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Working Paper

Evaluating Intergenerational Persistence of Economic Preferences: A Large Scale Experiment with Families in Bangladesh

CESifo Working Paper, No. 6914

Provided in Cooperation with:
Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Chowdhury, Shyamal; Sutter, Matthias; Zimmermann, Klaus F. (2018) : Evaluating Intergenerational Persistence of Economic Preferences: A Large Scale Experiment with Families in Bangladesh, CESifo Working Paper, No. 6914, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:
https://hdl.handle.net/10419/176933

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CESifo WORKING PAPERS

6914
2018

February 2018

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CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
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Editors: Clemens Fuest, Oliver Falck, Jasmin Gröschl
www.cesifo-group.org/wp

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CESifo *Working Paper No. 6914*
Category 13: Behavioural Economics

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Abstract

Economic preferences – like time, risk and social preferences – have been shown to be very influential for real-life outcomes, such as educational achievements, labor market outcomes, or health status. We contribute to the recent literature that has examined how and when economic preferences are formed, putting particular emphasis on the role of intergenerational transmission of economic preferences within families. Our paper is the first to run incentivized experiments with fathers and mothers and their children by drawing on a unique dataset of 1,999 members of Bangladeshi families, including 911 children, aged 6-17 years, and 544 pairs of mothers and fathers. We find a large degree of intergenerational persistence as the economic preferences of mothers and fathers are significantly positively related to their children's economic preferences. Importantly, we find that socio-economic status of a family has no explanatory power as soon as we control for parents' economic preferences. A series of robustness checks deals with the role of older siblings, the similarity of parental preferences, and the average preferences within a child's village.

JEL-Codes: C900, D100, D900, D810, D640, J130, J240, J620.

Keywords: intergenerational transmission of preferences, time preferences, risk preferences, social preferences, children, parents, Bangladesh, socio-economic status, experiment.

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This version: February 13, 2018
We would like to thank Sule Alan, Steffen Altmann, Ned Augenblick, Michal Bauer, Anne Ardila Brenøe, Colin Cameron, Marco Castillo, Julie Chytilova, Tom Crossley, Stefano DellaVigna, Dirk Engelmann, Bart Golsteyn, Ralf Hertwig, Shachar Kariv, Fabian Kosse, Ulrike Malmendier, Peter Moffatt, Ragan Petrie, Marco Piovesan, Matthew Rabin, Hannah Schildberg-Hörisch, Robert Slonim, Emma van Essen and seminar participants at UC Berkeley, the Universities of Aarhus, Cambridge, Copenhagen, Duesseldorf, East Anglia, Essex and Sydney, and the Max Planck Institute for Human Development Berlin for very valuable comments. Financial support from IZA Bonn is gratefully acknowledged. The data collection was approved by the IRB at IZA Bonn.

1. Introduction

Economic preferences – such as risk, time, or social preferences – are important for a broad set of outcomes in life. These include educational achievements (Castillo et al., 2011, 2018; Moffitt et al., 2011; Golsteyn et al., 2014), labor market outcomes (Bandiera et al., 2005, 2010; Heckman et al., 2006; Deming, 2017), financial behavior (Meier and Sprenger, 2010, 2012; Dohmen et al., 2011), health status (Chabris et al., 2008; Sutter et al., 2013), or even criminal activities (Moffitt et al., 2011; Akerlund et al., 2016). While for a long time a subject's economic preferences have been considered as a black box about which economists cannot say much, more recently economic research has put particular emphasis on how human cognitive and non-cognitive skills, and also economic preferences, are formed (Bisin and Verdier, 2000, Heckman, 2006, Borghans et al., 2006; Dohmen et al., 2012). Since economic preferences develop significantly in childhood (Fehr et al., 2008; Mischel 2014), the formation of economic preferences within families has received ever increasing attention in recent years, both theoretically and in particular empirically. Doepke and Zilibotti (2017), for instance, provide a theoretical model to examine the channels through which parents can influence their children's choices, i.e., through affecting preferences or by imposing restrictions on the children's choice set. The empirical (both experimental and non-experimental) literature has so far focused on how preferences of parents and children are linked to each other, thus examining the intergenerational transmission of economic preferences (Dohmen et al., 2012; Kosse and Pfeiffer, 2012; Bauer et al., 2014; Almas et al., 2016; Alan et al., 2017; Campos-Vazquez, 2017; Deckers et al., 2017).

We contribute to the literature on the formation of economic preferences by drawing on a unique dataset with 1,999 family members, including 911 children, aged 6-17 years, and their 544 pairs of mothers and fathers. We investigate how children's time preferences, risk preferences, and social preferences are related to their parents' economic preferences, controlling for many important background variables, such as socio-economic status, cognitive or non-cognitive skills. Our paper's novelty is threefold. To start with, we are the first to run incentivized experiments not only with the children, but also with both their mothers *and* fathers, while previous research has practically always linked experimental choices of children only with the experimental choices of

one parent.[1] Our approach allows us to examine the relative influence of mothers and fathers on their children's economic preferences. We complement our experimental data by controlling for personality characteristics. Second, our dataset originates from a very poor country, Bangladesh, making our paper the first to tackle the intergenerational transmission of economic preferences within families in developing countries. This novelty is important for various reasons. On the one hand, developing countries are often characterized by mothers still spending very much time at home, taking care of the household and of raising children. Given this situation, the relationship between mothers' and fathers' preferences to children's preferences may look different in developing countries than in rich, western countries. In our study, we can examine the relative importance of fathers and mothers for children's preferences in the context of a developing country. On the other hand, spoor countries like Bangladesh might be even more prone to social immobility and the reproduction of inequality than it is the case in the richer countries in which the transmission of socio-economic status from parents to children has been studied before (like in Germany, Norway, Turkey, or the Czech Republic; see Bauer et al., 2014; Almas et al., 2016; Alan et al., 2017; Deckers et al., 2017). Hence, understanding the formation of economic preferences in poor developing countries might improve our understanding of how to tackle poverty. Third, we consider three important domains, namely time preferences, risk preferences, and social preferences, in one coherent framework. In previous studies, parents' (almost always only mothers') and their children's economic preferences have been linked in incentivized experiments in one particular domain only (see Kosse and Pfeiffer, 2012, and Alan et al., 2017, for risk preferences; Bettinger and Slonim, 2007, for time preferences; Ben-Ner et al., 2015, for charitable giving; Cipriani et al., 2013, for public goods provision).

We find that both mothers' and fathers' economic preferences are significantly and positively related to their children's preferences. This statement holds true for all three domains that we consider: time preferences, risk preferences, and social preferences. In more detail: more patient mothers and fathers have more patient children when making tradeoffs between smaller, but sooner rewards and larger, but later rewards. Intertemporal choices of children are more likely

[1] In a hypothetical survey with Mexican families, Campos-Vazquez (2017) has elicited risk, time and social preferences independently of our work. He uses the preference module developed by Falk et al. (2015) in which they have shown for German students which hypothetical survey questions correlate best with incentivized economic choices in experiments. It seems this hypothetical preference module awaits confirmation of applicability outside of Germany and for pre-adulthood.

to be time consistent when mothers and fathers make time consistent choices. Children take more risks in choosing among risky lotteries if mothers and fathers are taking more risks themselves. Social preferences, measured through four allocation tasks, are also positively related across generations. With only one exception, the estimated coefficients for mothers and for fathers do not differ from each other, suggesting that both parents are equally important in their relation to their child's economic preferences. Looking at the economic preferences of both spouses, we observe that they are pretty similar, on average, suggesting assortative mating despite the fact that a large majority of marriages in Bangladesh are arranged (Ambrus et al., 2010).

It is important to note that socio-economic status of parents – measured as household income and mother's, respectively father's level of education – shows *no* relation to children's economic preferences, contrary to some recent findings, in particular those of Deckers et al. (2017) who have found for Germany that parental socio-economic status is very strongly predictive of children's risk, time and social preferences. Excluding parents' economic preferences, we find a small impact of socio-economic status (SES) also on time preferences and on pro-sociality of children. However, if we take mothers' and fathers' economic preferences into account (either both simultaneously or each separately), SES is no longer significant, which we consider an important contribution to the literature. Our findings suggest that the recent focus on socio-economic status to explain economic preferences of children (Bauer et al., 2014; Deckers et al., 2017) should be complemented by a thorough investigation of both parents' economic preferences as they are strongly and positively related to their children's preferences. In such a framework, SES may turn out to be much less important than parents' economic preferences, an insight that has noteworthy implications if policy interventions were to be targeted on the basis of parents' SES.

Our data also contain important further control variables, such as number and composition of siblings, IQ, Big-5 personality traits, locus of control, years of schooling, or age of both parents. A series of robustness checks reveals a few further noteworthy results: (i) older siblings' preferences are also positively correlated with younger siblings' preferences, (ii) parents who are more similar in their preferences have a slightly stronger relation to their children's preferences than parents who are more dissimilar, (iii) parents' preferences are more strongly aligned with older children's preferences than younger ones, and (iv) we observe peer effects in the village.

Our paper is most closely related to the growing number of studies that connect parental economic preferences with children's economic preferences. As argued above, we are the first to

study both mothers' *and* fathers' incentivized choices in an experiment and how they relate to their children's choices, and we do so in a unified framework for three different domains. Previous studies have already revealed several noteworthy relationships between parental and children's behavior. Kosse and Pfeiffer (2012) is an early contribution by showing that preschool children's intertemporal choice behavior is positively related to their mothers' intertemporal choices when mothers have to choose between 100 Euro immediately and a larger amount in six months. However, when mothers have to make choices that entail a full year delay for the larger amount, the relationship is no longer significant. The latter finding fits the earlier results of Bettinger and Slonim (2007) that children's patience is not related to mothers' patience in their experiment. Alan et al. (2017) find a positive relationship between mothers' risk preferences and their children's willingness to take risks, once the children are 7 years or older, while this is not the case for younger children. Importantly, this relationship is driven by mothers' influence on daughters only, while there is no significant relation to their sons' risk preferences. In a hypothetical survey study, Dohmen et al. (2012) find that risk and social preferences are positively related between parents and children; however, the "children" in their study were already 18 years or older. A similar finding has been reported in Kimball et al. (2009) in their survey study using the US panel study of income dynamics where they found a significant relationship between children (aged 20 or older) and their parents. Compared to all previously mentioned studies, we combine all three domains – time, risk and social preferences – in a unified framework and present incentivized experimental evidence from mothers plus fathers and their children in order to study the persistence of economic preferences within families. Moreover, we are the first to do so in a developing country.

Our paper proceeds as follows. In section 2, we introduce our sample of 1,999 participants, the selection procedure to establish the sample and how we conducted the experiments and collected additional background and personality data. In section 3, we present a descriptive analysis and in section 4 we show regression results, first documenting the strong and positive relationship between both parents' preferences and their children's economic choices and then continuing with a series of more detailed analyses and robustness checks. Finally, we discuss and summarize our findings in section 5.

2. Data collection and experimental procedures

2.1 Sample selection and characteristics

Our data were collected in Bangladesh, a relatively poor developing country with a per-capita GDP of 1,211 US$ in 2015 (see data.worldbank.org; for comparison, the per-capita GDP in the U.S. was 56,115 US$ in 2015). Data collection was done in four rural districts (Chandpur, Gopalgonj, Netrokona, and Sunamgonj) that represent four major administration divisions of the country. The selection of households followed a three-step random sampling procedure. We, first, randomly selected 150 villages from the four districts. Second, 30 households from each village were randomly determined for inclusion in a large household survey study that was run between March and May 2014. Third, we randomly selected a subsample of 10 (out of the originally 30)[2] households per village for potential participation in an additional survey wave where we measured cognitive skills. We included in this wave all households that had children aged between five and a half years to 16 years, and managed to survey both parents, i.e., mother plus father, and their children in 728 households in October and November 2014. For households with two or fewer children in the respective age bracket, all children were interviewed. For households with more than two eligible children, only the youngest and the oldest were interviewed.

From March to May 2016, we ran another survey wave in which we elicited economic preferences of children and their parents through economic experiments and collected data on non-cognitive skills (see details about our experiments and the measurement of non-cognitive skills in sections 2.2 and 2.3 below). The combination of all waves constitutes the basis for this paper. Out of the 728 households with complete data on household characteristics, children in the targeted age bracket, and complete survey of cognitive skills in fall 2014, we managed to do the experiments and the survey on non-cognitive skills with mothers, fathers and children in 544 households.[3] From that we get a total of 911 children and 544 mothers and 544 fathers for which

[2] The original 4,500 households were sampled as a part of a larger study intended to measure labor supply, productivity, well-being, and returns to cognitive and non-cognitive skills, among other outcomes, in a poor country such as Bangladesh (see Chowdhury et al., 2014). Due to budget constraints, only one-third of that original sample was selected for cognitive skill measurement and later on experimental measurement. A comparison of this sub-sample of 10 households per village to the full sample of 30 households does not show any meaningful or significant differences in the observed household characteristics.

[3] In Table A1 in the Appendix we show that the 544 households for which we have complete data are very similar to the 182 households with incomplete data. Only with respect to parents' age, we find a significant difference. With respect to other important variables (like education of parents or household income) we do not observe significant differences between both sets of households.

we have all data, i.e., household survey data, cognitive and non-cognitive skills and economic preferences from experiments. The following analysis is based on these 1,999 persons. We have 177 households with complete data for one child plus both parents, and 367 households with complete data for two children plus both parents.

All data collection took place at household premises. Trained enumerators (experimenters) from a professional survey firm[4] visited each household, conducted the interviews and experiments with parents and children on a one-on-one basis. Each participant was interviewed in a separate room or venue and at the same time as the other household members. This procedure of simultaneous decision making was implemented in order to retain anonymity of decisions and to avoid any kind of influence from one household member on another member.

Table 1 presents some summary statistics of our sample. In panel A, we present data on children's background. We have an almost equal number of boys (49.73%) and girls (50.27%) among the 911 children. On average, they are 12.2 years old (at the time of the experiment), and have had 3.99 years of schooling, with 93% of children still attending school. They have one older brother and one older sister (who are not always still living in the same household), and on average 0.6 younger brothers and 0.6 younger sisters. Their fathers and mothers are 47 years, respectively 38 years, old and both have on average only 3 years of schooling. The latter means that the parents are typically clearly less educated than their children (and this low education of parents is one of the most obvious differences to studies on the intergenerational transmission of economic preferences in highly developed countries). In about 15% of households, we have also at least one grandparent living with the family.

Table 1 about here

As indicators for parental socio-economic status and family environment, we collected parents' occupation, household income, land ownership, and their education. The primary occupation of the majority of fathers is agricultural worker or farmer (52.7%), while the very large majority of mothers works as housewife (95.8%). In 2014, the annual total *household* income in our sample

[4] This professional survey firm was independently contracted for data collection and managed the whole process, including recruitment and training of enumerators, survey logistics, and data collection. Two of the authors attended all training sessions, and pilot phases.

amounted to 109,767 Taka (about 1,400 USD), which was comparable to the 2010 rural national household average of 115,776 Taka (Bangladesh Bureau of Statistics, 2011). In order to measure household income, we accounted for all economic activities of all household members, their wage income and profit from self-employment activities such as from agriculture, and non-farm enterprises. Our measure of household income is very comprehensive and similar to the one used by the Government of Bangladesh (GOB) in its household income and expenditure survey (HIES) that the GOB uses for measuring poverty and targeting the poor. The per capita measure is obtained by dividing total household income through the number of members in a household (including parents, children, grandparents and other relatives in case they are present in a given household).[5]

About 42 percent of our sample is illiterate, which aligns with a 2015 illiteracy rate of 38.5 percent in Bangladesh (CIA World Factbook, 2015). Eight percent of the sample has at least a secondary school certificate (SSC); this is in line with the Bangladesh Household Income and Expenditure Survey's finding of 8.9 percent for rural areas (Bangladesh Bureau of Statistics, 2011). Table A2 in the appendix reports the distribution of years of schooling for mothers and fathers.

2.2 Measurement of cognitive and non-cognitive skills

Measures of cognitive skills: We used the Wechsler Intelligence Scale for Children (WISC, version IV; Wechsler, 2003), and the Wechsler Adult Intelligence Scale (WAIS), adapted to the specific context of Bangladesh[6], to measure cognitive skills. These scales are widely used to measure intelligence, and they also play a role for clinical purposes (Azzopardi et al., 2014, Khan et al. 2014). Our measures of children's cognitive skills include administering 10 core subsets of WISC-IV. The following four composite indices are derived from those 10 core subsets: i) Verbal Comprehension Index (VCI), ii) Perceptual Reasoning Index (PRI), iii) Working Memory Index (WMI), and iv) Processing Speed Index (PSI). The measures of parents' cognitive skills include administering 11 core subsets that also yield the four composite indices VCI, PRI, WMI and PSI. In our estimations, we add all four indices in order to construct a summary measure, which is

[5] Our results on the influence of household income remain qualitatively unchanged if we count children as less than one adult when calculating the per capita household income.

[6] We worked with local academics with expertise in the adaptation and use of WISC version IV. In particular, Salim Hossain of the Department of Psychology, Dhaka University, and his team have adapted both WISC and WAIS – as well as the questionnaire about locus of control (see below) – to the local context.

similar to Full Scale IQ (FSIQ)[7]. All four indices are highly correlated to FSIQ and to each other. The correlation coefficients range from 0.75 between PSI and FSIQ to 0.91 between PRI and FSIQ, and all of them are statistically significant at 1% level. We standardize this full-scale IQ score. In order to avoid that any extreme outliers influence our results, we restrict the FSIQ to 99% of the sample by excluding the top 1%. This exclusion does not affect any of our results, though. Summary statistics of children's and parents' FSIQ are presented in Panel B of Table 1.

Measures of non-cognitive skills: Here we measure personality traits and locus of control.

BIG 5 personality traits: We used a 10-item BIG 5 questionnaire for children aged 6 to 11. For children aged 12 or above and for mothers and fathers we used a 15-item questionnaire, derived from John et al. (1991) and evaluated in Gerlitz and Schupp (2005). For the children aged 6 to 11, the items were answered by the main caretaker (Weinert et al, 2007), which was almost always the mother, while all older participants answered for themselves. Five personality traits – extraversion, conscientiousness, openness, agreeableness, and neuroticism – were constructed from the 10 (15) items. The summary statistics of the traits are shown in Panel B of Table 1.[8]

Locus of control: This concept (Rotter, 1966; Lefcourt, 1991) measures subjects' beliefs to what extent they have control over the outcome of events in their life. We used the items developed in Kosse et al. (2016), meaning that we had five items with a five point Likert scale for all children (who answered these questions themselves; see the Appendix for the items and how we visualized them). The items were added to construct an external index (that measures the belief that life is controlled by outside factors beyond own control; see items 2 to 5) and an internal index (measuring the belief that one is in control of one's own life; see item 1). The locus of control index is then the simple subtraction of the internal index from the external index. For mothers and fathers we used 28 items, 14 for the internal and 14 for the external index (Rotter, 1966).[9] The summary statistics for the locus of control index are also presented in Panel B in Table 1.

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[7] Since the modules are adapted to the local context, the scores are similar but not directly comparable to FSIQ measured using the standard scale.

[8] For the 15-(10) items questionnaire, each personality trait is an average of three (two) items. Hence, resultant traits are comparable.

[9] Here the raw index derived from five items for children can differ from the index derived from 28 items for parents. However, in our main empirical analysis, we use the standardized values (mean zero and standard deviation one) of both indices, and hence they are directly comparable.

2.3 Experimental measurement of time, risk and social preferences

The experiments were conducted between March and May, 2016, in the homes of the participating families. Male administrators dealt with boys and fathers, female administrators with girls and mothers, and each participant made his or her choices in a separate room. The experiments elicited a) time preferences, b) risk preferences, and c) social preferences, where the order was randomized on the individual level. All experiments were incentivized, but only one of the three experiments was randomly chosen for actual payment at the very end of the experimental session. Payments related to risk and social preferences were made immediately, while the payments for time preferences were executed at the time indicated in the choice.[10] The incentives were scaled contingent on the participant's age. For children that was roughly proportional to the average weekly allowance for a given age. The experimental instructions in the Appendix include the age-specific exchange rates of experimental tokens into local currency (Taka); see Table A3.

Time preferences: Here we used a simple choice list-approach where participants faced a tradeoff between a sooner, but smaller, reward and a later, but larger, reward (see, e.g., Bauer et al., 2012, or Almas et al., 2016, for similar approaches). The choice lists that we used were kept simple in order to make it easy for children to understand the choice options. Panel A of Table 2 presents the six choices that children had to make and the 18 choices for parents. Both for children and parents we set up three sets of choices. The earliest payment was always the day after the experiment ("tomorrow") and the later payment was either paid between three weeks and one year after the earlier payments. Both for children and parents we used two choice sets where the delay was three months. For children we had a third set with a delay of only three weeks (to keep the waiting time shorter for them), and for parents we had one set with a delay of one year (in order to capture long-term patience).

The order with which participants made their decisions was randomized on the level of the choice set. If time preferences were selected for payment, one out of the six (18) decisions of children (parents) was then randomly chosen for payment, and the payment was delivered at the specified date to the recipient.

[10] In all cases payments were executed by NGOs that we worked with. Given that those NGOs are locally based and have been working in those communities for years, mistrust of not getting paid in case of delayed payment should be less of a concern. Moreover, in each choice there was some uncertainty involved because the earliest payment date was always the day after the experiment.

For the analysis of time preferences, we are going to use two measures: (i) the *total number of patient choices*, which is a simple count of the number of patient choices (of the larger, but later, reward) made in all six choices of children (18 choices of parents), and (ii) an indicator variable for *time consistency*. This variable gets the value of 1 if a participant's choices are identical for the two choice sets with three months delay (i.e., choice sets 2 and 3 for children, and choice sets 1 and 2 for parents), and zero otherwise.

Table 2 about here

Risk preferences: Here we followed the design created by Binswanger (1980) that has often been used in rural settings in developing countries (e.g., Bauer et al., 2012). Participants had to choose one out of six gambles that yielded either a high or a low payoff with equal probability. The low payoff was decreasing and the high payoff was increasing for each successive gamble. Panel B of Table 2 shows the six gambles and the payoffs that were age-contingent. Unfortunately, due to some miscommunication between our helpers in the field and us, we have collected risk preferences only for half of our children participants, which will reduce the numbers of observation when we present results about risk preferences. In Table A4 in the Appendix we present descriptive data for the households and children in which we collected the risk measures, and those in which we did not. There are no significant differences between both sets of households.

For risk preferences, we have constructed two measures: (i) the *gamble number* picked, which is a number from 1 to 6. Higher numbers are associated with a higher willingness to take risks; (ii) an indicator variable for *non-risk averse*. The latter variable gets assigned the value 1 if a participant picks gamble number 6 (as this gamble has the same expected payoff as gamble number 5, but a higher risk).

Social preferences: Here we used the experimental protocol implemented in Bauer et al. (2014) that had extended Fehr et al. (2008). Each participant had to make four choices between two options each. Each option describes an allocation of x stars to the decision maker and y stars to an anonymous recipient (of same gender and of roughly same age).[11] In each of the four choices,

[11] Recipients were from villages outside of our sample villages. They were similar to the experimental participants, but not known or connected to the participants in any way.

one allocation (x,y) was always the allocation (1,1), while the alternative allocation was designed to classify different social preference types. The four games are illustrated in Panel C of Table 2.

From the four games in Table 2, one can create four mutually exclusive social preference types (following Bauer et al., 2014). These types – and the according choice patterns – are shown in Table 3. Participants are classified as follows: (i) *altruistic* if they maximize the recipient's payoff in all four games; (ii) *egalitarian* if they always minimize the difference in payoffs for themselves and the recipient; (iii) *spiteful* if they always minimize the recipient's payoffs; and (iv) *selfish* if they maximize their own payoffs in the first and the fourth game (the payoff of the decision maker is the same in both options in the other two games).

Table 3 about here

Before starting any of the three experimental parts, participants had to answer control questions to check for proper understanding. Since the explanation of the experiment, the choice options and the possible consequences was done in great detail and on a one-to-one basis, we have only a few participants who had problems in understanding. More precisely, 0.68% (0.18%) of children (parents) did not understand the time preference experiment; 3.00% (1.02%) of children (parents) did not understand the risk preference experiment; and 0.95% (0.36%) of children (parents) did not understand the social preference experiment. In our regression analysis, we have excluded them when relevant.[12]

[12] For example, in analysing time consistency, we exclude parents and children who did not understand the time preference task completely. However, in analysing time consistency, we do not exclude other parents or children who did not understand another experiment, for example the one on risk preferences. Note that inclusion of subjects with difficulties in understanding would not change any of the results reported in this paper in a significant way.

3. Descriptive overview of data and correlations of children's and parents' experimental choices

We start this section by presenting a descriptive overview of the experimental choices, separately for children and for parents. Then we provide first evidence on how the experimental choices of children and parents are related to each other by presenting simple correlations. In the next section we will then analyze the relationship in more detail by running several multiple regressions.

Table 4 shows the means and corresponding standard errors for the different measures of time, risk and social preferences. Panel A presents the data for all children (see "Total") and then breaks them up into girls and boys and into younger and older children (omitting the children in the middle age range). We see practically no gender differences in the three experimental parts. Concerning younger and older children, we note that older children are significantly less patient (with respect to the number of patient choices)[13]. Furthermore, the distribution of social preference types is different across age, with older children being more often egalitarian or spiteful, and less often selfish.

Table 4 about here

Panel B of Table 4 presents the corresponding data for parents, first for all together (see "Total") and then separately for mothers and fathers. Here we see that mothers are significantly more patient (in number of patient choices), but fathers are more often time consistent. There are no gender differences in risk in our data, but clear differences with respect to social preference types. Fathers are more often classified as altruistic or egalitarian and less often as selfish.

Table 5 about here

[13] This result is different from evidence in highly industrialized countries (like Germany or Norway) in which the degree of patience rather seems to increase with age than decrease (e.g., Almas et al., 2016; Deckers et al., 2017). Our data suggest that there is a difference in the relationship between age and patience in developing countries, though. It might be the case that growing up in a poor environment makes subjects more impatient the longer they are exposed to poverty.

Table 5 reports Pearson correlation coefficients between parents' and children's preferences. For each experimental measure, we show in Panel A the correlation coefficients when we consider all children together ("All children") and in Panel B the coefficients for "Sons" and "Daughters". Children's experimental choices are correlated separately with fathers' and mothers' choices.

When we look at columns "All children" we note that all correlations are positive and almost all of them are significant. There is always at least one significant relationship between one parent and the child. When we look at Panel B with "Sons" and "Daughters" separately, we see that in the large majority of cases sons' and daughters' preferences are also significantly correlated with at least one of the parents' preferences. For some preferences, in particular social preferences, both the correlations with fathers and with mothers are significant. Overall, our correlation analysis demonstrates a significant relationship between parents' and children's economic preferences, and in particular it shows that both mothers and fathers have an influence on their children.

4. Regression analysis

In this section, we present an analysis of the relationship between children's and parents' economic preferences by running several regressions and considering different aspects of the relationship. Our regressions take the general form:

$$Y_{ivj} = \alpha + \beta_f Y_{ivjf} + \beta_m Y_{ivjm} + \sum \gamma_k X_{ivj} + \beta_3 D_{vj} + \varphi_j + \varepsilon_{ivj} \qquad (1)$$

where Y_{ivj} is the economic preference (i.e., one of our measures for time, risk, or social preferences) of child *i* in village *v* in district *j*, and Y_{ivjf} and Y_{ivjm} are the corresponding preferences of the child's father (f) and mother (m), respectively. The vector X_{ivj} includes a set of observable factors that may affect Y_{ivj}. Thus, we control for the socio-economic background, demographic information, and personality traits. The set comprises information about subject *i* (gender, age, schooling), his or her siblings (number of older, respectively younger, brothers and sisters), information about both mothers and fathers (their age, years of schooling, profession) and household (size, income per capita), scores for child *i*'s cognitive skills (full scale IQ) and non-cognitive skills (Big 5 dimensions, locus of control). D_v is the village population, φ_j are fixed effects for districts, ε_{ivj} is an error term. Standard errors are clustered at the household level. In

the following subsections we analyze different aspects of the relationship between children's and parents' economic preferences.

4.1 Association between children's and parents' preferences

We start with our key question, which is how are mothers' and fathers' economic preferences related to their child's preferences when we control for a multitude of background factors, including socio-economic status of parents. In other words, we are interested in the coefficients β_f and β_m from equation (1).

Table 6 shows the association between children's and each parent's preferences. OLS coefficients[14] are reported in columns 1 and 3, and Probit marginal effects are reported in columns 2, and 4 to 8. The overall pattern emerging from Table 6 is that there is a strong positive association between mothers' and fathers' preferences and their children's preferences. All the preference measures for time, risk and social preferences are positively and significantly associated with at least one parent's preferences. In fact, in the majority of cases there is a significant relation to both mothers and fathers. In additional regressions not shown here, we find that the mother's (the father's) preferences remain significant if the other parent's preferences were excluded from the regressions shown in Table 6.

When comparing the estimated coefficients for mothers and fathers, there is only a single measure for which our regressions indicate a significant difference between the coefficients β_f for fathers and β_m for mothers, and this is the case for spitefulness, where mothers' coefficient is significantly larger than fathers'. In all other cases, the relationship to the child's preferences seems to be equally strong for mothers and for fathers (see the test statistics at the bottom of Table 6).

Table 6 about here

In Table 6, we also show the relation of other covariates to children's economic preferences. Children's age does not seem to matter. Gender is insignificant except for the number of patient choices, with girls being more patient. Interestingly, and importantly in our view, the per-capita income of household does not have any significant relationship with children's economic

[14] Using ordered probit estimates yields qualitatively the same results. See Appendix Table A5.

preferences. Alternative specifications (not shown here) with annual household income (not normalized per capita) also fail to find a significant relationship. Table 6 also shows that the coefficients for the number of years of schooling of mothers and fathers are weakly significant only in two cases (time consistent preference is weakly positively associated with mothers' years of schooling, and spiteful is weakly negatively correlated with fathers' years of schooling). Hence, our data suggest that there is hardly any relationship between socio-economic status of parents and their children's economic preferences.

The variable household size shows an expected relationship to social preferences. The larger the number of household members, the less likely children are egalitarian and altruistic and the more likely selfish. We do not include in the regressions in Table 6 other sibling's preferences as an explanatory variable, because we are going to look into the effects of older siblings' preferences later in subsection 4.4.

Children's IQ is related to economic preferences in several dimensions. Children with higher IQ are more egalitarian and less selfish, but also (somewhat surprisingly) less patient. Among the Big 5 personality traits, agreeableness and openness are related to time and social preferences, with exactly opposite signs in all four significant cases. Locus of control as another measure for non-cognitive skills is negatively associated with time consistent preferences and spitefulness.

In the following subsections, we are going to analyze some important relationships in more detail in order to test whether our main results from Table 6 are robust.

4.2 Children's age and association to parents' preferences

First, we look at whether the relationship between parents' and children's preferences changes with age. For this purpose, we have divided our set of children into three age groups: 9 years or younger, 10 to 14 years, and 15 years or older. We use the middle category (10 to 14 years) as the base category and interact the two other age categories with their parents' preferences. A priori, it is not straightforward what kind of relationship to expect. It may get weaker as children get older, because older children are more strongly exposed to external influences, for instance when interacting with peers. However, children's and parents' preferences may also converge with age because older children have had more time and opportunities to learn from their parents. Table 7 shows the results of our estimations.

Looking at the overall picture emerging from Table 7, we note that – when controlling for interaction effects in different age groups – mothers' preferences remain significant as a main effect, while fathers' preferences are much less related to their children's preferences. When children get older, fathers' time preferences turn significant, which may be due to fathers spending relatively more time with older children, while younger children in Bangladesh are predominantly raised by their mothers with whom they spend much more time than with fathers.

Table 7 about here

Looking at younger children separately can also be used to address the issue whether the results shown in Table 6 may partly be due to reverse causality – i.e., the potential influence of children on parents. While we cannot claim causality here, when we use only the set of children aged 10 or below[15], we could argue that their influence on parents is most likely smaller than the potential influence of older children in adolescence. Hence, significant relationships between parents' and children's preferences for younger children might be interpreted as a hint that parents influence children more than the other way around, if the estimates remain significant for parents. Table 8 suggests such a relationship. Mothers' coefficients remain almost always significant, while – consistent with the evidence from Table 7 – fathers' coefficients are less often significant.

Table 8 about here

4.3 Degree of assortative mating of parents and influence on children

Given the positive association between parents' and children's preferences observed in all domains of preferences reported above, our next question is to examine whether parents who are more similar have a stronger association with their children with respect to economic preferences. In order to answer this question, we first need to know if there is any assortative mating of parents in rural Bangladesh. Given that marriages in rural Bangladesh are in a large majority of cases arranged by the bride's and the groom's families (Ambrus et al., 2010, report a fraction of 92% of arranged marriages), it is not straightforward to expect similar preferences of husbands and wives,

[15] In order to keep the number of observations sufficiently large, we use the set of children aged 10 or younger here.

unless particular types of preferences are part of attributes sought in the marriages, whether or not they are arranged by the parents of the bride and the groom.

In Panel A of Table 9, we regress the husband's economic preferences on his wife's corresponding preference, controlling for husband's age, education, IQ, BIG 5 personality traits, locus of control, number of children, and household size and household income (following the specification in Dohmen et al., 2012). The coefficient for "Wife's preference" is always positive, and it is significant in four out of eight cases. We interpret this evidence as indicating some degree of assortative mating of parents. Of course, given the nature of our data, we cannot speak to the question whether this association has been caused by selection of similar partners or is the result of post-marriage convergence. However, the insignificant coefficient for "age of respondent" – which proxies length of marriage – in Table 9 suggests that post-marriage convergence is most likely not the main factor explaining assortative mating.

We see some influence of household income – and thus of socio-economic status – on father's preferences in Table 9. Higher household income is associated with less risk aversion of fathers, and with a higher likelihood of being egalitarian, and a lower likelihood of being selfish. Fathers with higher IQ are more likely to be time consistent, but are less patient on average. Moreover, higher IQ is associated with a lower likelihood of being selfish.

Table 9 about here

Panel B of Table 9 presents the same estimations for mothers, plugging in husband's preference on the right-hand side of the equation, and mothers' covariates. Like for fathers, there is a significant relation to the spouse's preference in four out of eight cases. Other than that, there are only a few noteworthy findings, like more years of schooling reducing the level of risk seeking of mothers (or making them more risk averse), and some effects of extraversion. So, by and large, the picture from both panels in Table 9 suggests that there is a considerable degree of assortative mating of parents, despite the fact that the large majority of marriages are arranged in Bangladesh.

Given that parental preferences are associated with each other, we can ask whether the relationship of children's and parents' preferences depends on how similar parental preferences are. To answer this question, we follow Dohmen et al.'s (2012) approach and categorize parents into two categories – homogeneous parents where the absolute difference in preferences between

husband and wife is less than one standard deviation, and heterogeneous parents if the absolute difference is greater than or equal to one standard deviation.[16] We repeat the main regressions presented in Table 6 by taking into account this separation into homogeneous and heterogeneous parents. We present the results in Table 10 which contains – in comparison to Table 6 – three additional explanatory variables: a dummy for whether a child's parents are classified as homogeneous (=1) and two interaction terms where we interact the mother's, respectively the father's, economic preference with the dummy for homogeneous parents. Including these additional explanatory variables implies that the main variables "father's preference" and "mother's preference" measure the relationship of fathers and mothers from heterogeneous families with the child's preferences. The influence of mothers and fathers from homogeneous families is shown in the post-estimation tests at the bottom of Table 10.

Table 10 about here

When we compare the results in Table 10 to those in Table 6 we see that the preferences of mothers and fathers from heterogeneous families (i.e., when mothers' and fathers' preferences are at least one standard deviation apart from each other) are less often significantly related to their child's preference than shown in Table 6 where we had not differentiated between homogeneous and heterogeneous preferences. When we look at the bottom of Table 10 we note, however, that homogeneous parents have a strong and in most cases significant relationship to their child's preferences. This means that assortative mating reinforces the influence of mothers and fathers on their child's preferences.

4.4 Taking into account older siblings

Within families, it is natural to assume that siblings will have an influence on each other as well, meaning that it is not only parents who may shape children's preferences. We make use of the data from the 367 families where we interviewed two children. This way we can look specifically at the influence of older siblings' preferences on younger siblings' preferences. We do this in two

[16] As a first step, we predict each adult's preference based on the covariates that we employed to explain preferences of children. One exception is that for parents we do not have their parents' preference data. For spitefulness, the absolute difference is kept at 0.5 S.D. in order to keep the two groups at reasonable sample sizes.

steps: first, we regress the older sibling's preference on parents' preferences and estimate the residuals. This way we control for the parents' relation to the older sibling's preferences. Second, we use the residuals as explanatory variables in estimating the younger sibling's preferences. Note that all other variables, including parental preferences, remain unchanged. Table 11 shows the results. It is obvious that there is some relationship between an older sibling's preferences and the younger sibling's. If older siblings are more patient and more risk taking, so are younger siblings. In a sense, through growing up in the same household, the older siblings may transmit the parental preferences also to the younger siblings because the older siblings are also influenced by parents.

Table 11 about here

4.5. Considering community preferences

Next we look at the association between the average preferences in a child's village and the child's economic preferences, controlling for parents' preferences. The motivation for this robustness check is to see whether the relation between parents' and children's preferences remains significant when we consider potential peer effects. Since most of our families' social life takes place within their villages, it is natural to assume that preferences of surrounding peers might play an important role.

Recall from Section 2 that our children lived in 150 different villages in rural areas of Bangladesh. We treat each village as a separate community and construct the average village preference for each preference type.[17] As expected, Table 12 shows that children's preferences are highly positively associated with the average preference in the village, indicating a significant relation to their peers. Yet, even when we control for community effects, the positive association observed between children's and their parents' preferences still remains important, in particular for mothers.

[17] We take the average of all villagers – both children and parents. However, to avoid the reflection problem, we exclude the child's and his or her parents' preferences in calculating the village average (similar to Dohmen et al., 2012). Note that most of our preference measures are discrete (time consistent, non-risk averse, spiteful, egalitarian, selfish, and altruistic) and only few of them are continuous (number of patient choices, and number picked in the lottery). However, the village average that we calculate from the discrete measures is continuous (for example, which proportion of villagers shows time consistent preferences).

Table 12 about here

4.6. A reconsideration of the effects of socio-economic status on children's preferences by dropping parents' preferences

Recall that some recent studies on the intergenerational transmission of economic preferences (like Deckers et al., 2017) have emphasized that socio-economic status is most important in explaining economic preferences of children.[18] We would like to conclude the results section by coming back to the relationship between children's preferences and parental socio-economic status. In Table 6 above, we have shown that this relationship is insignificant if we control for parents' economic preferences. In a final analysis, we drop the economic preferences of mothers and fathers to see whether socio-economic status can be revived as a significant factor for children's economic preferences. We use parents' education and per capita household income as covariates to represent socio-economic status (which is equivalent to the approach in Deckers et al., 2017).[19]

Table 13 about here

Table 13 shows the results of such a reduced model. In order to make it easier to see a potential effect of SES, we use a median split for household income to distinguish richer from poorer households (when we use the actual household income, the results remain qualitatively unchanged). We see some significant influence of household income in this case. Children from the richer set of households are considerably more patient, but other than that there is no significant relationship of the income dummy and children's economic preferences. The level of education of mothers and fathers (measured in years of schooling) doesn't have a strong relationship to children's economic preferences either. When fathers are better educated, children are weakly significantly less spiteful and more often time consistent. Better educated mothers have more often spiteful children. Overall, the evidence from Table 13 suggests that there is some relationship

[18] In fact, the evidence for the influence of SES on children's economic preferences is not unambiguous as some other studies also fail to find a significant relationship. For instance, Almas et al. (2016) report no significant difference between parental SES and children's risk and time preferences in Norway.

[19] If we would simply take land ownership as an indicator variable for SES (instead of per capita household income and parental education), the results reported in Table 13 would not change.

between SES and children's preferences, but not across all preference domains. Moreoever, Table 6 above has shown that there is hardly any significant relationship between SES and children's economic preferences as soon as one has data about the parents' economic preferences and can control for them.

5 Conclusion

The formation of economic preferences has become a major subject of examination in the economics literature in recent years (e.g., Heckman, 2006; Dohmen et al., 2012; Bauer et al., 2014; Almas et al., 2016; Alan et al., 2017; Deckers et al., 2017). The topic has become so prominent for two reasons: First, economic preferences, like risk, time or social preferences, have been found to be very important for a subject's success in life (e.g., Burks et al., 2009; Mischel, 2014). Second, given the importance of economic preferences for success in life, a new literature has started to investigate how policy interventions in schools (Alan and Ertac, 2018) or through mentoring programs (Kosse et al., 2016) can shape and influence the economic preferences of children and teenagers. For both reasons, it is important to understand how economic preferences are formed.

The nucleus of the formation process lies in a subject's family, for which reason we have investigated in a unique sample of 1,999 subjects from Bangladesh how children's economic preferences are related to their mother's and their father's economic preferences, controlling for many other potentially influential factors, like cognitive and non-cognitive skills, and in particular for socio-economic status of parents.

Our paper is the first incentivized study of the relationship between socio-economic status and children's preferences in a poor developing country. A priori, it is not clear whether the relationship that has been established in a rich country would persist also in a very poor country like Bangladesh. Since the opportunities for social mobility might even be lower in poor countries than in richer ones, it seems important to examine whether socio-economic status is equally predictive in poor countries, because that would allow targeting children from specific, low SES-families for any kind of policy intervention. Our paper is also the first to elicit experimental preferences (with respect to risk, time and social preferences) of children and both their mothers *and* their fathers, while at the same time controlling for socio-economic status. This second novelty allows us to examine how children's economic preferences are related to both socio-economic

status and each parent's economic preferences, and whether there is any difference in the relation of children's preferences to mothers and fathers.

Our results have shown a clear and consistent picture. Controlling for many other factors, the economic preferences of fathers and mothers are in almost all cases positively and significantly related to their children's economic preferences. Importantly, we also find in almost all cases that the correlation is equally strong for mothers and for fathers, clearly indicating that both parents are important in the formation of children's economic preferences. Previous studies (like Kosse and Pfeiffer, 2012, or Alan et al., 2017) have been unable to speak to the relative influence of both mothers and fathers because they have only had access to experimental choices of one parent.

When we include both parents' preferences, socio-economic status – measured through household income and parents' level of education – is hardly ever significantly related to children's economic preferences. Only when omitting parents' economic preferences, we can retain some explanatory power of SES, but not on all preference domains considered here.

We consider our findings an important addition to the current debate about the intergenerational transmission of economic preferences and the role of socio-economic status for the formation of economic preferences. Our results suggest that in the environment of a developing country it might be premature to target children from low socio-economic status to affect a child's economic preferences (to make him or her more patient, more risk tolerant and more prosocial), since there is no obvious relationship between socio-economic status and children's economic preferences. Rather, it seems more advisable to learn more about the parents themselves as an indicator of what type of economic preferences their children have. It is true that this will make interventions more complex, but probably better tailored.

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Tables

Table 1: Summary statistics of participants

	Mean	Std. Dev
Panel A: Children's background		
Gender (boys= 0, girls= 1)	0.503	0.500
Age of respondent (in years)	12.231	2.897
Years of schooling	3.989	2.734
Currently attending school (yes=1, no=0)	0.925	0.263
How many elder brothers?	0.959	1.066
How many elder sisters?	0.931	1.056
How many younger brothers?	0.607	0.760
How many younger sisters?	0.568	0.754
Age father (in years)	47.160	8.733
Age mother (in years)	38.492	6.945
Schooling father (in years)	3.042	4.012
Schooling mother (in years)	3.165	3.448
Father is a farmer (yes=1, no=0)	0.527	0.500
Mother is a housewife (yes=1, no=0)	0.958	0.200
Household size (# of persons)	5.791	1.373
Grand parents living in household (yes=1)	0.151	0.359
Income per capita per month in 2016 (in Taka)	1,640	1,799
Total village population in 2015	1,711	1,851.689

Table 1 – continued

Panel B: Cognitive and non-cognitive skills

	Children (N=911)		Mother (N=544)		Father (N=544)	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Full Scale IQ	111.997	47.387	99.515	42.996	106.374	45.868
Locus of Control Index	6.448	2.667	-7.070	7.304	-8.874	7.421
Extraversion	3.919	1.292	4.244	0.974	4.091	0.902
Conscientiousness	5.510	1.014	6.077	0.783	6.160	0.706
Openness	5.086	1.328	5.096	1.025	4.618	1.213
Agreeableness	5.087	1.071	5.192	0.894	5.154	0.761
Neuroticism	2.915	1.158	3.738	0.997	3.584	0.916

See section 2.2 and Appendix for details about the elicitation of cognitive and non-cognitive skills.

Table 2: All three experiments

Panel A: Time preferences		
	Children	
	Option 1	Option 2
Choice set 1	2 stars tomorrow vs.	3 stars in 3 weeks
	2 stars tomorrow vs.	4 stars in 3 weeks
Choice set 2	2 stars tomorrow vs.	3 stars in 3 months
	2 stars tomorrow vs.	4 stars in 3 months
Choice set 3	2 stars in 1 month vs.	3 stars in 4 months
	2 stars in 1 month vs.	4 stars in 4 months
	Parents	
Choice set 1	100 Taka tomorrow vs.	105 Taka in 3 months
	100 Taka tomorrow vs.	110 Taka in 3 months
	100 Taka tomorrow vs.	120 Taka in 3 months
	100 Taka tomorrow vs.	125 Taka in 3 months
	100 Taka tomorrow vs.	150 Taka in 3 months
	100 Taka tomorrow vs.	200 Taka in 3 months
Choice set 2	100 Taka in 1 month vs.	105 Taka in 4 months
	100 Taka in 1 month vs.	110 Taka in 4 months
	100 Taka in 1 month vs	120 Taka in 4 months
	100 Taka in 1 month vs	125 Taka in 4 months
	100 Taka in 1 month vs	150 Taka in 4 months
	100 Taka in 1 month vs	200 Taka in 4 months
Choice set 3	100 Taka in 1 year vs.	105 Taka in 1 year 3 months
	100 Taka in 1 year vs	110 Taka in 1 year 3 months
	100 Taka in 1 year vs	120 Taka in 1 year 3 months
	100 Taka in 1 year vs	125 Taka in 1 year 3 months
	100 Taka in 1 year vs	150 Taka in 1 year 3 months
	100 Taka in 1 year vs	200 Taka in 1 year 3 months

Table 2 – continued

Panel B: Risk preferences – payoffs offered to different age groups (in Taka)

	Age 6-7		Age 8-9		Age 10-11		Age 12-13		Age 14-15		Age 16-17		Adults	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
Gamble 1	13	13	19	19	25	25	38	38	44	44	63	63	125	125
Gamble 2	11	24	17	36	23	48	33	72	39	84	55	120	110	240
Gamble 3	10	30	15	45	20	60	30	90	35	105	50	150	100	300
Gamble 4	8	38	11	56	15	75	22	112	26	131	38	188	75	375
Gamble 5	3	47	4	71	5	95	8	142	9	166	13	237	25	475
Gamble 6	0	50	0	75	0	100	0	150	0	175	0	250	0	500

Panel C: Social preferences

	Option 1	Option 2	In short
Prosocial game	1 star for me 1 star for other child	1 star for me 0 star for other child	(1,1) vs. (1,0)
Envy game	1 star for me 1 star for other child	1 star for me 2 stars for other child	(1,1) vs. (1,2)
Sharing game	1 star for me 1 star for other child	2 star for me 0 stars for other child	(1,1) vs. (2,0)
Efficiency game	1 star for me 1 star for other child	2 stars for me 3 stars for other child	(1,1) vs. (2,3)

Table 3: Classification of subjects into four social preference types based on the games introduced in Panel C of Table 2.

	Sharing game (1,1) vs. (2,0)	Prosocial game (1,1) vs (1,0)	Envy game (1,1) vs (1,2)	Efficiency game (1,1) vs (2,3)
Altruistic	(1,1)	(1,1)	(1,2)	(2,3)
Egalitarian	(1,1)	(1,1)	(1,1)	(1,1)
Spiteful	(2,0)	(1,0)	(1,1)	(1,1)
Selfish	(2,0)	(1,1) or (1,0)	(1,1) or (1,2)	(2,3)

Table 4 – Economic Preferences by Children and Parents

Panel A: Mean and SE of Economic Preferences by Children and Their Differences by Gender and Age Groups

	Total		Girls		Boys		Age below 10		Age above 14		Difference (p-value)	
	mean	se	mean	se	mean	se	mean	se	mean	se	Boys vs Girls	Age below 10 vs above 14
Number of patient choices made	2.77	0.07	2.69	0.10	2.85	0.10	3.19	0.15	2.11	0.13	0.31	0.00
Indicator for time consistency (1 or 0)	0.66	0.02	0.64	0.02	0.68	0.02	0.68	0.03	0.69	0.03	0.14	0.69
Gamble number picked	3.87	0.07	3.84	0.10	3.91	0.11	3.90	0.16	3.64	0.14	0.65	0.20
Non-risk averse (1, 0)	0.20	0.02	0.19	0.03	0.22	0.03	0.23	0.04	0.13	0.03	0.36	0.06
Altruistic (1, 0)	0.07	0.01	0.07	0.01	0.06	0.01	0.07	0.02	0.04	0.01	0.45	0.25
Egalitarian (1,0)	0.17	0.01	0.17	0.02	0.17	0.02	0.11	0.02	0.23	0.03	0.77	0.00
Spiteful (1,0)	0.20	0.01	0.20	0.02	0.21	0.02	0.16	0.03	0.24	0.03	0.88	0.01
Selfish (1,0)	0.31	0.02	0.31	0.02	0.30	0.02	0.43	0.03	0.25	0.03	0.65	0.00
Number of observations	911		458		453		210		255		911	465

Panel B: Mean and SE of Outcomes by Father and Mother

	Total		Mother		Father		Difference (p-value)
	mean	se	mean	se	mean	se	Mother vs Father
Number of patient choices made	7.18	0.21	7.75	0.30	6.61	0.30	0.00
Indicator for time consistency (1 or 0)	0.71	0.01	0.68	0.02	0.74	0.02	0.01
Gamble number picked	3.93	0.05	3.90	0.07	3.95	0.07	0.64
Subject picked lottery 6 in Binswanger	0.25	0.01	0.25	0.02	0.25	0.02	0.95
Altruistic	0.08	0.01	0.06	0.01	0.10	0.01	0.05
Egalitarian	0.15	0.01	0.09	0.01	0.22	0.02	0.00
Spiteful	0.20	0.01	0.22	0.02	0.19	0.02	0.20
Selfish	0.32	0.01	0.36	0.02	0.28	0.02	0.00
Number of observations	1,088		544		544		

Table 5 – Correlations

Panel A: Correlations between all children's and parents' economic preferences

	# of Patient choices	Time consistent	Lottery # picked	Non-risk averse
Father	0.165***	0.088***	0.079*	0.119**
Mother	0.182***	0.036	0.121***	0.160***

	Spiteful	Egalitarian	Altruistic	Selfish
Father	0.448***	0.100***	0.078**	0.172***
Mother	0.574***	0.112***	0.094***	0.222***

Panel B: Correlations between sons' and daughters' economic preferences with mothers' and fathers' preferences

	# of Patient choices		Time consistent		Lottery # picked		Non-risk averse	
	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
Father	0.158***	0.176***	0.114**	0.061	0.149**	0.022	0.144**	0.101
Mother	0.175***	0.197***	0.085*	-0.014	0.101	0.137**	0.147**	0.173***

	Spiteful		Egalitarian		Altruistic		Selfish	
	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
Father	0.433***	0.464***	0.060	0.136***	0.088*	0.062	0.167***	0.176***
Mother	0.525***	0.623***	0.052	0.167***	0.127***	0.055	0.252***	0.194***

*** p<0.01, ** p<0.05, * p<0.1.

Table 6: Association between parents' and children's preferences

	# of Patient Choices	Time Consist. Pref.	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Parent's preference - father	0.039***	0.082**	0.100**	0.129**	0.055	0.075**	0.054	0.095**
	(0.011)	(0.039)	(0.048)	(0.054)	(0.044)	(0.035)	(0.034)	(0.041)
Parent's preference - mother	0.051***	-0.006	0.101**	0.124**	0.345***	0.097*	0.094**	0.124***
	(0.011)	(0.037)	(0.050)	(0.052)	(0.056)	(0.051)	(0.047)	(0.037)
Gender (Male 1, Female 0)	-0.279*	-0.055	-0.029	-0.022	0.020	0.020	0.007	0.001
	(0.143)	(0.034)	(0.151)	(0.037)	(0.026)	(0.025)	(0.015)	(0.032)
Age of respondent	0.009	0.016	-0.082	-0.015	-0.013	0.008	0.004	0.010
	(0.056)	(0.013)	(0.060)	(0.015)	(0.009)	(0.009)	(0.005)	(0.012)
Years of schooling	-0.081	-0.001	0.055	0.019	0.023**	-0.009	-0.002	-0.003
	(0.052)	(0.014)	(0.060)	(0.015)	(0.010)	(0.009)	(0.005)	(0.012)
Currently attending school=1, 0 otherwise	-0.078	0.085	0.119	-0.000	0.020	0.052	-0.001	-0.097
	(0.272)	(0.073)	(0.348)	(0.085)	(0.049)	(0.043)	(0.028)	(0.067)
Father's years of schooling	0.002	-0.008	-0.024	-0.007	-0.008*	-0.004	0.002	0.005
	(0.025)	(0.005)	(0.025)	(0.006)	(0.004)	(0.004)	(0.002)	(0.006)
Mother's years of schooling	0.004	0.012*	0.024	0.004	0.005	0.007	-0.003	-0.002
	(0.030)	(0.007)	(0.032)	(0.008)	(0.005)	(0.005)	(0.003)	(0.007)
Household size	-0.029	-0.008	0.081	0.041*	0.001	-0.027**	-0.012*	0.058***
	(0.084)	(0.017)	(0.102)	(0.025)	(0.014)	(0.014)	(0.007)	(0.017)
Per cap income per month x 10^4	0.299	-0.033	-0.344	0.021	-0.007	0.067	0.020	-0.140
	0.456	0.084	0.557	0.133	0.077	0.094	0.036	0.106
Full Scale IQ measure	-0.404***	-0.046*	-0.061	-0.036	0.018	0.059***	-0.013	-0.078***
	(0.108)	(0.026)	(0.115)	(0.031)	(0.020)	(0.020)	(0.010)	(0.026)
Conscientiousness	-0.026	-0.007	0.132*	0.038*	0.009	0.003	0.009	0.006
	(0.081)	(0.019)	(0.076)	(0.021)	(0.015)	(0.014)	(0.009)	(0.018)
Extraversion	-0.204***	0.006	-0.030	-0.019	-0.019	0.018	0.007	-0.012
	(0.073)	(0.017)	(0.075)	(0.020)	(0.013)	(0.013)	(0.007)	(0.016)
Agreeableness	-0.054	0.047***	0.024	0.012	-0.029*	0.029**	-0.005	-0.009
	(0.078)	(0.017)	(0.087)	(0.021)	(0.015)	(0.013)	(0.008)	(0.017)

Openness	0.091	-0.040**	0.004	-0.017	0.024*	-0.025**	0.005	0.018
	(0.072)	(0.017)	(0.081)	(0.020)	(0.013)	(0.012)	(0.007)	(0.017)
Neuroticism	0.022	0.005	0.074	0.021	0.011	-0.001	-0.003	0.017
	(0.069)	(0.017)	(0.080)	(0.020)	(0.013)	(0.011)	(0.008)	(0.016)
Locus of control	0.021	-0.030*	-0.059	0.017	-0.041***	0.016	-0.004	0.028
	(0.068)	(0.017)	(0.079)	(0.019)	(0.016)	(0.013)	(0.007)	(0.018)
Observations	906	900	456	447	890	884	885	900
R^2/ Pseudo - R^2	0.174	0.0538	0.118	0.114	0.402	0.080	0.096	0.168
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value for F-test: Father=Mother	0.509	0.115	0.992	0.944	0.001	0.754	0.512	0.587

All specifications include number of younger and older siblings, age and education of father and mother, household size, grand parents dummy, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Association between parents' and children's preferences for older and younger children

	# of Patient Choices	Time Consist. Pref.	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father's preference	0.033**	0.035	0.096	0.103	0.086	0.068	0.130**	0.080
	(0.015)	(0.049)	(0.059)	(0.064)	(0.055)	(0.048)	(0.058)	(0.052)
Mother's preference	0.060***	-0.012	0.137**	0.228***	0.325***	0.100	0.098	0.151***
	(0.014)	(0.049)	(0.060)	(0.071)	(0.069)	(0.075)	(0.062)	(0.046)
Father's pref.* younger children	-0.027	0.018	0.065	0.028	-0.068	0.032	-0.045***	0.023
	(0.023)	(0.076)	(0.095)	(0.092)	(0.048)	(0.072)	(0.010)	(0.077)
Mother's pref.* younger children	-0.004	-0.007	-0.047	-0.068	0.045	-0.002	-0.028	-0.031
	(0.022)	(0.081)	(0.096)	(0.071)	(0.082)	(0.092)	(0.030)	(0.064)
Father's pref.* older children	0.045**	0.143**	-0.038	0.064	-0.029	-0.001	-0.050***	0.040
	(0.023)	(0.063)	(0.081)	(0.100)	(0.070)	(0.062)	(0.008)	(0.089)
Mother's pref.* older children	-0.024	0.026	-0.099	-0.187***	0.013	-0.009	0.035	-0.066
	(0.020)	(0.076)	(0.079)	(0.026)	(0.078)	(0.087)	(0.085)	(0.064)
Observations	906	900	456	447	890	884	885	900
R^2/ Pseudo -R^2	0.182	0.051	0.129	0.122	0.389	0.079	0.095	0.151
District Fixed Effects included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value for F-test: Father's preference = Mother's preference	0.254	0.550	0.673	0.219	0.0260	0.759	0.694	0.341

All specifications include number of younger and older siblings, age and education of father and mother, household size, grand parents dummy, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Looking at young children only (aged 10 or younger)

	# of Patient Choices	Time Con. Pref.	Lottery Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father's preference	-0.006	0.033	0.185**	0.299***	-0.020	0.026	0.005	0.069
	(0.019)	(0.069)	(0.086)	(0.115)	(0.036)	(0.041)	(0.032)	(0.071)
Mother's preference	0.076***	0.015	0.238**	0.426***	0.377***	0.088	-0.004	0.159**
	(0.020)	(0.068)	(0.093)	(0.108)	(0.097)	(0.076)	(0.026)	(0.068)
Observations	311	304	146	141	280	300	299	304
R^2/ Pseudo -R^2	0.158	0.079	0.302	0.292	0.4349	0.1602	0.1996	0.1708
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value for F-test: Father=Mother	0.005	0.857	0.683	0.429	0.001	0.483	0.824	0.364

All specifications include number of younger and older siblings, age and education of father and mother, household size, grand parents dummy, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 9 – Panel A: Fathers‘ preferences

	Number of Patient Choices	Time Consistent Preference	Lottery Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Wife’s preference	0.186***	0.102**	0.088**	0.012	0.342***	0.092	0.031	0.033
	(0.045)	(0.044)	(0.042)	(0.044)	(0.063)	(0.069)	(0.047)	(0.040)
Age of respondent	-0.037	0.000	-0.003	-0.000	0.001	0.001	-0.000	-0.002
	(0.048)	(0.003)	(0.011)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
Difference in spouses’ age	0.009	-0.002	-0.009	-0.007	-0.004	-0.002	0.001	0.004
	(0.080)	(0.005)	(0.019)	(0.005)	(0.003)	(0.005)	(0.002)	(0.005)
Years of schooling	-0.135	-0.001	-0.012	0.004	0.007	0.013*	-0.006	-0.003
	(0.125)	(0.008)	(0.029)	(0.008)	(0.006)	(0.007)	(0.004)	(0.008)
Difference in spouses' schooling	0.002	0.002	0.005	-0.003	-0.004	-0.011	0.011**	0.010
	(0.115)	(0.008)	(0.028)	(0.008)	(0.006)	(0.007)	(0.004)	(0.007)
Number of children	0.009	-0.052	-0.074	0.021	-0.040	0.030	-0.019	0.010
	(0.458)	(0.032)	(0.114)	(0.030)	(0.026)	(0.029)	(0.016)	(0.030)
Household size	0.406	0.054**	0.125	-0.005	0.012	-0.021	0.009	-0.007
	(0.383)	(0.027)	(0.094)	(0.025)	(0.021)	(0.024)	(0.012)	(0.025)
Per capita income per month	0.000	-0.000	0.000	0.000*	-0.000	0.000	0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Full Scale IQ measure	-0.684*	0.051**	0.143	0.025	0.008	0.031	-0.016	-0.045*
	(0.396)	(0.025)	(0.096)	(0.025)	(0.018)	(0.023)	(0.013)	(0.027)
Conscientiousness	-0.112	0.014	-0.002	-0.011	0.012	0.027	0.034**	-0.038*
	(0.364)	(0.021)	(0.089)	(0.023)	(0.018)	(0.020)	(0.013)	(0.022)
Extraversion	-0.168	0.002	-0.059	-0.023	-0.011	0.020	0.003	0.007
	(0.344)	(0.022)	(0.092)	(0.022)	(0.018)	(0.020)	(0.013)	(0.023)
Agreeableness	0.336	-0.012	-0.057	-0.023	-0.052***	0.023	0.002	0.023
	(0.337)	(0.023)	(0.085)	(0.023)	(0.017)	(0.021)	(0.011)	(0.023)
Openness	0.046	-0.002	0.114	0.009	-0.011	-0.011	-0.017	0.028
	(0.308)	(0.019)	(0.073)	(0.019)	(0.015)	(0.017)	(0.011)	(0.020)
Neuroticism	0.223	-0.009	-0.046	-0.044**	-0.005	-0.001	0.005	-0.000
	(0.322)	(0.022)	(0.093)	(0.022)	(0.017)	(0.020)	(0.013)	(0.022)

Locus of control	-0.329	0.028	-0.108	-0.038*	0.011	0.027	-0.019	-0.027
	(0.314)	(0.020)	(0.083)	(0.020)	(0.015)	(0.018)	(0.013)	(0.022)
Observations	540	540	536	529	531	538	536	536
R^2/ Pseudo - R^2	0.135	0.0697	0.090	0.005	0.4043	0.0894	0.1231	0.1199
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Husband's preference is regressed on wife's preference. All specifications include number of younger and elder siblings, profession and district fixed effects. OLS in column 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 9 – Panel B: Mothers‘ preferences

	Number of Patient Choices	Time Consistent Preference	Lottery Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Husband’s preference	0.162***	0.123**	0.091*	0.021	0.359***	0.037	0.016	0.063
	(0.043)	(0.051)	(0.048)	(0.047)	(0.063)	(0.033)	(0.028)	(0.050)
Age of respondent	-0.096**	0.004	-0.008	-0.004	-0.003	0.001	-0.002	0.002
	(0.044)	(0.003)	(0.012)	(0.003)	(0.003)	(0.002)	(0.001)	(0.003)
Difference in spouses’ age	-0.016	0.002	-0.004	-0.003	-0.001	0.002	-0.002	-0.003
	(0.058)	(0.005)	(0.017)	(0.004)	(0.003)	(0.002)	(0.002)	(0.005)
Years of schooling	-0.172	0.000	-0.063**	-0.014*	0.001	0.002	0.003	-0.005
	(0.123)	(0.009)	(0.030)	(0.008)	(0.007)	(0.004)	(0.004)	(0.009)
Difference in spouses' schooling	0.188**	-0.003	0.002	0.002	-0.007	0.004	0.002	-0.004
	(0.094)	(0.007)	(0.025)	(0.006)	(0.005)	(0.003)	(0.003)	(0.007)
Number of children	0.110	0.024	-0.115	-0.013	-0.041	-0.009	-0.001	0.023
	(0.418)	(0.033)	(0.119)	(0.031)	(0.029)	(0.018)	(0.012)	(0.035)
Household size	-0.161	-0.022	0.075	0.012	0.029	0.002	0.006	-0.027
	(0.321)	(0.027)	(0.093)	(0.025)	(0.022)	(0.015)	(0.010)	(0.028)
Per capita income per month in 2016	0.000	0.000	0.000	0.000	-0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Full Scale IQ measure	-0.077	0.049*	0.136	0.024	0.012	0.010	-0.013	-0.034
	(0.410)	(0.028)	(0.104)	(0.026)	(0.022)	(0.015)	(0.011)	(0.030)
Conscientiousness	-0.254	0.046**	-0.058	-0.016	0.006	0.018	0.018*	-0.054**
	(0.303)	(0.022)	(0.079)	(0.020)	(0.019)	(0.012)	(0.010)	(0.023)
Extraversion	0.876***	-0.019	0.138	0.028	-0.031	-0.006	0.023***	-0.011
	(0.322)	(0.022)	(0.084)	(0.021)	(0.020)	(0.012)	(0.008)	(0.025)
Agreeableness	0.072	0.024	-0.018	-0.014	-0.013	-0.008	0.005	0.008
	(0.273)	(0.020)	(0.073)	(0.019)	(0.018)	(0.010)	(0.008)	(0.021)
Openness	0.005	0.020	0.082	-0.018	0.018	0.017	-0.020**	-0.009
	(0.337)	(0.024)	(0.093)	(0.023)	(0.023)	(0.014)	(0.009)	(0.025)
Neuroticism	-0.347	0.003	-0.101	-0.017	-0.027*	0.011	0.009	0.021

	(0.298)	(0.021)	(0.072)	(0.019)	(0.015)	(0.011)	(0.009)	(0.022)
Locus of control	-0.015	0.040	-0.125	-0.036	0.017	0.027*	0.004	-0.012
	(0.327)	(0.024)	(0.089)	(0.023)	(0.020)	(0.014)	(0.008)	(0.026)
Observations	541	537	537	530	534	532	534	533
R^2/ Pseudo - R^2	0.183	0.111	0.063	0.034	0.479	0.082	0.151	0.114
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Wife's preference is regressed on husband's preference. All specifications include number of younger and elder siblings, profession and district fixed effects. OLS in column 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Relation of parents' homogeneity/heterogeneity to children's preferences

	Number of Patient Choices	Time Consistent Preference	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father's preference	0.043**	0.067	0.064	0.094	-0.060	0.047	0.020	0.074
	(0.018)	(0.052)	(0.067)	(0.075)	(0.045)	(0.038)	(0.034)	(0.051)
Mother's preference	0.055***	-0.006	0.062	0.088	0.559***	0.068	0.063	0.164***
	(0.019)	(0.045)	(0.065)	(0.071)	(0.088)	(0.055)	(0.055)	(0.045)
Homogeneous parents=1	0.090	0.041	-0.697	-0.014	0.021	-0.011	-0.038**	-0.067
	(0.323)	(0.074)	(0.569)	(0.067)	(0.047)	(0.034)	(0.016)	(0.049)
Father's preference * homogeneous parents	-0.008	0.024	0.115	0.011	0.208*	0.081	0.081	0.037
	(0.049)	(0.073)	(0.157)	(0.092)	(0.120)	(0.085)	(0.081)	(0.081)
Mother's preference * homogeneous parents	-0.002	0.022	0.011	0.084	-0.122***	0.063	0.074	-0.116**
	(0.048)	(0.070)	(0.173)	(0.105)	(0.030)	(0.113)	(0.084)	(0.059)
Observations	906	899	456	450	897	891	897	891
(Pseudo) R-squared	0.174	0.0458	0.124	0.0947	0.392	0.0742	0.0874	0.163
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Post-estimation tests to estimate the influence of mothers and fathers in homogeneous families								
Fathers's preference +Father's preference * Homogeneous parents + Homogeneous parents = 0	0.700	0.074	0.371	0.280	0.080	0.062	0.249	0.526
Mother's preference +Mother's preference * Homogeneous parents + Homogeneous parents = 0	0.656	0.422	0.250	0.280	0.000	0.062	0.045	0.532

All specifications include gender, age, years of schooling, currently attending school or not, full scale IQ measure, BIG 5 personality traits, locus of control index, number of younger and older siblings, age and education of father and mother, household size, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, and 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Similarities between siblings‘ preferences

	Number of Patient Choices	Time Consistent Preference	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elder sibling's pref. residuals	0.303***	0.050	0.225	-0.045	0.023	-0.062	-0.118	0.035
	(0.055)	(0.038)	(0.146)	(0.137)	(0.048)	(0.110)	(0.188)	(0.023)
Father's preference	0.022	0.044	0.201*	0.083	0.480***	0.051	0.026	0.110*
	(0.017)	(0.061)	(0.118)	(0.103)	(0.108)	(0.046)	(0.052)	(0.064)
Mother's preference	0.058***	0.046	0.338**	0.104	-0.040	0.039	0.172*	0.094
	(0.018)	(0.061)	(0.132)	(0.098)	(0.054)	(0.056)	(0.099)	(0.061)
Observations	361	361	90	90	334	355	355	355
R^2/ Pseudo -R^2	0.251	0.081	0.457	0.293	0.437	0.132	0.122	0.169
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Younger sibling's preferences are regressed on older sibling's preference residuals. All specifications include gender, age, years of schooling, currently attending school or not, full scale IQ measure, BIG 5 personality traits, locus of control index, number of younger and older siblings, age and education of father and mother, household size, grandparents dummy, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, and 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 12: Effect of average village preference on children's preferences

	Number of Patient Choices	Time Consistent Preference	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father's preference	0.026**	0.050	0.102**	0.085*	-0.024	0.045	0.027	0.042
	(0.011)	(0.038)	(0.049)	(0.051)	(0.038)	(0.034)	(0.032)	(0.040)
Mother's preference	0.036***	-0.019	0.102**	0.112**	0.161***	0.080	0.074*	0.056
	(0.012)	(0.036)	(0.051)	(0.051)	(0.056)	(0.049)	(0.044)	(0.039)
Average village preference	0.276***	0.360**	-0.046	0.381	0.602***	0.388**	0.302**	0.515***
	(0.057)	(0.155)	(0.215)	(0.264)	(0.116)	(0.153)	(0.125)	(0.134)
Observations	906	906	456	456	904	904	904	904
R^2/ PseudoR^2	0.196	0.046	0.118	0.101	0.424	0.086	0.089	0.164
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

All specifications include gender, age, years of schooling, currently attending school or not, full scale IQ measure, BIG 5 personality traits, locus of control index, number of younger and older siblings, age and education of father and mother, household size, grandparents dummy, village population and district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, and 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Socio-economic status and children's preferences – excluding parents' preferences

	# of Patient Choices	Time Consist. Pref.	Gamble Number Picked	Non-Risk Averse	Spiteful	Egalitarian	Altruistic	Selfish
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Gender (Male 1, Female 0)	-0.284**	-0.049	-0.086	-0.041	0.015	0.019	0.010	-0.008
	(0.144)	(0.032)	(0.148)	(0.036)	(0.025)	(0.024)	(0.017)	(0.031)
Age of respondent	-0.025	0.013	-0.093*	-0.025*	-0.004	0.012	0.002	-0.010
	(0.050)	(0.011)	(0.051)	(0.014)	(0.009)	(0.009)	(0.005)	(0.010)
Years of schooling	-0.172***	-0.011	0.064	0.008	0.019**	0.005	-0.006	-0.019*
	(0.052)	(0.012)	(0.054)	(0.016)	(0.009)	(0.009)	(0.005)	(0.011)
Currently attending school	-0.054	0.117*	0.080	0.002	0.019	0.059	-0.005	-0.117*
	(0.288)	(0.071)	(0.357)	(0.093)	(0.058)	(0.046)	(0.034)	(0.067)
Income is above median income (=1)	0.312**	0.008	-0.054	0.007	-0.016	-0.027	-0.007	0.024
	(0.159)	(0.033)	(0.165)	(0.042)	(0.028)	(0.026)	(0.016)	(0.034)
Years of schooling - father	-0.006	-0.008*	-0.030	-0.006	-0.008*	-0.001	0.002	0.002
	(0.025)	(0.005)	(0.023)	(0.006)	(0.004)	(0.004)	(0.002)	(0.005)
Years of schooling - mother	-0.014	0.008	0.005	-0.002	0.011**	0.007	-0.002	-0.003
	(0.030)	(0.006)	(0.028)	(0.008)	(0.005)	(0.005)	(0.003)	(0.006)
Observations	906	906	456	456	904	904	904	904
R^2/ Pseudo -R^2	0.076	0.0157	0.026	0.036	0.2757	0.0324	0.0272	0.1041

All specifications include district fixed effects. OLS coefficients reported in columns 1 & 3, and Probit, marginal effects reported in columns 2, 4-8. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

Income + schooling father + schooling mother=0								
F or Chi2	1.36	3.02	0.77	1.79	5.14	2.92	1.2	0.69
Prob>F or Prob>Chi2	0.254	0.389	0.511	0.617	0.162	0.405	0.754	0.876

Appendix

Evaluating intergenerational persistence of economic preferences: A large scale experiment with families in Bangladesh

Shyamal Chowdhury, Matthias Sutter and Klaus F. Zimmermann

A) Additional Tables and Figures

Table A1: Difference in observable characteristics between the 544 households for which we have all data and the 182 households for which we don't have all data in the data collection wave of 2016

	Households with complete data (N=544)		Households with incomplete data (N=182)				
	mean	se(mean)	mean	se(mean)	Difference	SE	Pvalue
	(a)		(b)		(a-b)		
age_father	44.16	0.52	47.16	0.29	3.00	0.73	0.00
age_mother	36.64	0.40	38.49	0.23	1.85	0.50	0.00
schooling_father	3.25	0.26	3.04	0.13	-0.21	0.46	0.66
schooling_mother	3.08	0.20	3.16	0.11	0.09	0.31	0.78
household size	5.57	0.07	5.79	0.05	0.22	0.13	0.09
grand parents are present	0.14	0.02	0.15	0.01	0.01	0.03	0.72
Per capita income (agricultural, non-agricultural, wage salary and other sources) per month	1,800.35	139.80	1,640.09	59.61	-160.26	187.85	0.40
total village population	1,739.36	110.32	1,710.82	61.35	-28.54	131.80	0.83

Table A2. Schooling of parents

Years of schooling	Mother		Father	
	number	Percent	number	Percent
0	427	46.87	492	54.01
1	7	0.77	8	0.88
2	14	1.54	35	3.84
3	36	3.95	29	3.18
4	84	9.22	42	4.61
5	121	13.28	89	9.77
6	39	4.28	30	3.29
7	45	4.94	21	2.31
8	64	7.03	47	5.16
9	42	4.61	46	5.05
10	6	0.66	7	0.77
11	18	1.98	36	3.95
12	2	0.22	1	0.11
13	6	0.66	16	1.76
15	0	0	7	0.77
17	0	0	5	0.55

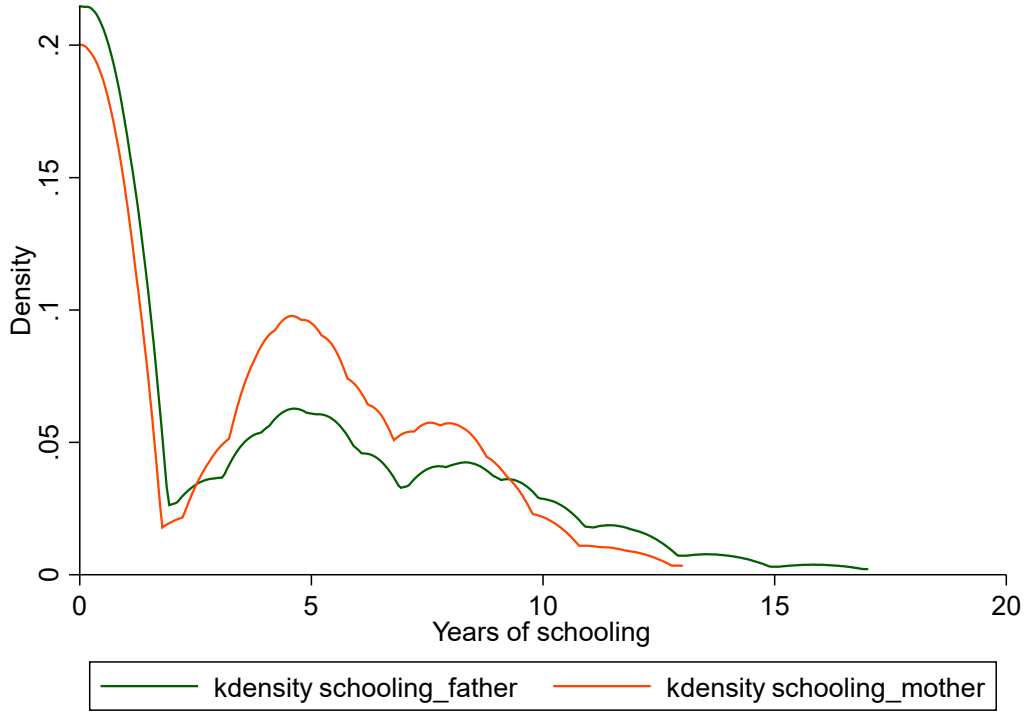


Figure A1. Density of parents‘ years of schooling.

Table A3. Exchange rate between tokens and Taka, conditional on age

Age (in years)	Grade in school	Taka in exchange for 1 token
6-7	Grade 1	10
8-9	Grades 2-3	15
10-11	Grades 4-5	20
12-13	Grades 6-7	30
14-15	Grades 8-9	35
16-17	Grade 10	50
Above 17		100

Table A4: Difference in observable characteristics of the samples in which risk preferences were collected and in which this was not the case

	Risk preference is collected		Risk preference is missing				
	mean	se(mean)	mean	se(mean)	Difference	SE	Pvalue
	(a)		(b)		(a-b)		
Gender (boys= 0, girls= 1)	0.50	0.02	0.51	0.02	0.01	0.03	0.70
Age of respondent (in years)	12.29	0.13	12.17	0.14	-0.12	0.19	0.53
Years of schooling	4.09	0.12	3.88	0.13	-0.21	0.18	0.24
Currently attending school (yes=1, no=0)	0.93	0.01	0.92	0.01	-0.01	0.02	0.48
How many elder brothers?	0.98	0.05	0.94	0.05	-0.04	0.07	0.60
How many elder sisters?	0.86	0.05	1.00	0.05	0.14	0.08	0.10
How many younger brothers?	0.62	0.04	0.59	0.03	-0.03	0.05	0.47
How many younger sisters?	0.55	0.03	0.58	0.04	0.03	0.05	0.50
Age father (in years)	47.23	0.40	47.09	0.42	-0.14	0.64	0.82
Age mother (in years)	38.52	0.32	38.46	0.33	-0.05	0.51	0.92
Schooling father (in years)	3.18	0.19	2.90	0.19	-0.28	0.28	0.31
Schooling mother (in years)	3.33	0.16	2.99	0.16	-0.34	0.24	0.16
Household size (# of persons)	5.76	0.06	5.82	0.07	0.06	0.09	0.49
Grand parents living in household (yes=1)	0.15	0.02	0.15	0.02	-0.00	0.02	0.86
Income per capita per month in 2016 (in Taka)	1,597.04	72.64	1,684.58	95.21	87.55	136.70	0.52
Total village population in 2015	1,750.90	90.56	1,669.39	82.54	-81.52	105.49	0.44
Number of observations	463		448		911		

Table A5. Estimating Column 3 in Table 6 with Ordered Probit.

	Gamble Number Picked
Parent's preference - father	0.07**
	(0.033)
Parent's preference - mother	0.075**
	(0.033)
/cut1	0.262
	(0.737)
/cut2	0.680
	(0.740)
/cut3	1.342
	(0.742)
/cut4	1.857
	(0.744)
/cut5	2.467
	(0.741)
Observations	456
(Pseudo) R^2	0.037
District Fixed Effects are included?	Yes

All variables remain identical to Table 6. Only difference is in the estimation method.

B. Experimental instructions and procedures

B1. Children

Risk, time and social preferences of children, March – May, 2016

General setting, as summarized and communicated to experimental helpers.

- **Age**: children aged 6 to 17 will participate in a sequence of 3 experiments: a) time preferences, b) risk attitudes, and c) social preferences.
- **Order**: The order of the experiments will be randomly determined by the administrators, which is explained at the beginning of the experiments
- **Incentive**: Each child will receive a token (a star) as a show-up fee, which s/he will be able to convert into money at the end of the experiments. In addition, they will be able to earn money during the experiment as all the experiments are incentivized. However, only one of the experiments will be paid out through a lottery that will be explained below.
- **Exchange rate**: The exchange rate between stars and money will be age specific and will be communicated at the beginning of the experiment.
- **Incentives:** We will rescale the incentives appropriately for age. The conversion table is included in Table A4.
- **Venue**: The experiments will take place in children's homes; a male administrator will deal with boys and a female administrator will deal with girls.
- **Instructions:** All the enumerators/instructors must memorize the instructions and explain the game to the child. While they will not read the text word by word, however, they will stick closely to the wording of the experimental instructions. In addition, the explanation will involve control questions to check for understanding.
- **Timing:** Members belonging to the same household will participate simultaneously in different parts of the home. It is an important task of the interviewer to ensure that the decisions of a household member truly reflect own decisions only and that other household members do not try to influence the decisions.
- **Control questions that check children's understanding**: Children's understanding of rules of various experiments will be documented. Children will be asked to describe the game in own words.

General instructions: My name is…. Today I have prepared three games for you. In these games, you can earn money. Before we start, I will explain the rules of our games. How much money you will earn depends mainly on your decisions. At the end, only one of the games will be paid. Which game will be paid will be determined randomly. You will draw one number out of three numbers that represent three games. Only after drawing a number, you will see which one you have drawn. The drawn number will determine whether the first, second, or third game will be paid for. It is important that you understand the rules of all our games and play each of them carefully because each of them could be the one that is paid. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

Are you okay so far? ***Leave time for questions and answer them privately.***

1. Determine the sequence by rolling a dice, and write the sequence at which experiments are being conducted: ☐

[1=risk, time, social,
2=risk, social, time,
3= time, risk, social,
4=time, social, risk,
5= social, time, risk,
6= social, risk, time]

Time preference experiment

Let us start with this game. Before we start, let me explain the rules of our game. In this game you can earn stars, which you can convert into money. Each star is equal to Taka … (*use the age appropriate exchange rate – shown to readers in Table A4 in the Appendix*). The more stars you earn, the more money you get. As I mentioned at the beginning, it is important to note that at the end only one of the three games will be paid and you will draw a number to determine it. That's why it is important that you understand the rules of our game. Please interrupt me anytime in case you have a question.

Are you okay so far? *Leave time for questions and answer them privately.*

1. Determine the order of explanation by rolling a dice (blue, green, yellow) and write it down:

[1=blue, green, yellow ☐

2= blue, yellow, green

3= green, blue, yellow

4= green, yellow, blue

5= yellow, blue, green

6 = yellow, green, blue]

(Within each part (color) the order is fixed, i.e., always use blue sheet 1 before blue sheet 2, green sheet 1 before green sheet 2, yellow sheet 1 before yellow sheet 2).

The game works as follows:

The game consists of 6 parts. Two blue parts, two yellow parts and two green parts (*when mentioning the parts please point at the respective decision sheets*). In each part, you will need to make one decision. For example, in this green part you have to decide whether you prefer receiving 2 stars (*please point at the stars on the decision sheet*) tomorrow, in this case please tick THIS box (*point at the respective box*), or whether you prefer receiving 3 stars in 3 weeks, in that case please tick THAT box (*point at the respective box*). 3 weeks means 21 days and 21 nights. If you go for 2 stars tomorrow, you will get the money tomorrow. One of us will come to your home and deliver the money in an envelope with your name marked on it. If you wait, you will get money for three stars after 3 weeks. Again, one of us will come to your home and deliver the money in an envelope with your name marked on it.

In the second green part you have to decide whether you prefer receiving 2 stars (*please point at the stars on the decision sheet*) tomorrow, in this case please tick THIS box (*point at the respective box*), or whether you prefer receiving 4 stars in 3 weeks, in that case please tick THAT box (*point at the respective box*). If you go for 2 stars, you will get the money tomorrow. One of us will come to your home and deliver the money in an envelope with your name marked on it. If you wait, you will get the money for four stars after 3 weeks. Again, one of us will come to your home and deliver the money in an envelope with your name marked on it.

Could you please repeat the rules of the game? (*If the child is unable to repeat, please explain the game again; the child has to be able to repeat the correct meaning of the game autonomously*)

2. Child understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

The yellow parts are very similar to the green part. Here you see one of the decision sheets for the blue part. Again, 2 stars on the left-hand side, and 3 stars on the right-hand side. If you prefer receiving 2 stars tomorrow, you need to tick on the left box. However, now if you prefer receiving 3 stars in three months, you need to tick that box. Three months means that about 90 days and nights will pass before

you will get the money. On the second yellow sheet, again 2 stars on the left-hand side, and 4 stars on the right-hand side. If you prefer receiving 2 stars tomorrow, you need to tick on the left box. However, now if you prefer receiving 4 stars in three months, you need to tick the right box. What do you think will happen if you tick THIS box? (*please point at the box with the immediate (tomorrow) reward*) What do you think will happen if you tick THAT box? (*please point at the box with the delayed reward of three stars; the child has to answer the questions correctly, otherwise the experimenter has to repeat the explanation*).

3. Child understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

The blue parts are very similar to the green and yellow parts. Here you see the first decision sheet for the blue part. Again, 2 stars on the left-hand side, and 3 stars on the right-hand side. However, now the earlier payment takes place in one month, which means after 30 days and nights have passed. The later payment takes place in four months, which means after 120 days and nights have passed. If you decide to receive 2 stars, you need to wait one month, and if you decide to receive 3 stars, you need to wait four months. On the second blue sheet, again 2 stars on the left-hand side, and 4 stars on the right-hand side. If you prefer receiving 2 stars in one month, you need to tick on the left box. However, if you prefer receiving 4 stars in four months, you need to tick the box on the right. What do you think will happen if you tick THIS box? (*please point at the box with the immediate reward*) What do you think will happen if you tick THAT box? (*please point at the box with the delayed reward of five stars; the child has to answer the questions correctly, otherwise the experimenter has to repeat the explanation*).

4. Child understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

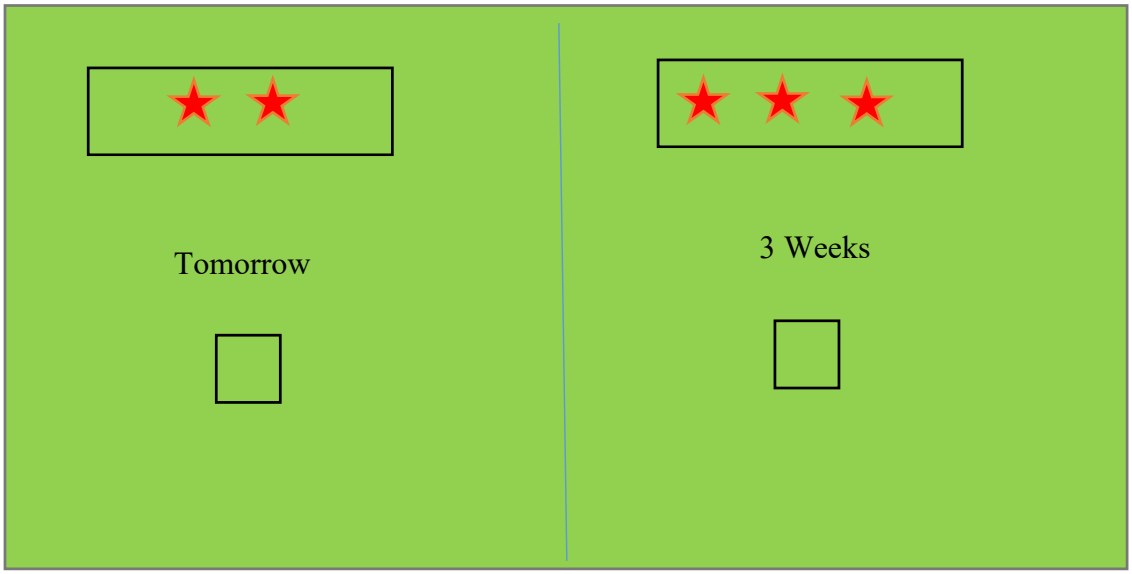
As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid and that you will have to draw a number to determine it. If this game is paid, only one of the six decisions counts. That means you will receive the stars for one of the six parts only. The decisions are numbered from 1 to 6. After your decisions, you will roll a dice (*please demonstrate)*. Assume that it shows number 5. Therefore the decision sheet 5 (the first blue sheet *in this example*) is played for real. If you have checked the box on the left hand size, you will receive the money for two stars in one month. If you have checked the box on the right hand side, you will receive money for three stars in four months. The other five sheets do not count in this case. However, you need to make a decision for each of the six sheets because you do not know yet which part will be drawn at the end of the game. Could you please repeat the last part? Will you receive the stars for all six sheets? Do you need to make a decision for each of the six sheets? (If the child answers incorrectly the experimenter has to repeat the explanation of this part)

5. Child understood the game after: |__|

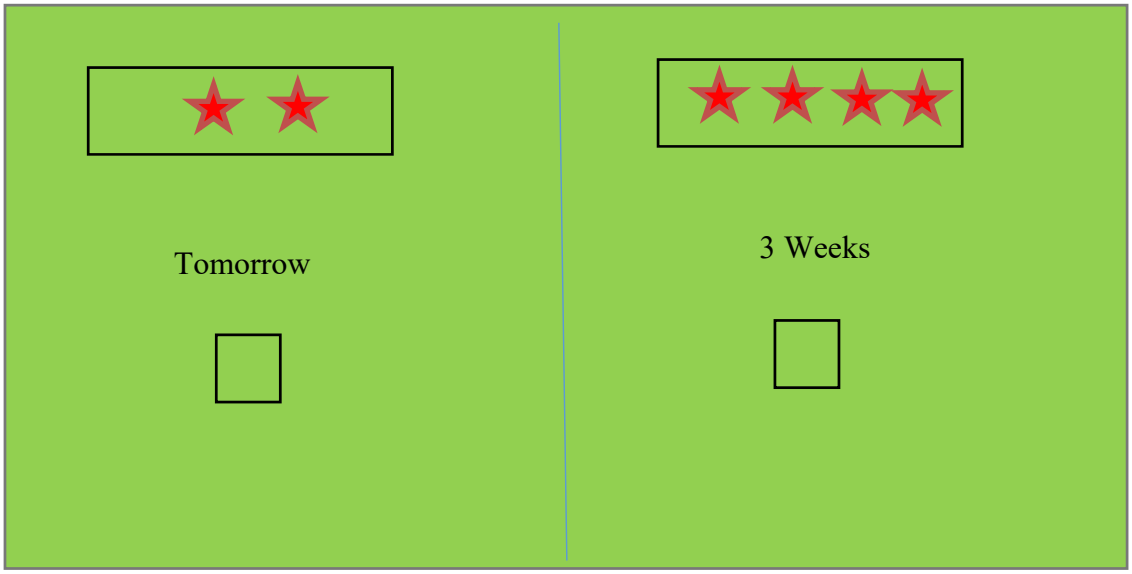
1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

Please take your decision for each of the six sheets now (*place the decision sheets side by side on the table; the child should fill out the decision sheets from left to right*). Start with this part (*point at the first decision sheet (depending on the order of explanation))* and continue with this part *(point at the second decision sheet*) and finally make your decision in this part (point at the final decision sheet). Take as much time as you need. In the meantime I will turn around so that I do not disturb you. Just call me when you are done.

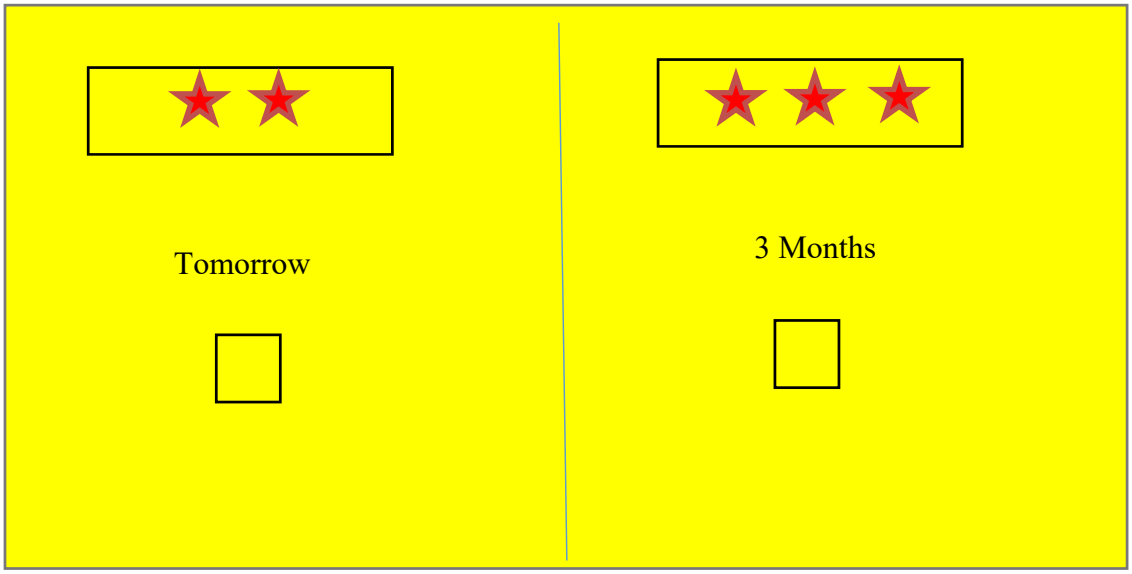
Decision sheet-1



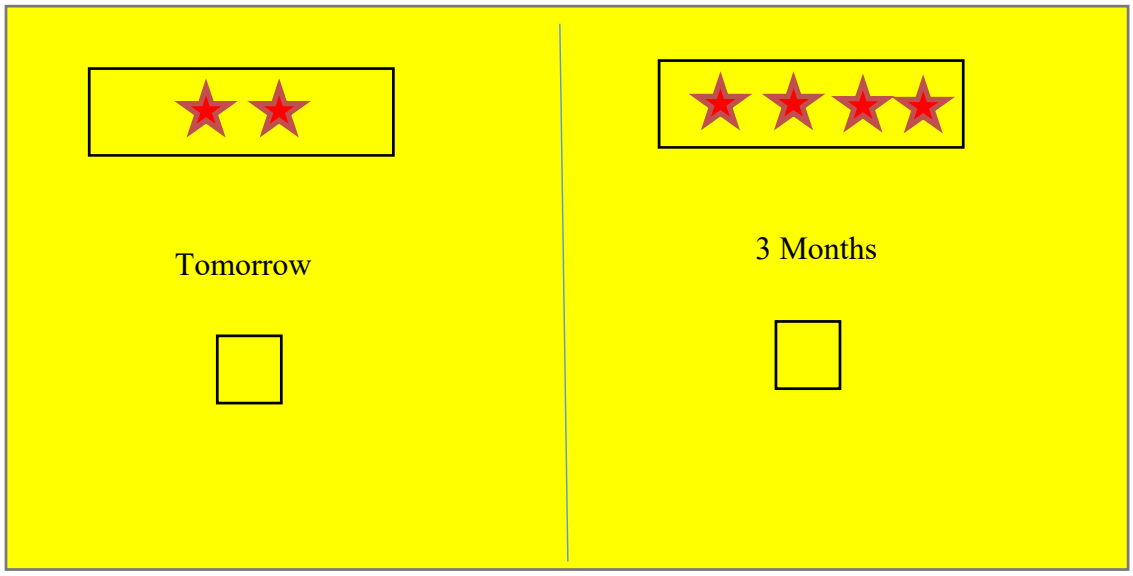
Decision sheet-2



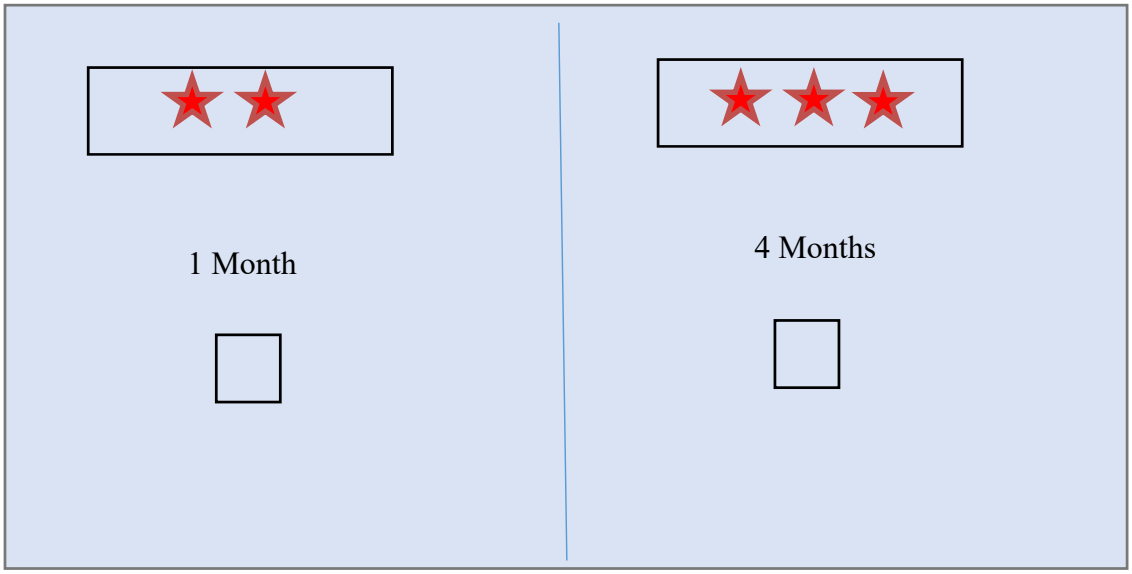
Decision sheet-3



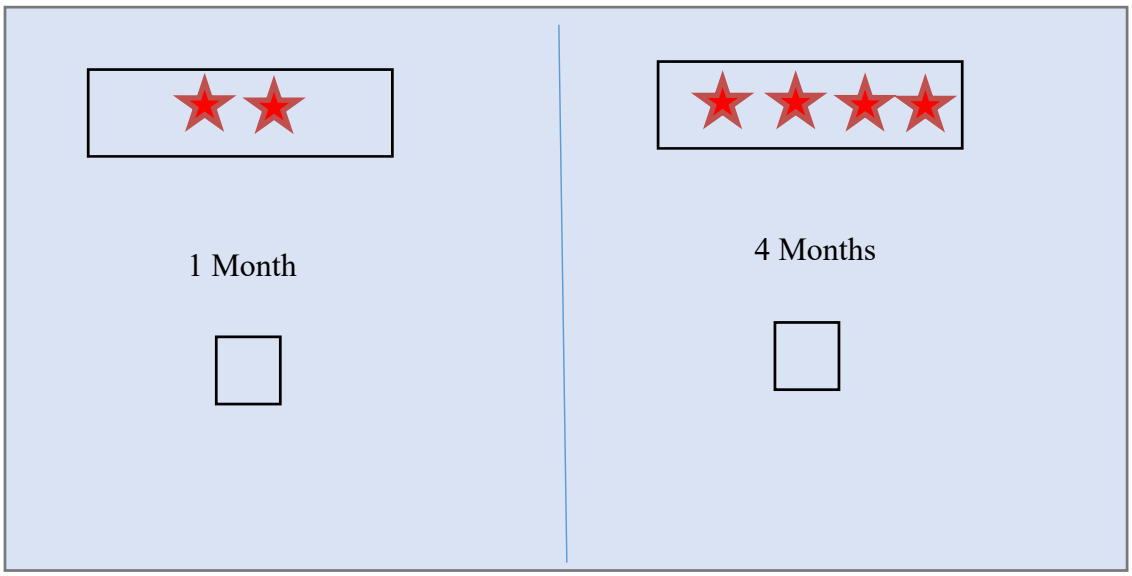
Decision sheet-4



Decision sheet-5



Decision sheet-6



6. Decision taken in green sheet 1: 1=tomorrow, 2= three weeks

7. Decision taken in green sheet 2: 1=tomorrow, 2= three weeks

8. Decision taken in yellow sheet 1: 1=tomorrow, 2= three moths

9. Decision taken in yellow sheet 2: 1=tomorrow, 2= three months

10. Decision taken in blue sheet 1: 1=1 month, 2= four months

11. Decision taken in blue sheet 2: 1=1 month, 2= four months

12. Is this game paid? ___1=yes, 2=no

13. If yes: Which decision sheet was paid? ___

Green sheet 1

Green sheet 2

Yellow sheet 1

Yellow sheet 2

Blue sheet 1

Blue sheet 2

Experimental Instructions "Risk attitudes"

Let us start with this game. Before we start, I will explain the rules of our game. Similar to other games, you can earn money in this game as well. How much money you will earn depends mainly on your decisions. As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid. You will draw one number out of three numbers to determine which game will be paid. That's why it is important that you understand the rules of our game, and play each of them carefully. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

Are you ok so far? *Leave time for questions and answer them privately.*

In this game, you need to select the gamble you would like to play from among six different gambles, which are listed below. You must select one and only one of these gambles.

If this game is selected for payment, you will have a 1-in-6 chance of receiving the money. The selection will be made by rolling a six sided dice twice – first, you will roll the dice to decide the gamble, and the second to decide the outcome of the particular gamble. For example, if you selected gamble # 4, then if the first roll of the dice is 4, you would receive one of the payoffs of gamble 4, which will be determined in the second roll. If the first roll of the dice is not 4 and you have chosen gamble # 4, you would not receive any payments. Depending on the outcome of the first roll, the second roll would determine the outcome of the selected gamble. Each gamble has two possible outcomes – low and high. If 1, 2 or 3 is rolled, the outcome of the selected gamble is the low one, and if 4, 5 or 6 is rolled, the outcome of the gamble is the high one, and you would receive money accordingly

Notice that the low outcome is decreasing and the high outcome is increasing for each successive gamble. For example, in the first gamble, both outcomes are identical. If you select it and then this number is rolled in the first roll, your payoff would be 25 Taka. If on the other hand, you had selected gamble # 2, and if it is rolled on the first roll, your payoff could be 22 Taka or 48 Taka. In the second roll, if 1, 2 or 3 is rolled, you would receive 22 Taka, whereas if 4, 5 or 6 is rolled, you would receive 48 Taka.

Note that this is the text for children aged 10/11 years. For the younger or older children the options had different values, as indicated in Panel B of Table 2 in the main text.

1. Ask the child/respondent to repeat the game. Child understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

Before you select the actual gamble involving money, we will have a practice session with candies. There are two gambles from which you need to select one:

	Outcome	Payoff	Chances	Your Selection
Gamble 1	LOW	1	50%	
	HIGH	1	50%	

Gamble 2	LOW	0	50%	
	HIGH	2	50%	

Both gambles have two outcomes. The first gamble pays 1 candy in both states, while the second gamble pays no (0) candy in the low state and 2 candies in high state. Which gamble would you like to play? Once you make your selection, you will roll the dice to decide the gamble, and again to decide the outcome. First, you will roll the dice to decide the gamble, and the second to decide the outcome of the particular gamble. For example, if you selected gamble #2, then if the first roll of the dice is 2, you would receive one of the payoffs of gamble #2, which will be determined in the second draw. In the second draw, if 1, 2 or 3 is rolled, the outcome of the selected gamble is the low one, which is 0 here. That means, you will not receive any candy. However, if 4, 5 or 6 is rolled, the outcome of the gamble is the high one, and you will receive two candies. Let us start this now.

2. Gamble number picked involving candies:

3. Outcome in the first draw for candies:

4. Outcome in the second draw for candies (if applicable):

Now let's move the gambles among which you should pick one.
Mark the gamble selection with an X in the last box across from your preferred gamble (mark only one):

	Outcome	Payoff	Chances	Your Selection
Gamble 1	LOW	25	50%	
	HIGH	25	50%	
Gamble 2	LOW	23	50%	
	HIGH	48	50%	
Gamble 3	LOW	20	50%	
	HIGH	60	50%	
Gamble 4	LOW	15	50%	
	HIGH	75	50%	
Gamble 5	LOW	5	50%	
	HIGH	95	50%	
Gamble 6	LOW	0	50%	
	HIGH	100	50%	

Note that the values in this table only applied to children aged 10/11 years. For the younger or older children the options had different values, as indicated in Panel B of Table 2 in the main text. The corresponding numbers were used in the instructions for the other children.

5. Gamble number picked:
6. Outcome in the first draw (if applicable):
7. Outcome in the second draw (if applicable):
8. Amount won in the lottery in Taka (if applicable):
9. Is this game paid for? 1=yes, 2=no.

Social preferences

In this game you can earn stars, which you can convert into money. Each star is equal to Taka … (*use the age appropriate exchange rate*). The more stars you will earn, the more money you will get. As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid. You will draw one number of out three numbers to determine which game will be paid. That's why it is important that you understand the rules of all our games, and play each of them carefully because each of them could be the one that is paid. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

Are you ok so far? Leave time for questions and answer them privately.

In this game you have to decide how to divide stars between yourself and another child similar to you but from a different village. You will never know who exactly the other child is and the other child will not get to know you. However, I will ensure that the other child does indeed receive the money that corresponds to the stars that you will give to him/her.

You will get four different decision sheets. You will need to decide how to divide stars between yourself and another child similar to you.

Are you ok so far? Leave time for questions and answer them privately.

There are two possible ways to allocate the stars: the option on the left-hand side and the option on the right-hand side.

Please look at the decision sheet. With option "left" you get one star and the child from another village gets one star. One star equals … Taka *(…, depending on the age group*). With option "right" you get two stars and the child from another village gets 0 stars.

Are you ok so far? Leave time for questions and answer them privately.

Depending on which option you want to choose, you should check the box at the left- or the right-hand side. You can choose either option "left" or option "right". If you would like to divide the stars according to option "right", which box would you have to check? Right, the box at the "right" side. How much would you earn and how much would the child from the other village with whom you are randomly matched earn in this case? Right, you would get …Taka (…, depending on the age group) and the other child similar to you would get nothing.

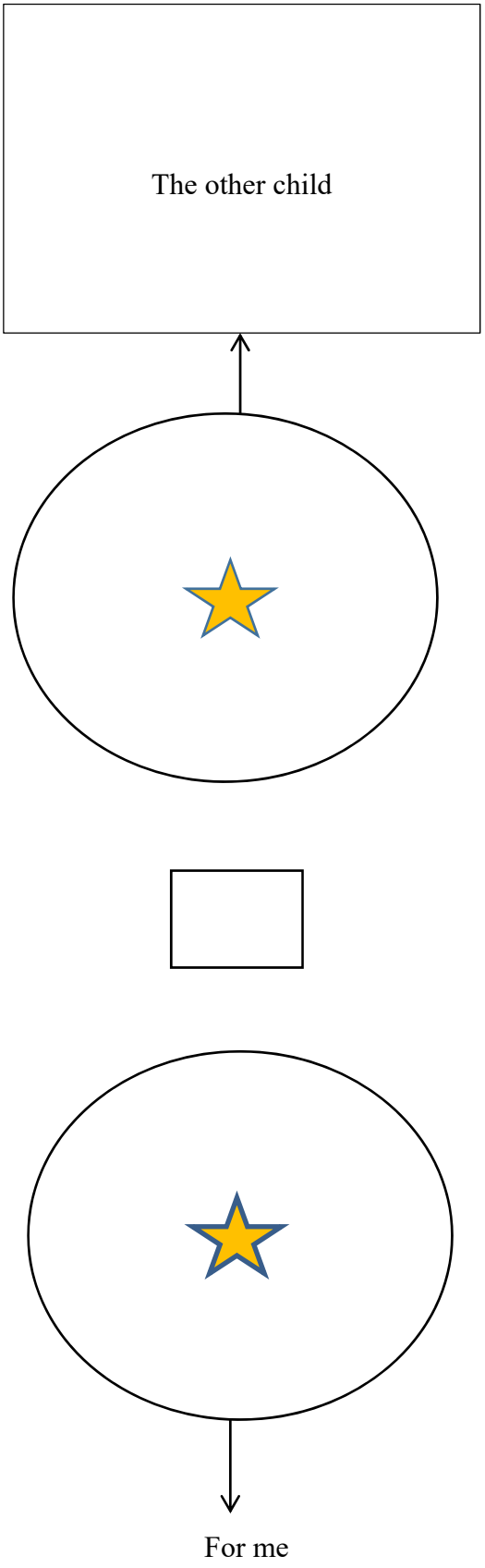
1. Child understood the game after: |__|

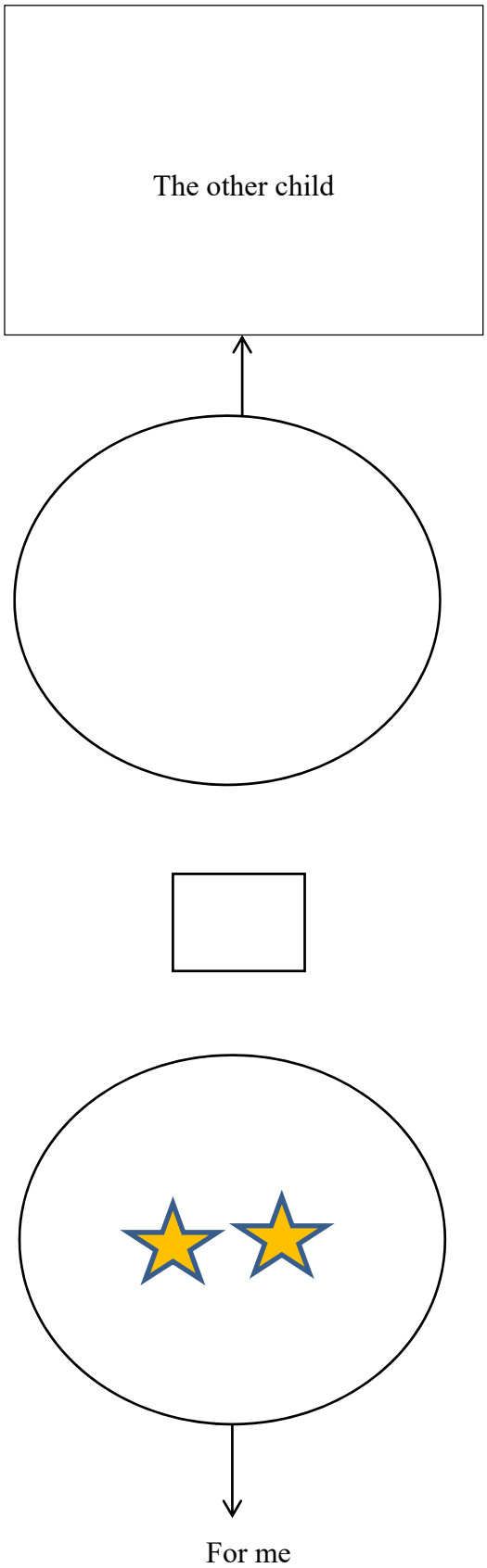
1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

Are you ok so far? Leave time for questions and answer them privately.

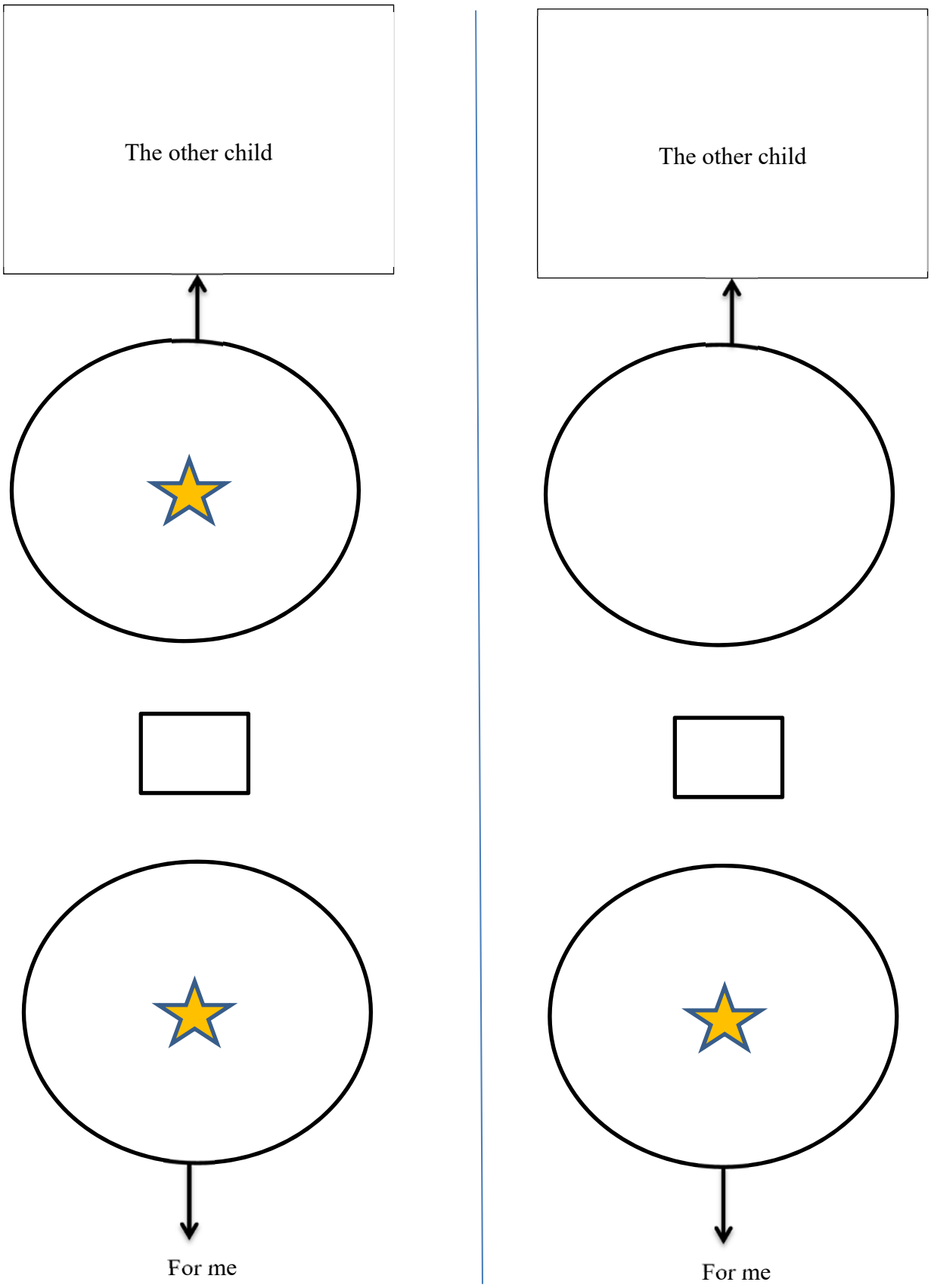
As I mentioned earlier, you will get four decision sheets. The decision sheets differ from each other in the amounts of stars that can be divided between you and the other child. Please choose one of the two options for each decision sheet. At the end of the game, you will blindly draw one decision sheet out of four (*show the process*). If this game is selected for payment, you and the other child will be paid according to the selected decision sheet.

Decision sheet 1

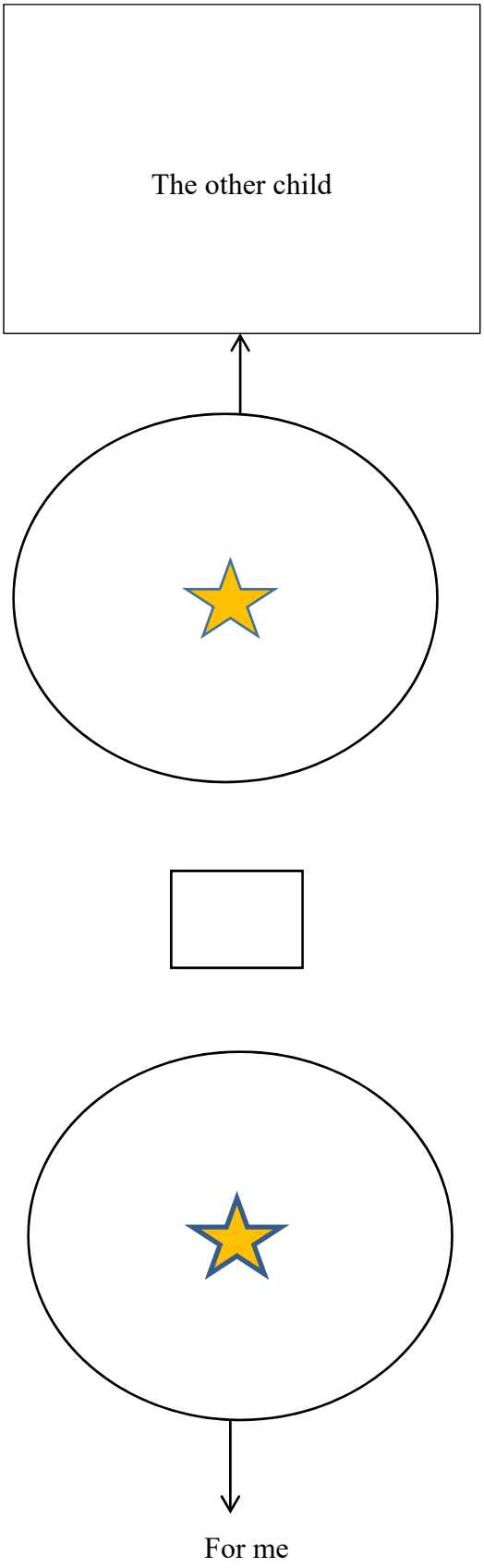


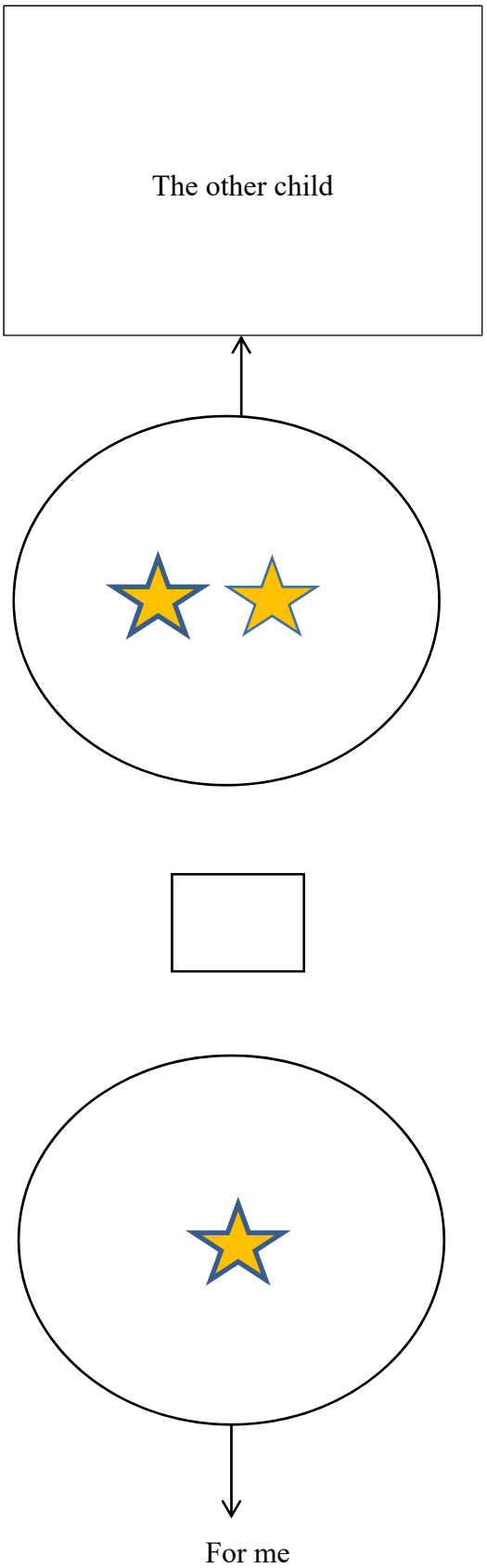


Decision sheet 2

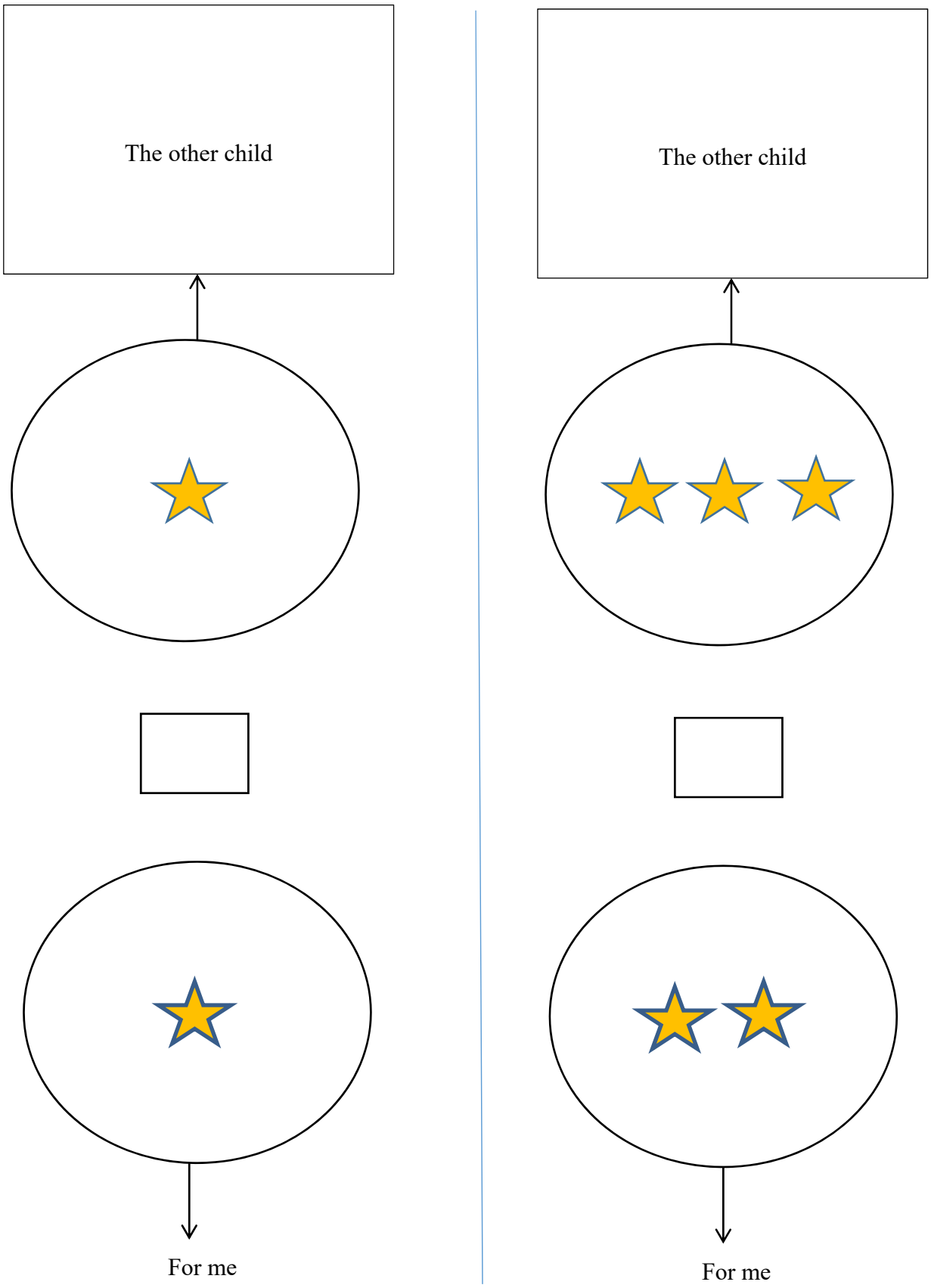


Decision sheet 3





Decision sheet 4



2. Decision in first sheet: (1=left, 2=right)

3. Decision in second sheet: (1=left, 2=right)

4. Decision in third sheet: (1=left, 2=right)

5. Decision in fourth sheet: (1=left, 2=right)

6. Decision sheet that has been drawn (if applicable):

7. Is this game paid for? 1=yes, 2=no.

Big-five for children

6-11 Years: Mothers about children

How would you rank your child in comparison to other children of the same age? My child...

The further to the left you make the X, the more the characteristic on the left side applies.

The further to the right you make the X, the more the characteristic on the right side applies.

...is rather talkative	1	2	3	4	5	6	7	8	9	10	11	...is rather quiet
...is messy	1	2	3	4	5	6	7	8	9	10	11	...is neat
...is good-natured	1	2	3	4	5	6	7	8	9	10	11	…is irritable
…is disinterested	1	2	3	4	5	6	7	8	9	10	11	…is curious to learn
…is self-confident	1	2	3	4	5	6	7	8	9	10	11	…is insecure
…is withdrawn	1	2	3	4	5	6	7	8	9	10	11	…is outgoing
…is focused	1	2	3	4	5	6	7	8	9	10	11	…is easily distracted
…is disobedient	1	2	3	4	5	6	7	8	9	10	11	…is obedient
...is quick at learning new things	1	2	3	4	5	6	7	8	9	10	11	…needs more time
…is timid	1	2	3	4	5	6	7	8	9	10	11	…is fearless

Children aged 12 to 16

I see myself as someone who...	Does not apply to me at all						Applies to me perfectly
	1	2	3	4	5	6	7
- Does a thorough job	☐	☐	☐	☐	☐	☐	☐
- Is communicative, talkative	☐	☐	☐	☐	☐	☐	☐
- Is sometimes somewhat rude to others	☐	☐	☐	☐	☐	☐	☐
- Is original, comes up with new ideas	☐	☐	☐	☐	☐	☐	☐
- Worries a lot	☐	☐	☐	☐	☐	☐	☐
- Has a forgiving nature, that means I accept apologies quickly	☐	☐	☐	☐	☐	☐	☐
- Tends to be lazy	☐	☐	☐	☐	☐	☐	☐
- Is outgoing, sociable	☐	☐	☐	☐	☐	☐	☐
- Values artistic, aesthetic experiences, that means I enjoy painting or playing music, I love going to theater or to visit a museum	☐	☐	☐	☐	☐	☐	☐
- Gets nervous easily	☐	☐	☐	☐	☐	☐	☐
- Does things effectively and efficiently	☐	☐	☐	☐	☐	☐	☐
- Is reserved	☐	☐	☐	☐	☐	☐	☐
- Is considerate and kind to others	☐	☐	☐	☐	☐	☐	☐
- Has an active imagination, that means I am well at imagining things and I enjoy (day)dreaming	☐	☐	☐	☐	☐	☐	☐
- Is relaxed, handles stress well	☐	☐	☐	☐	☐	☐	☐
- Is eager for knowledge	☐	☐	☐	☐	☐	☐	☐

Locus of control (from Kosse et al., 2016)

Oral introduction by interviewer: "I will now read a few statements and will ask you afterwards whether these statements apply to you. For example, one statement is "I like rice". Some children think that this statement [point at scale]

- is not at all right
- is rather not right
- is sometimes right
- is rather right
- is absolutely right

Importantly, there are no right or wrong answers. Back to our example, "I like rice". How about you: Do you think that this statement…"

- is not at all right
- is rather not right
- is sometimes right
- is rather right
- is absolutely right

Graphical scale as below will be printed on extra sheet that interviewers will carry with them (interviewers will point at the scale when introducing the possible answers):

For the following statements, please indicate what applies to them …

is not at all right	is rather not right	is sometimes right	is rather right	is absolutely right
1	2	3	4	5

"I will now read several statements. Please tell me after each statement whether you think that the statement applies to you. If you do not understand the question, I am happy to repeat it for you."

The five items (using the five points, visualized Likert scale from above):

1. By working very hard, one can succeed at each area in life, for example at school or in the job.
   is not at all right

   is rather not right

   is sometimes right

   is rather right

   is absolutely right

2. I get into trouble even if I am not responsible.
   is not at all right

is rather not right

is sometimes right

is rather right

is absolutely right

3. The best way to deal with most problems is not to think about them at all.
   is not at all right

   is rather not right

   is sometimes right

   is rather right

   is absolutely right

4. Parents listen to what their children would like to tell them.
   is not at all right

   is rather not right

   is sometimes right

   is rather right

   is absolutely right

5. I often think that working hard will not pay off anyhow because the other children are smarter than me.
   is not at all right

   is rather not right

   is sometimes right

   is rather right

   is absolutely right

At the end of experiment, please add the following questions for all – children and adults

1. How many elder brothers do you have?
2. How many elder sisters do you have?
3. How many younger brothers do you have?
4. How many younger sisters do you have?
5. Do you smoke? (yes=1, no=2)
6. Do you eat pan/supari? (yes=1, no=2)
7. Do you play lottery? (yes=1, no=2)

B2. Parents

Risk, Time and Social Preferences for adults, March – May, 2016
(Both parents for selected households will take part in these experiments)

General setting:

- **Age**: Parents will participate in a sequence of 3 experiments: a) time preferences, b) risk attitudes, and c) other regarding preferences.
- **Order**: The order of the experiments will be randomly determined by the administrators, which is explained at the beginning of the experiments.
- **Incentive**: Each adult will receive a token (a star) as a show-up fee, which s/he will be able to convert into money at the end of the experiments. In addition, they would be able to earn money during the experiment as all the experiments are incentivized. However, only one of the experiments will be paid out through a lottery that will be explained soon.
- **Venue**: The experiments will take place at home; a male administrator will deal with males and a female administrator will deal with females.
- **Instructions:** All the enumerators/instructors must memorize the instructions and explain the game to the adults. While they will not read the text word by word, however, they will stick closely to the wording of the experimental instructions. In addition, the explanation will involve control question to check for understanding.
- **Timing:** Members belonging to the same household will participate simultaneously in different parts of the home. It is an important task of the interviewer to ensure that the decisions of a household member truly reflect own decisions only and that other household members do not try to influence the decisions.
- **Control questions that check understanding**: Subjects‘ understanding of rules of various experiments will be documented.

General instructions: My name is…. Today I have prepared three games for you. In these games, you can earn money. Before we start, I will explain the rules of our games. How much money you will earn depends mainly on your decisions. At the end, only one of the games will be paid. Which game will be paid will be determined randomly. You will draw one number out of three numbers that will represent three games. Only after drawing a number, you will see which one you have drawn. The drawn number will determine whether the first, second, or third game will be paid for. It is important that you understand the rules of all games and play each of them carefully because each of them could be the one that is paid. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

Are you okay so far? Leave time for questions and answer them privately.

1. Determine the sequence by rolling a dice, and write the sequence at which experiments are being conducted: ☐

[1=risk, time, social,

2=risk, social, time,

3= time, risk, social,

4=time, social, risk,

5= social, time, risk,

6= social, risk, time]

Time Preference Experiment

Let us start with this game. Before we start, let me explain the rules of our game. In this game you can earn money. As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid and you will draw a number to determine it. That's why it is important that you understand the rules of our game Please interrupt me anytime in case you have a question.

Are you okay so far? Leave time for questions and answer them privately.

1. Determine the order of explanation by rolling a dice and write it down: ☐

[1=choice set 1, choice set 2, choice set 3
2= choice set 1, choice set 3, choice set 1
3= choice set 2, choice set 3, choice set 1
4= choice set 2, choice set 1, choice set 3
5= choice set 3, choice set 1, choice set 2
6 = choice set 3, choice set 2, choice set 2]

The game works as follows:

The game consists of 3 choice sets. There are six choices in each choice set. You need to make a choice between two payment options: Option A or Option B. In each choice set, there are six such decisions that you need to make. Each decision is a paired choice between Option A and Option B. You will be asked to make a choice between these two payment options in each decision row. For example, (*assuming the first choice set is being randomly picked first*) in the first row, you need to make a choice between payment option A and payment option B where payment option A pays you Taka 100 tomorrow and option B pays you Taka 105 after three months from today. In the second choice, option A pays you Taka 100 tomorrow, and option B pays you Taka 110 in three months. In the third choice, option A pays you Taka 100 tomorrow, and option B pays you Taka 120 in three months. Notice that option A remains unchanged while the amounts in option B are increasing.

If you go for Taka 100 tomorrow, you will need to tick option A. If selected, one of us will come to your home and deliver the money in an envelope with your name marked on it. If you wait, you will get Taka 105 after three months. Again, one of us will come to your home and to deliver the money in an envelope with your name marked on it.

Could you please repeat the rules of the game? (*If the respondent is unable to repeat, please explain the game again; the respondent has to be able to repeat the correct meaning of the game autonomously*).

2. Respondent understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

The second choice set is very similar to the first choice set. However, Option A now pays in one month, and Option B pays in four months. If you go for Taka 100 in one month, you will

need to tick option A. If selected, one of us will come to your home and deliver the money in an envelope with your name marked on it. If you wait four months, you will get Taka 105 after four months. Again, one of us will come to your home and deliver the money in an envelope with your name marked on it.

Could you please repeat the rules of the game? (*If the respondent is unable to repeat, please explain the game again; the respondent has to be able to repeat the correct meaning of the game autonomously*).

3. Respondent understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

The third choice set is very similar to the second and first choice set. However, Option A now pays in one year, and Option B pays in one year and three months. If you go for Taka 100 in one year, you will need to tick option A. If selected, one of us will come to your home and deliver the money in an envelope with your name marked on it. If you wait one year plus three months, you will get Taka 105 after one year plus three months. Again, one of us will come to your home and deliver the money in an envelope with your name marked on it.

As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid and you will draw a number to determine it. If this game is paid, only one of the three choice sets counts. The selection will be made by rolling a six sided dice twice – first to decide the set, and the second to decide the choice. After your decisions, you will roll a dice (*please demonstrate).* In the first draw, if 1, 2 or 3 is rolled, you will receive the money from the particular choice set, if 4, 5 or 6 is rolled, you will not receive any money. Depending on the outcome of the first draw, the second draw would determine the particular choice that you would be paid for. For example, if 3 is rolled in the second draw, you will receive the money from your decision concerning the third payoff alternative (third row) of the relevant choice set.

Could you please repeat the last part? Will you receive the money for all three choice sets or all six choices? Do you need to make a decision for each of them? (*If the respondent answers incorrectly the experimenter has to repeat the explanation of this part*)

4. Respondent understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

Please take your decision for each of the choice sets now (*place the decision sheets side by side on the table*). Start with this part (*point at the first decision sheet (depending on the order of explanation))* and continue with this part *(point at the second decision sheet*) and finally make your decision in this part (point at the final decision sheet). Take as much time as you need. In the meantime I will turn around so that I do not disturb you. Just call me when you are done.

Choice set 1

Payoff alternative	Payment Option A (pays amount below tomorrow)	Payment Option B (pays amount below after 3 months)	Annual interest rate in %	Preferred Payment Option (A or B)
1	100	105	20%	
2	100	110	40%	
3	100	120	80%	
4	100	125	100%	
5	100	150	200%	
6	100	200	400%	

Choice set 2

Payoff alternative	Payment Option A (pays amount below after 1 month)	Payment Option B (pays amount below after 4 months)	Annual interest rate in %	Preferred Payment Option (A or B)
1	100	105	20%	
2	100	110	40%	
3	100	120	80%	
4	100	125	100%	
5	100	150	200%	
6	100	200	400%	

Choice set 3

Payoff alternative	Payment Option A (pays amount below after 1 year)	Payment Option B (pays amount below after 1 year 3 months)	Annual interest rate in %	Preferred Payment Option (A or B)
1	100	105	20%	
2	100	110	40%	
3	100	120	80%	
4	100	125	100%	
5	100	150	200%	
6	100	200	400%	

5. Results of first draw (if applicable):
6. Results of second draw (if applicable):
7. Is this game paid for? …….1=yes, 2=no.

Risk Preferences

Let us start with this game. Before we start, I will explain the rules of our game. Similar to other games, you can earn money in this game as well. How much money you will earn depends mainly on your decisions. As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid. You will draw a number out of three to determine which game will be paid. That's why it is important that you understand the rules of our game, and play each of them carefully. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

Are you ok so far? Leave time for questions and answer them privately.

In this game, you need to select one gamble you would like to play from among six different gambles, which are listed below. You must select one and only one of these gambles.
If this game is selected for payment, you will have a 1-in-6 chance of receiving the money. The selection will be made by rolling a six sided dice twice – first, you will roll the dice to decide the gamble, and the second to decide the outcome of the particular gamble. For example, if you selected gamble # 4, then if the first roll of the dice is 4, you would receive one of the payoffs of gamble 4, which will be determined in the second roll. If the first roll of the dice is not 4 and you have chosen gamble # 4, you would not receive any payments. Depending on the outcome of the first roll, the second roll would determine the outcome of the selected gamble. Each gamble has two possible outcomes – low and high. If 1, 2 or 3 is rolled, the outcome of the selected gamble is the low one, and if 4, 5 or 6 is rolled, the outcome of the gamble is the high one, and you would receive money accordingly.
Notice that the low outcome is decreasing and the high outcome is increasing for each successive gamble. For example, in the first gamble, both outcomes are identical. If you select it and then this number is rolled in the first roll, your payoff would be 125 Taka for sure. If on the other hand, you had selected gamble # 2, and if it is rolled on the first roll, your payoff could be 110 Taka or 240 Taka. In the second roll, if 1, 2 or 3 is rolled, you would receive 110 Taka, whereas if 4, 5 or 6 is rolled, you would receive 240 Taka.

1. Ask the respondent to repeat the game. Respondent understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

Before you select the actual gamble involving money, we will have a practice session with candies. There are two gambles from which you need to select one:

	Outcome	Payoff	Chances	Your Selection
Gamble 1	LOW	1	50%	
	HIGH	1	50%	
Gamble 2	LOW	0	50%	
	HIGH	2	50%	

Both gambles have two outcomes. The first gamble pays 1 candy in both states, while the second gamble pays no (0) candy in the low state and 2 candies in high state. Which gamble would you like to play? Once you make your selection, you will roll the dice to decide the gamble, and again to decide the outcome. First, you will roll the dice to decide the gamble, and the second to decide the outcome of the particular gamble. For example, if you selected gamble #2, then if the first roll of the dice is 2, you would receive one of the payoffs of gamble #2,

which will be determined in the second draw. In the second draw, if 1, 2 or 3 is rolled, the outcome of the selected gamble is the low one, which is 0 here. That means, you will not receive any candy. However, if 4, 5 or 6 is rolled, the outcome of the gamble is the high one, and you will receive two candies. Let us start this now.

2. Gamble number picked involving candies:
3. Outcome in the first draw for candies:
4. Outcome in the second draw for candies (if applicable):

Mark the gamble selection with an X in the last box across from your preferred gamble (mark only one):

	Outcome	Payoff	Chances	Your Selection
Gamble 1	LOW	125	50%	
	HIGH	125	50%	
Gamble 2	LOW	110	50%	
	HIGH	240	50%	
Gamble 3	LOW	100	50%	
	HIGH	300	50%	
Gamble 4	LOW	75	50%	
	HIGH	375	50%	
Gamble 5	LOW	25	50%	
	HIGH	475	50%	
Gamble 6	LOW	0	50%	
	HIGH	500	50%	

5. Gamble number picked:
6. Outcome in the first draw (if applicable):
7. Outcome in the second draw (if applicable):
8. Amount won in the lottery in Taka (if applicable):
9. Is this game paid for? …….1=yes, 2=no.

Social preferences

In this game you can earn stars, which you can convert into money. Each star is equal to Taka 100. The more stars you will earn, the more money you will get. As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid for where you will draw a number to determine it. That's why it is important that you understand the rules of all our games, and play each of them carefully because each of them could be the one that is paid. Please listen carefully now. I will frequently stop during my explanation and allow you to ask questions. Therefore, please interrupt me anytime in case you have a question.

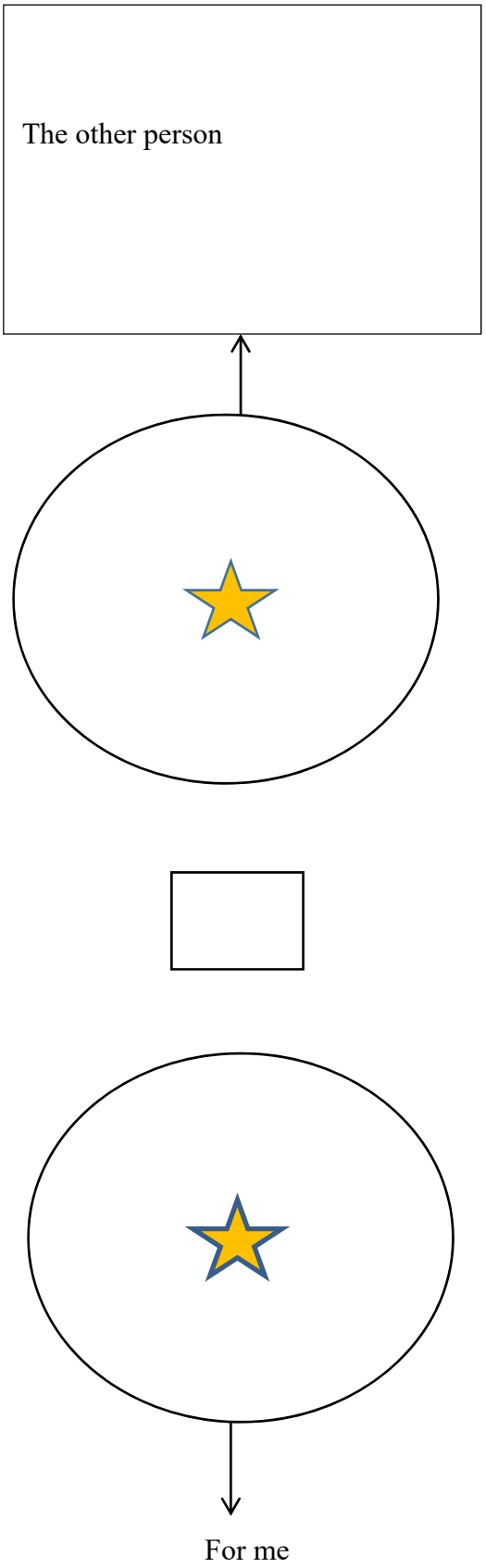
Are you ok so far? Leave time for questions and answer them privately.

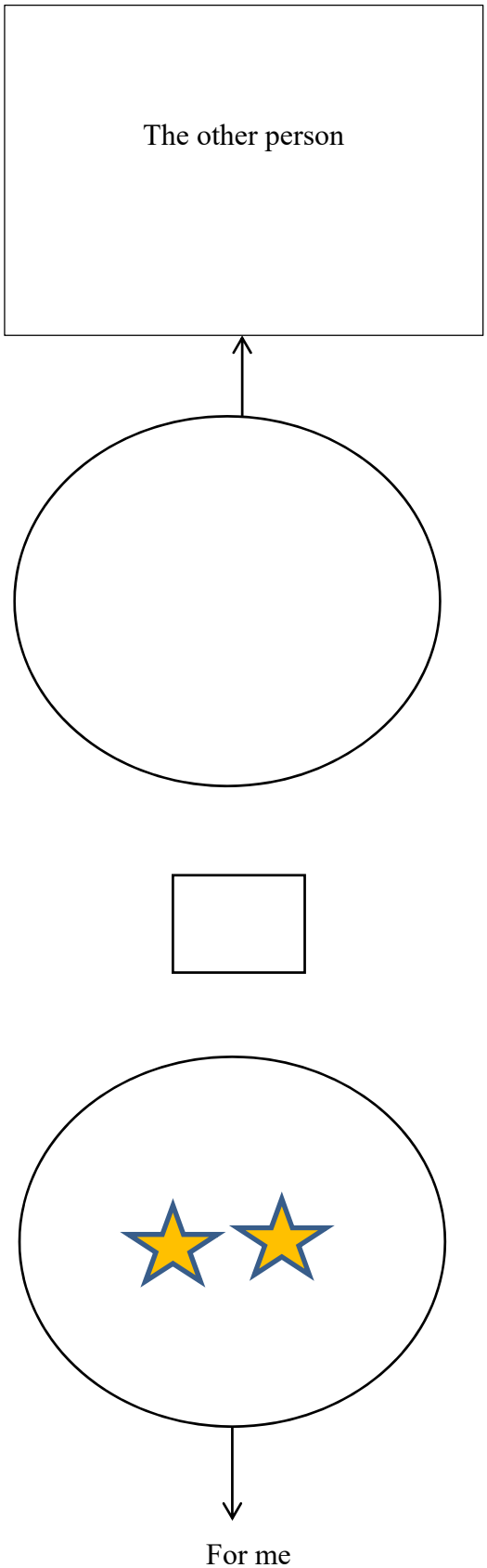
In this game you have to decide how to divide stars that between yourself and another person similar to you but from a different village. You will never know who exactly the other person is and the other person will not get to know you. However, I will ensure that the other person does indeed receive the money that corresponds to the stars that you will give to him/her.
You will get four different decision sheets. You will need to decide how to divide stars between yourself and this person similar to you.
Are you ok so far? Leave time for questions and answer them privately.
There are two possible ways to allocate the stars: the option on the left-hand side and the option on the right-hand side.
Please look at the decision sheet. With option "left" you get one star and the person from another village with whom you are randomly matched gets one star. One star equals 100 Taka. With option "right" you get two stars and the person from another village gets 0 stars.
Are you ok so far? Leave time for questions and answer them privately.
Depending on which option you want to choose, you should check the box at the left- or the right-hand side. You can choose either option "left" or option "right". If you would like to divide the stars according to option "right", which box would you have to check? Right, the box at the "right" side. How much would you earn and how much would the person from the other village with you are randomly matched earn in this case? Right, you would get 100 Taka and the other person similar to you would get nothing.
1. Respondent understood the game after: |__|

1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

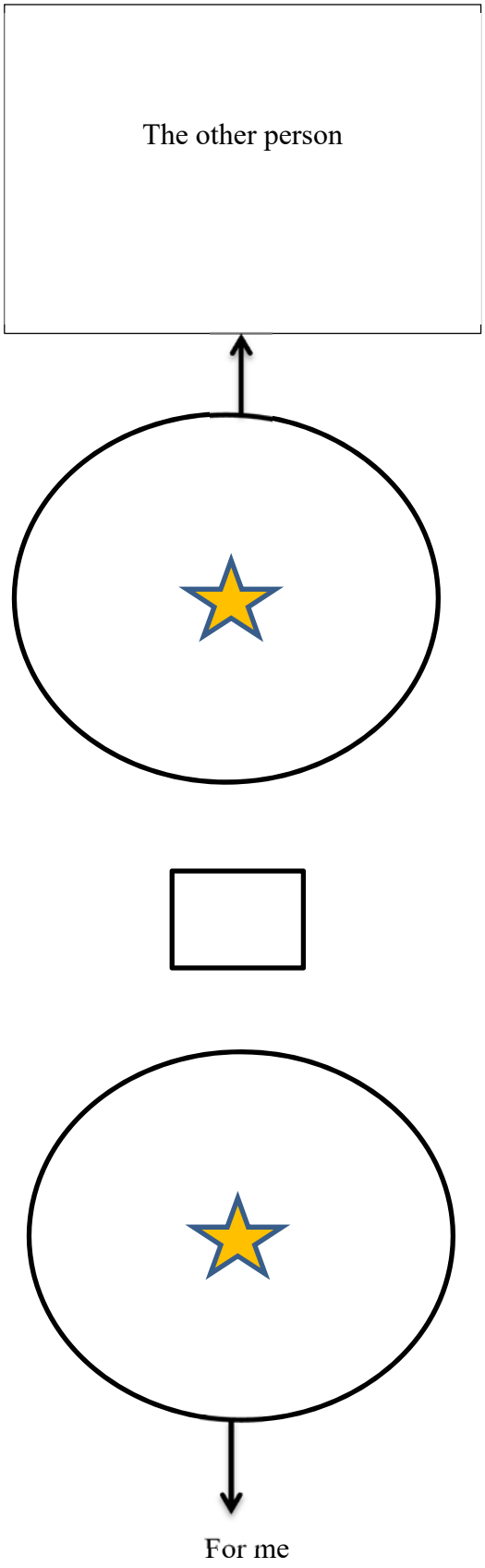
Are you ok so far? Leave time for questions and answer them privately.
As I mentioned earlier, you will get four decision sheets. The decision sheets differ from each other in the amounts of stars that can be divided between you and the other person. Please choose one of the two options for each decision sheet. At the end of the game, you will blindly draw one decision sheet out of four (*show the process).* If this game is selected for payment, you and the other person will be paid according to the selected decision sheet.

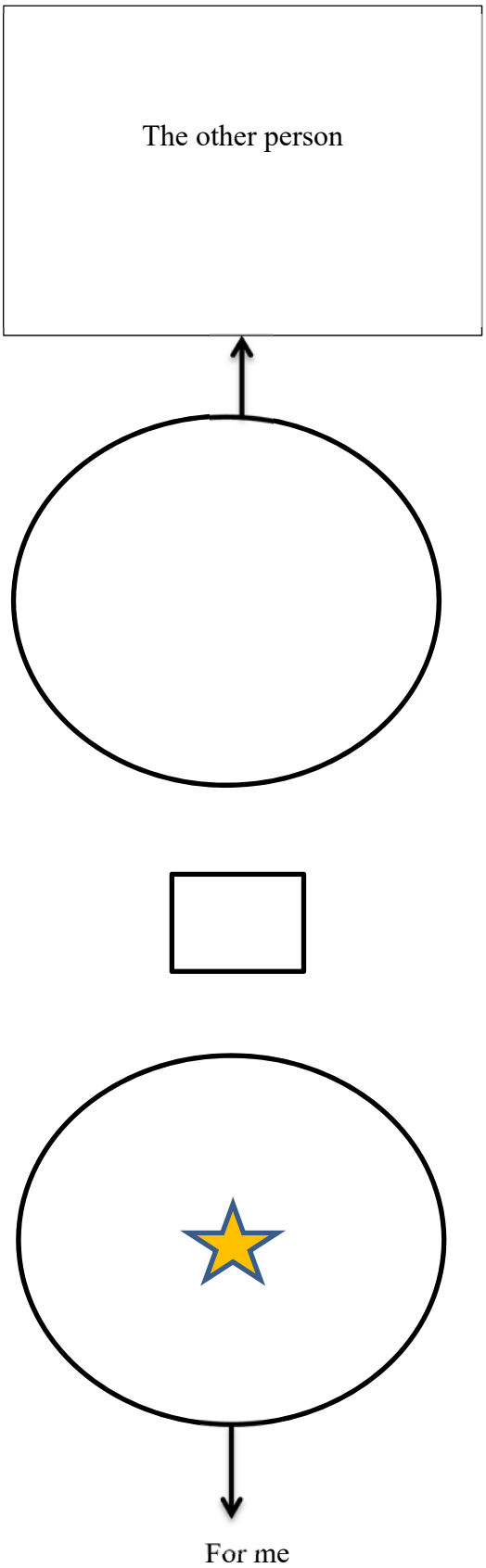
Decision sheet 1



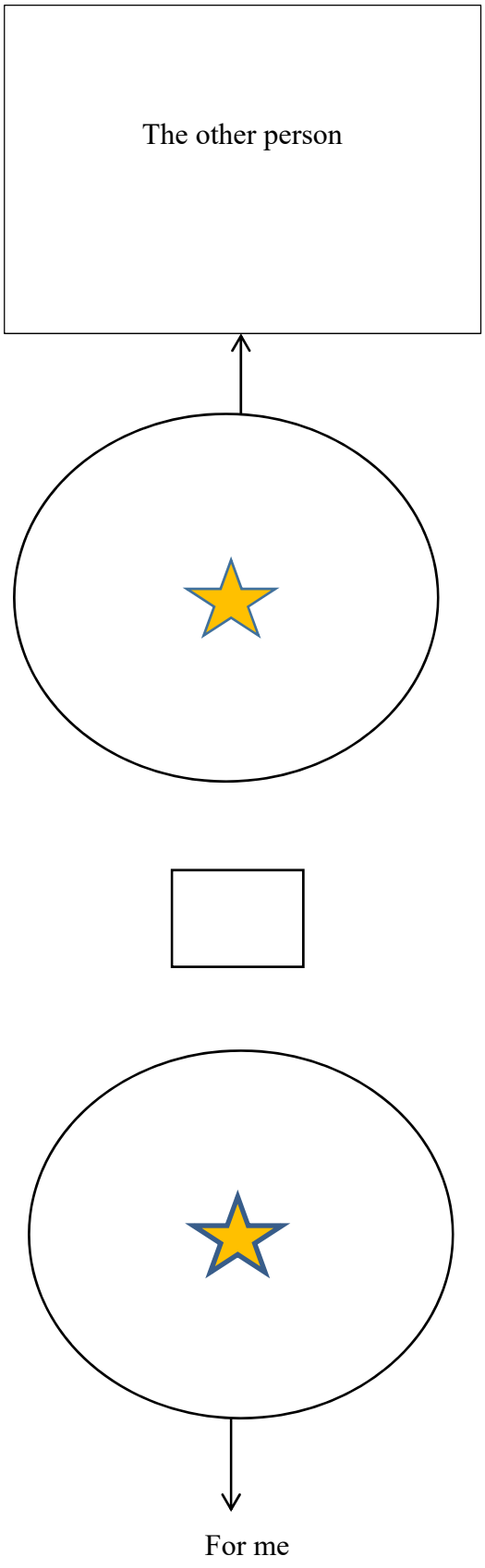


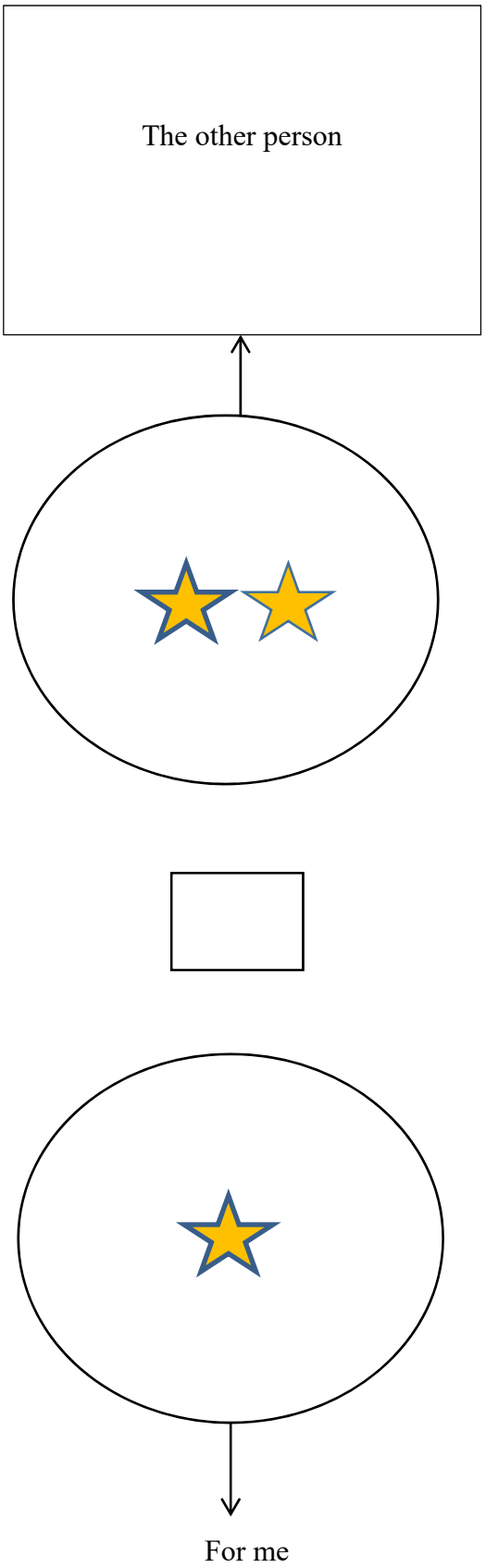
Decision sheet 2



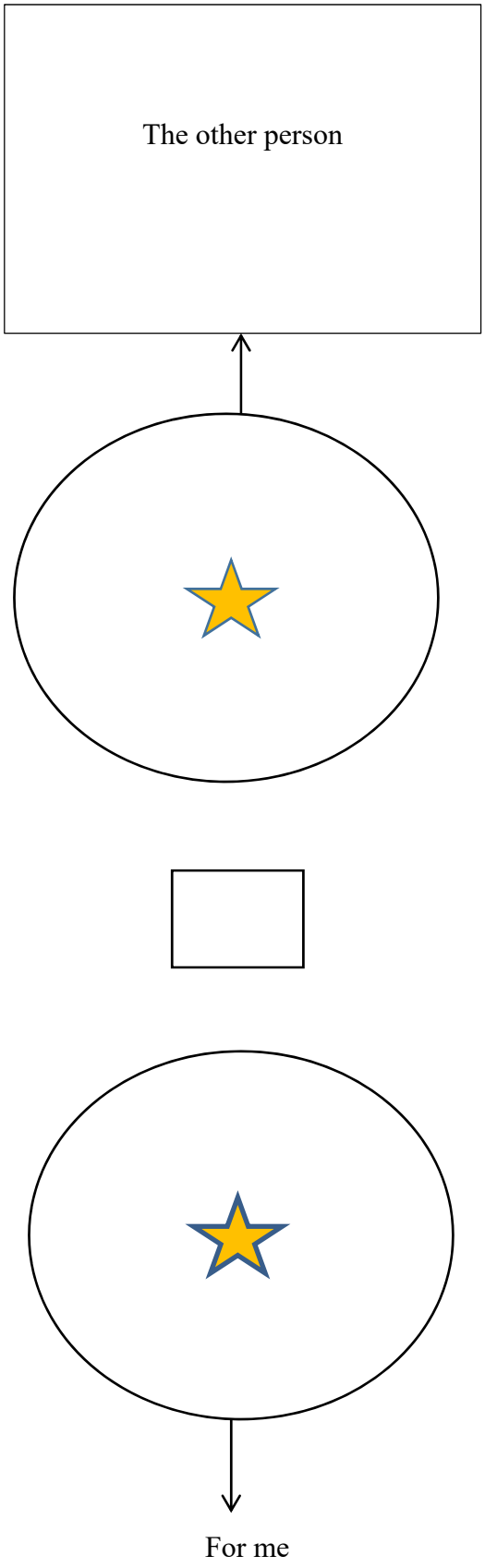


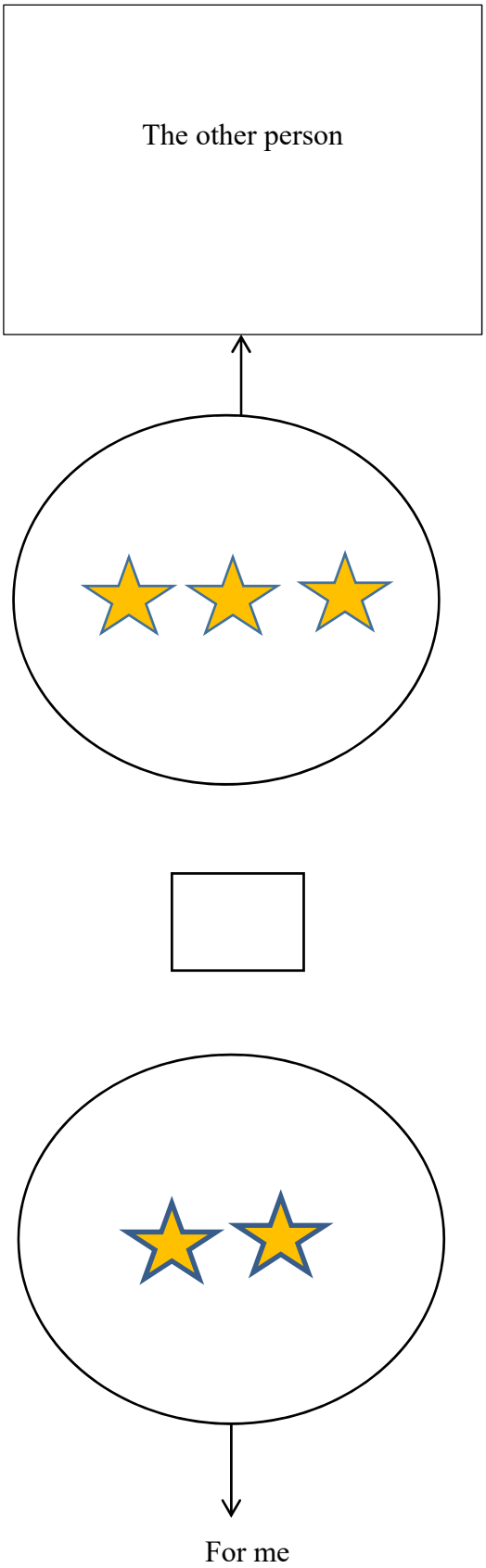
Decision sheet 3





Decision sheet 4





2. Decision in first sheet: (1=left, 2=right)

3. Decision in second sheet: (1=left, 2=right)

4. Decision in third sheet: (1=left, 2=right)

5. Decision in fourth sheet: (1=left, 2=right)

6. Decision sheet that has been drawn (if applicable):
7. Is this game paid for? …….1=yes, 2=no.

Big-five for Adults (aged 17 and above)

I see myself as someone who...	Does not apply to me at all 1	2	3	4	5	6	Applies to me perfectly 7
- Does a thorough job							
- Is communicative, talkative							
- Is sometimes somewhat rude to others							
- Is original, comes up with new ideas							
- Worries a lot							
- Has a forgiving nature							
- Tends to be lazy							
- Is outgoing, sociable							
- Values artistic, aesthetic experiences							
- Gets nervous easily							
- Does things effectively and efficiently							
- Is reserved							
- Is considerate and kind to others							
- Has an active imagination							
- Is relaxed, handles stress well							
- Is eager for knowledge							

Finally, we elicited Locus of Control for parents and administered a questionnaire on health issues.

At the end of experiment, please add the following questions for all – children and adults

1. How many elder brothers do you have?
2. How many elder sisters do you have?
3. How many younger brothers do you have?
4. How many younger sisters do you have?
5. Do you smoke? (yes=1, no=2)
6. Do you eat pan/supari? (yes=1, no=2)
7. Do you play lottery? (yes=1, no=2)