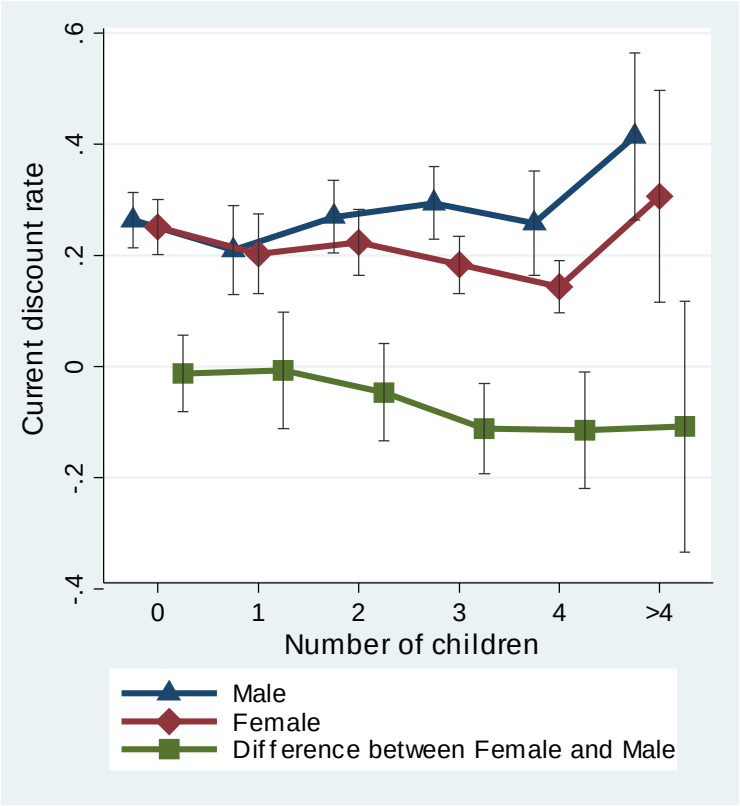

Figure 3: Future discount rate and number of children younger than 18 years

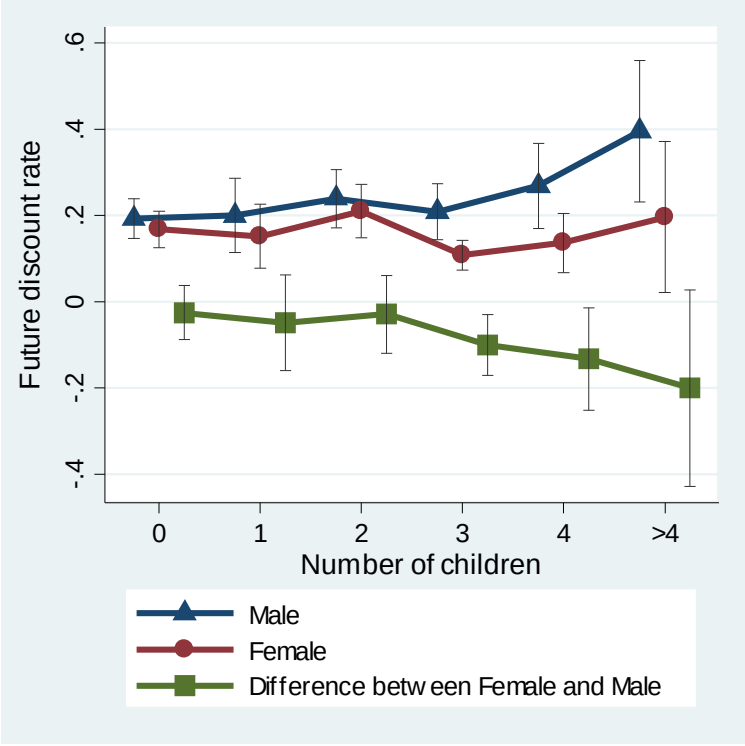

Table 1: Sample characteristics and comparison with Karnataka averages (means and standard deviations)

	Total	Female	Male	Honavar	Haliyal	Karnataka*
Age (years)	36.869	35.537	38.180	36.852	36.885	36.300
	(11.740)	(11.273)	(12.061)	(11.015)	(12.443)	
Education (classes)	4.244	3.485	4.993	5.970	2.519	4.200
	(4.433)	(4.041)	(4.675)	(4.474)	(3.658)	
Illiterate	0.396	0.451	0.342	0.204	0.589	0.425
	(0.490)	(0.499)	(0.475)	(0.403)	(0.493)	
Married	0.789	0.780	0.798	0.733	0.844	0.670
	(0.408)	(0.415)	(0.402)	(0.443)	(0.363)	
Farmer	0.703	0.669	0.737	0.643	0.772	0.750**
	(0.457)	(0.471)	(0.441)	(0.483)	(0.420)	
Sample size	540	268	272	270	270	

Note: Means, standard deviations in parentheses.
*Source: Indian Census 2001: data for the Karnataka population aged 15 and above.
**Only rural population.

Table 2: Eliciting discount rates (payoffs)

Current discount rate			Future discount rate		
	Tomorrow	After three months		After one year	After one year and three
choice 1	250	265	choice 1	250	265
choice 2	250	280	choice 2	250	280
choice 3	250	300	choice 3	250	300
choice 4	250	330	choice 4	250	330
choice 5	250	375	choice 5	250	375

Table 3: Eliciting attitude toward risk (payoffs)

Attitude to risk (low amount)			Attitude to risk (high amount)		
	Bad luck payoff	Good luck payoff		Bad luck payoff	Good luck payoff
Prospect	(50%)	(50%)	Prospect	(50%)	(50%)
1	30	30	1	250	250
2	27	57	2	225	475
3	24	72	3	200	600
4	18	90	4	150	750
5	6	114	5	50	950
6	0	120	6	0	1000

Table 4: Preferences and gender

	Total	Sex		
		Female	Male	
Current discount rate	0.244	0.216	0.272	***
	(0.227)	(0.211)	(0.239)	
Future discount rate	0.192	0.159	0.225	***
	(0.221)	(0.194)	(0.240)	
Hyperbolic preferences	0.330	0.343	0.316	
	(0.471)	(0.476)	(0.466)	
Attitude to risk (low amount)	3.854	3.776	3.930	
	(1.548)	(1.566)	(1.529)	
Attitude to risk (high amount)	3.843	3.787	3.897	
	(1.538)	(1.505)	(1.571)	

Note: Means, standard deviations in parentheses.
***Gender difference of means significant at 1% (t-test).

Table 5: Discount rates and socioeconomic characteristics

	Age		Education			Wealth			Number of children 0-18 years old					
	young	old	low	high		low	high		0	1	2	3	4	above 4
Female														
Current discount rate	0.202	0.232	0.239	0.189	**	0.238	0.195	*	0.251	0.203	0.223	0.183	* 0.144	** 0.306
	(0.205)	(0.218)	(0.224)	(0.192)		(0.219)	(0.202)		(0.231)	(0.198)	(0.212)	(0.198)	(0.121)	(0.284)
Future discount rate	0.164	0.153	0.179	0.135		0.183	0.136	**	0.168	0.152	0.211	0.109	** 0.137	0.196
	(0.203)	(0.184)	(0.210)	(0.170)		(0.207)	(0.177)		(0.198)	(0.204)	(0.223)	(0.133)	(0.177)	(0.260)
Number of observations	145	123	147	121		134	134		86	32	52	59	28	11
Male														
Current discount rate	0.261	0.283	0.340	0.198	***	0.309	0.234	***	0.264	0.209	0.270	0.294	0.258	0.414 **
	(0.242)	(0.237)	(0.253)	(0.199)		(0.248)	(0.225)		(0.240)	(0.214)	(0.239)	(0.235)	(0.250)	(0.260)
Future discount rate	0.232	0.218	0.292	0.153	***	0.264	0.185	***	0.193	0.200	0.240	0.209	0.269	0.396 ***
	(0.247)	(0.233)	(0.266)	(0.183)		(0.258)	(0.213)		(0.222)	(0.232)	(0.244)	(0.232)	(0.263)	(0.283)
Number of observations	139	133	141	131		137	135		93	30	53	52	30	14

Note: Means, standard deviations in parentheses. Difference of means (t-test): * significant at 10%; ** significant at 5%; *** significant at 1%. In t-test the mean discount rate for particular number of children is always compared to the mean when having no children. In the first two columns respondents are divided into two groups: those of below median age (young) and those of above median age (old). Similarly, respondents are divided into below/above median education groups and into below/above median wealth groups.

Table 6: Definition of variables

Variables	Definition	Mean	Std dev
Experimental choices			
Current discount rate	6 values approximating 3-months discount rate in earlier time frame: 0.03 = if discount rate < 6%; 0.09= if 6% < discount rate < 12%; 0.16 if 12% < discount rate < 20%; 0.26 = if 20% < discount rate < 32%, 0.14 if 32% < discount rate < 50%; 0.6= if 50% < discount rate	0.244	0.228
Future discount rate	6 values approximating 3-months discount rate in delayed time frame: 0.03 = if discount rate < 6%; 0.09= if 6% < discount rate < 12%; 0.16 if 12% < discount rate < 20%; 0.26 = if 20% < discount rate < 32%, 0.14 if 32% < discount rate < 50%; 0.6= if 50% < discount rate	0.192	0.221
Hyperbolic preferences	Dummy; 1 = if current discount rate > future discount rate	0.330	0.471
Attitude to risk (low amount)	6 values approximating attitude to risk depending on the gamble selected: 1 = (30,30); 2 = (27,57); 3 = (24,72); 4 = (18,90); 5 = (6,114); 6 = (0,120)	3.854	1.548
Attitude to risk (high amount)	6 values approximating attitude to risk depending on the gamble selected: 1 = (250,250); 2 = (225,475); 3 = (200,600); 4 = (150,750); 5 = (50,950); 6 = (0,1000)	3.843	1.538
Socioeconomic characteristics			
Children	Number of children younger than 18 years	1.798	1.605
1 child	Dummy; 1 = if 1 child younger than 18 years	0.115	0.319
2 children	Dummy; 1 = if 2 children younger than 18 years	0.194	0.396
3 children	Dummy; 1 = if 3 children younger than 18 years	0.206	0.404
4 children	Dummy; 1 = if 4 children younger than 18 years	0.107	0.310
> 4 children	Dummy; 1 = if more than 4 children younger than 18 years	0.046	0.210
Total number of children	Total number of children ever born to respondent	2.865	2.081
Desired children	Desired number of children	3.555	0.645
Female	Dummy; 1 = female; 0 = male	0.496	0.500
Age	Age minus average age of marriage (21.8).	15.105	11.740
Education	Years of schooling completed	4.244	4.433
Married	Dummy; 1 = married; 0 = single or widow	0.789	0.408
Wealth	Wealth index calculated by principal component analyses from questions on type of house, electricity connection, land ownership and dummies for possesion of 14 types of household equipment	0.000	1.895
Income in June < income in Sept.	Dummy; 1 = if income in June < income in September; 0 = if income in June >= income in September	0.494	0.500
Financial behavior			
Total savings (Rs. th.)	Rs. th. (savings in bank + savings in post office + SHG monthly contribution*average length of participation + home savings)	2.540	5.431
Future-oriented purpose of savings	Dummy; 1 = if the major purpose of savings is future-oriented (agricultural investment, business, education, doctor); 0 = if it focuses on current consumption (celebration, personal items, household equipment)	0.546	0.498
SHG participation	Dummy; 1 = if participant of a self-help group; 0 = if not	0.429	0.495
Desired education of first-born boy	Years of schooling reported as desirable for first-born son	12.894	2.300
Desired education of first-born girl	Years of schooling reported as desirable for first-born daughter	12.113	2.680

Table 7: Determinants of current and future discount rate (whole sample)

Dependent variable	Current discount rate			Future discount rate		
	All	Women	Men	All	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.053			-0.076		
	(0.066)			(0.045)		
Education	-0.013	-0.008	-0.017	-0.014	-0.007	-0.020
	(0.003)***	(0.005)	(0.004)***	(0.003)***	(0.005)	(0.004)***
Age	-0.011	8.3e-04	-0.012	-0.012	-2.6e-04	-0.014
	(0.005)*	(0.004)	(0.007)	(0.004)***	(0.003)	(0.004)***
Age * Female	0.012			0.011		
	(0.007)*			(0.005)**		
$(Age)^2/1000$	0.267	-0.076	0.263	0.247	-0.057	0.259
	(0.110)**	(0.099)	(0.130)*	(0.073)***	(0.071)	(0.080)***
$(Age)^2/1000$ * Female	-0.351			-0.303		
	(0.143)**			(0.105)**		
Wealth	-0.001	-2.2e-04	-0.001	0.002	-0.002	0.008
	(0.006)	(0.007)	(0.010)	(0.005)	(0.008)	(0.007)
Income in June < income in Sept.	-0.015	0.016	-0.044	-0.022	0.006	-0.048
	(0.025)	(0.026)	(0.036)	(0.023)	(0.029)	(0.031)
Married	0.081	0.078	0.084	0.056	0.048	0.075
	(0.041)*	(0.050)	(0.080)	(0.047)	(0.052)	(0.071)
1 child	-0.067	-0.086	-0.076	0.009	-0.045	-0.003
	(0.063)	(0.047)*	(0.059)	(0.050)	(0.039)	(0.048)
2 children	-0.019	-0.082	-0.033	0.042	0.003	0.026
	(0.045)	(0.046)*	(0.042)	(0.040)	(0.046)	(0.042)
3 children	0.021	-0.129	0.009	0.026	-0.106	0.010
	(0.062)	(0.047)**	(0.059)	(0.055)	(0.049)**	(0.059)
4 children	-0.040	-0.179	-0.062	0.059	-0.085	0.034
	(0.088)	(0.045)***	(0.090)	(0.073)	(0.058)	(0.072)
> 4 children	0.119	-0.003	0.098	0.189	-0.012	0.162
	(0.074)	(0.107)	(0.061)	(0.090)*	(0.127)	(0.097)
1 child * Female	-0.028			-0.064		
	(0.087)			(0.068)		
2 children * Female	-0.070			-0.046		
	(0.064)			(0.069)		
3 children * Female	-0.161			-0.143		
	(0.088)*			(0.073)*		
4 children * Female	-0.148			-0.153		
	(0.092)			(0.090)		
> 4 children * Female	-0.131			-0.211		
	(0.147)			(0.139)		
Constant	0.358	0.261	0.407	0.331	0.202	0.388
	(0.044)***	(0.059)***	(0.056)***	(0.036)***	(0.047)***	(0.052)***
Observations	540	268	272	540	268	272
R-squared	0.14	0.08	0.17	0.14	0.07	0.18

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. OLS. Standard errors corrected for clustering at the village level. In columns 1,2,3 the dependent variable is current discount rate calculated from the binary choices between amount tomorrow and after three months. In columns 4,5,6 the dependent variable is future discount rate calculated from the binary choices between amount after one year and after one year and three months. The omitted variable is "no children". The variable age equals to actual age minus the average age of marriage 21.8. All the coefficients are intact by this shift except the female dummy, which is now easier to interpret as a gender difference at the age of marriage instead of a gender difference at the time of birth.

Table 8: Determinants of current and future discount rate (sub-sample of married individuals)

Dependent variable	Current discount rate			Future discount rate		
	All married	Married women	Married men	All married	Married women	Married men
	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.047			-0.099		
	(0.128)			(0.079)		
Education	-0.011	-0.006	-0.016	-0.013	-0.006	-0.020
	(0.004)***	(0.006)	(0.004)***	(0.004)***	(0.005)	(0.005)***
Age	-0.018	-0.007	-0.017	-0.018	-0.006	-0.017
	(0.006)***	(0.005)	(0.006)***	(0.003)***	(0.004)	(0.003)***
$(Age)^2/1000$	0.011			0.012		
	(0.009)			(0.006)**		
$(Age)^2/1000$ * Female	0.378	0.102	0.355	0.345	0.073	0.319
	(0.115)***	(0.125)	(0.119)***	(0.060)***	(0.110)	(0.068)***
$(Age)^2$ * Female	-0.302			-0.302		
	(0.196)			(0.140)**		
Wealth	0.005	0.003	0.010	0.004	-0.002	0.014
	(0.008)	(0.010)	(0.012)	(0.007)	(0.010)	(0.009)
Income in June < income in Sept.	-0.017	0.011	-0.045	-0.031	0.004	-0.067
	(0.030)	(0.038)	(0.040)	(0.028)	(0.036)	(0.038)*
1 child	-0.090	-0.126	-0.084	-0.015	-0.050	-0.005
	(0.064)	(0.064)*	(0.066)	(0.054)	(0.053)	(0.054)
2 children	-0.025	-0.134	-0.025	0.029	-0.032	0.032
	(0.047)	(0.052)**	(0.047)	(0.046)	(0.053)	(0.042)
3 children	0.019	-0.185	0.017	0.017	-0.143	0.017
	(0.064)	(0.055)***	(0.063)	(0.063)	(0.060)**	(0.061)
4 children	-0.037	-0.211	-0.045	0.052	-0.107	0.045
	(0.090)	(0.049)***	(0.092)	(0.077)	(0.059)*	(0.075)
> 4 children	0.119	-0.068	0.109	0.181	-0.074	0.169
	(0.063)*	(0.094)	(0.061)*	(0.094)*	(0.106)	(0.094)*
1 child * Female	-0.032			-0.030		
	(0.091)			(0.082)		
2 children * Female	-0.103			-0.052		
	(0.070)			(0.078)		
3 children * Female	-0.200			-0.154		
	(0.085)**			(0.091)		
4 children * Female	-0.170			-0.150		
	(0.101)			(0.098)		
> 4 children * Female	-0.186			-0.252		
	(0.116)			(0.132)*		
Constant	0.510	0.439	0.540	0.455	0.322	0.496
	(0.079)***	(0.084)***	(0.081)***	(0.055)***	(0.066)***	(0.055)***
Observations	426	209	217	426	209	217
R-squared	0.14	0.13	0.15	0.16	0.10	0.18

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. OLS. Standard errors corrected for clustering at the village level. In columns 1,2,3 the dependent variable is current discount rate calculated from the binary choices between amount tomorrow and after three months. In columns 4,5,6 the dependent variable is future discount rate calculated from the binary choices between amount after one year and after one year and three months. The omitted variable is "no children". The variable age equals to actual age minus the average age of marriage 21.8. All the coefficients are intact by this shift except the female dummy, which is now easier to interpret as a gender difference at the age of marriage instead of a gender difference at the time of birth.

Table 9: Discount rates and number of sons and daughters

Dependent variable	Current discount rate		Future discount rate	
	All women	Married women	All women	Married women
	(1)	(2)	(3)	(4)
Education	-0.009	-0.009	-0.007	-0.006
	(0.005)*	(0.006)	(0.005)	(0.005)
Age	0.001	-0.014	0.003	-0.008
	(0.009)	(0.011)	(0.006)	(0.009)
$(Age)^2/1000$	-0.036	0.137	-0.063	0.056
	(0.113)	(0.133)	(0.079)	(0.117)
Wealth	0.002	0.007	-0.001	-0.002
	(0.007)	(0.010)	(0.008)	(0.010)
Relative income	0.016	0.012	0.002	-3.9e-04
	(0.026)	(0.037)	(0.028)	(0.036)
Married	0.065		0.053	
	(0.051)		(0.054)	
1 son below 18 years	-0.047	-0.058	0.002	-0.004
	(0.049)	(0.050)	(0.031)	(0.033)
2 sons below 18 years	-0.098	-0.121	-0.065	-0.080
	(0.038)**	(0.035)***	(0.034)*	(0.036)**
>2 sons below 18 years	-0.139	-0.164	-0.063	-0.075
	(0.053)**	(0.059)**	(0.057)	(0.065)
1 daughter below 18 years	-0.030	-0.057	-0.020	-0.037
	(0.028)	(0.042)	(0.031)	(0.034)
2 daughters below 18 years	-0.017	-0.023	-0.082	-0.093
	(0.044)	(0.052)	(0.037)**	(0.040)**
>2 daughters below 18 years	-0.025	-0.055	-0.027	-0.059
	(0.068)	(0.059)	(0.063)	(0.053)
Constant	0.249	0.646	0.164	0.459
	(0.156)	(0.232)**	(0.103)	(0.160)**
Observations	268	209	268	209
R-squared	0.07	0.11	0.06	0.09

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors corrected for clustering at the village level. In columns 1 and 2 the dependent variable is current discount rate calculated from the binary choices between amount tomorrow and after three months. In columns 3 and 4 the dependent variable is future discount rate calculated from the binary choices between amount after one year and after one year and three months.

Table 10: Discount rates and the number of children

Dependent variable	Current discount rate					Future discount rate				
	All women (1)	All women (2)	All women (3)	All women (4)	All women (5)	All women (6)	All women (7)	All women (8)	All women (9)	All women (10)
Total number of children	-0.044	-0.015	-0.008			-0.025	-0.005	-0.005		
	(0.016)**	(0.019)	(0.008)			(0.026)	(0.028)	(0.007)		
(Total number of children)^2	0.004	0.002				0.002	0.001			
	(0.002)***	(0.002)				(0.002)	(0.003)			
Children		-0.093		-0.037			-0.059		-0.023	
		(0.031)***		(0.011)***			(0.033)*		(0.013)	
(Children)^2		0.016					0.009			
		(0.007)**					(0.008)			
> 4 children			0.110	0.216				0.048	0.113	
			(0.107)	(0.108)*				(0.113)	(0.108)	
Age	2.1e-04	0.006	-0.006	0.002	-0.007	-1.0e-04	0.004	-0.003	0.002	-0.004
	(0.009)	(0.007)	(0.009)	(0.007)	(0.009)	(0.005)	(0.005)	(0.006)	(0.005)	(0.007)
(Age)^2/1000	0.003	-0.101	0.079	-0.047	0.083	-0.010	-0.078	0.031	-0.047	0.035
	(0.110)	(0.089)	(0.120)	(0.093)	(0.120)	(0.064)	(0.068)	(0.075)	(0.065)	(0.085)
Socioeconomic characteristics	yes	yes	yes	yes	yea	yes	yes	yes	yes	yes
Observations	268	268	268	268	268	268	268	268	268	268
R-squared	0.04	0.08	0.04	0.07	0.03	0.03	0.05	0.03	0.04	0.02

Note: * significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors corrected for clustering at the village level. In columns 1,2,3,4,5 the dependent variable is current discount rate calculated from the binary choices between amount tomorrow and after three months. In columns 6,7,8,9,10 the dependent variable is future discount rate calculated from the binary choices between amount after one year and after one year and three months. The variable "Total number of children" is all children ever born to a participant (including those who are already adult). The variable "Children" is number of children below 18 years.

Table 11: Discount rates, savings and desired education

	Current discount rate			Future discount rate		
	Low	High		Low	High	
Female						
Total savings (Rs. th.)	2.078	1.669		2.165	1.530	*
	(2.626)	(2.414)		(2.616)	(2.410)	
Future-oriented purpose of savings	0.646	0.500	**	0.684	0.438	***
	(0.480)	(0.503)		(0.466)	(0.499)	
SHG participation	0.688	0.587		0.721	0.531	***
	(0.465)	(0.495)		(0.450)	(0.502)	
Desired education of first-born boy	13.116	12.593	**	13.088	12.674	
	(1.756)	(2.149)		(1.759)	(2.139)	
Desired education of first-born girl	12.340	11.869		12.331	11.895	
	2.381	2.656		2.463	2.516	
Male						
Total savings (Rs. th.)	3.571	2.545		3.372	2.857	
	(8.412)	(5.039)		(6.392)	(8.008)	
Future-oriented purpose of savings	0.577	0.391	***	0.514	0.480	
	(0.496)	(0.490)		(0.502)	(0.502)	
SHG participation	0.213	0.198		0.228	0.183	
	(0.411)	(0.400)		(0.421)	(0.388)	
Desired education of first-born boy	13.391	12.148	***	13.053	12.609	
	(2.146)	(3.026)		(2.606)	(2.665)	
Desired education of first-born girl	12.515	11.429	***	12.211	11.857	
	(2.472)	(3.246)		(2.711)	(3.059)	

Note: Means, standard deviations in parentheses. Difference of means (t-test): * significant at 10%; ** significant at 5%; *** significant at 1%.

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