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# Economic Preferences across Generations and Family Clusters: A Large-Scale Experiment

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# ABSTRACT

## Economic Preferences across Generations and Family Clusters: A Large-Scale Experiment*

Economic preferences are important for lifetime outcomes such as educational achievements, health status, or labor market success. We present a holistic view of how economic preferences are related within families. In an experiment with 544 families (and 1,999 individuals) from rural Bangladesh we find a large degree of intergenerational persistence of economic preferences. Both mothers' and fathers' risk, time and social preferences are significantly (and largely to the same degree) positively correlated with their children's economic preferences, even when controlling for personality traits and socio-economic background data. We discuss possible transmission channels for these relationships within families and find indications that there is more than pure genetics at work. Moving beyond an individual level analysis, we are the first to classify a whole family into one of two clusters, with either relatively patient, risktolerant and pro-social members or relatively impatient, risk averse and spiteful members. Socio-economic background variables correlate with the cluster to which a family belongs to.

**JEL Classification:** C90, D1, D90, D81, D64, J13, J24, J62

**Keywords:** economic preferences within families, intergenerational transmission of preferences, time preferences, risk preferences, social preferences, family clusters, socio-economic status, Bangladesh, experiment

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# 1 Introduction

Economic preferences – such as risk, time and social preferences – are important for a large set of outcomes in life. They have been shown to influence educational achievements (Castillo et al., 2011, 2018; Golsteyn et al., 2014), labor market outcomes (Bandiera et al., 2005, 2010; Heckman et al., 2006; Deming, 2017), financial success (Meier and Sprenger, 2010, 2012; Dohmen et al., 2011), or a subject's health status (Chabris et al., 2008; Sutter et al., 2013). 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 in particular how economic preferences are formed (Bisin and Verdier, 2000, Heckman, 2006, Borghans et al., 2006; Kimball et al., 2009; Dohmen et al., 2012; Cigno et al., 2017; Doepke and Zilibotti, 2017; Kosse et al., 2020). Because economic preferences are often assumed to be largely shaped in childhood (Fehr et al., 2008; Kosse et al., 2020)[1] and remain fairly stable from middle to late adolescence onwards (Sutter et al., 2019), the transmission of skills and preferences from parents to children has received ever increasing attention in recent years (Dohmen et al., 2012; Kosse and Pfeiffer, 2012; Bauer et al., 2014; Almas et al., 2016; Alan et al., 2017; Ben-Ner et al., 2017; Campos-Vazquez, 2017; Falk et al., 2020).

This new and rapidly growing literature has typically investigated how parental characteristics affect children's economic preferences. In most cases, parental economic preferences have not been elicited to explain children's preferences, but rather the focus has been on factors like parental socio-economic status (like in Falk et al., 2020, for instance). Moreover, the analysis has typically looked at how parental characteristics determine a specific type of a child's economic preferences, for instance competitiveness (Almas et al., 2016), social preferences (Bauer et al., 2014), or time and risk preferences (Falk et al., 2020).

None of these papers has focused on how different domains of a subject's economic preferences relate to each other. Even more so, no study has ever looked at whether it is possible to identify types of whole families with respect to a set of economic preferences of husbands, wives and children, and which factors might determine a family's type. In order to do so, it is necessary to elicit the economic preferences of full families, meaning of both parents and of children, and then examine the relationships of economic preferences and classify families into different types that share a combination of specific economic preferences. So far, previous

[1] The ACE twins literature suggests that large parts of economic preferences are inheritable, however. We briefly survey this literature in section 3.5.

research has typically elicited the relation of *one* parent's (typically the mother's) economic preferences to a child's preferences, and moreover only in one domain (see, e.g., Kosse and Pfeiffer, 2012, and Alan et al., 2017, for risk preferences; Bettinger and Slonim, 2007, for time preferences; Ben-Ner et al., 2017, for charitable giving; Cipriani et al., 2013, and Sutter and Untertrifaller, 2020, for public goods provision).

In this paper, we present results from an experiment with 544 families where we elicited economic preferences of 544 pairs of husbands and wives, and of their 911 children, yielding a total of 1,999 individuals as experimental participants. We measure three dimensions of economic preferences – time, risk and social preferences – in a unified and incentivized context, allowing us to examine them at the individual, but also at the family level. Besides the experimental elicitation of economic preferences, we have a rich set of additional controls, such as personality traits, and socio-demographic background data. Based on this data set, we can contribute in several ways to the literature on the formation of economic preferences.

First, we elicit a whole set of economic preferences for husbands *and* wives *and* their children in an incentive compatible way. Having both parents in our sample allows to examine two interesting types of questions. On the one hand, it is possible to study whether the parents' preferences are significantly related to each other.[2] Our sample originates from Bangladesh, which is a very poor country and has the very interesting feature that the vast majority of marriages are arranged by the spouses' families (Ambrus et al., 2010, report that 92% of marriages are arranged in Bangladesh). This means that we can check whether there is assortative mating among spouses in such an environment.[3] This is not to be taken for granted as existing evidence suggests that arranged marriages show considerably less assortativity than non-arranged marriages (Dalmia and Lawrence, 2001). On the other hand, we can check whether the economic preferences of mothers and fathers are related to the same degree to their children's preferences. Studies that have elicited only one parent's preferences cannot answer such a question. Given that in a country like Bangladesh most mothers are working at home, and thus spend much more time with children, it is unclear ex ante whether children's preferences will be related to both parents' economic preferences to the same extent. Moreover,

[2] There are a few experimental papers that examine how close husbands' and wives' preferences are. Yet, their focus is to see how individual preferences of spouses are reflected in joint household decisions (on intertemporal choice or risk taking) and they do not relate parental preferences to children's preferences (see Bateman and Munro, 2005; de Palma et al., 2011; Carlsson et al., 2012, 2013).

[3] Feedback from conference presentations has shown that many people believe that arranged marriages are rare. In fact, however, about 50% of marriages worldwide seem to be arranged by parents and spouses' family in one or the other way (O'Brien, 2008).

we can also answer the question whether the relation between the parents' preferences is weaker or stronger than the relation between siblings or between parents and children. Answering these questions is our first contribution and it can inform us about the extent to which intergenerational transmission is stronger than assortativity of parental preferences.

The paper that is most closely related to this aspect of our paper is by Dohmen et al. (2012). They examine in the framework of the German socio-economic panel how risk attitudes and the willingness to trust are related in a representative sample of German families, including both parents and at least one child. Their study differs from ours in several respects, however. First, they don't use any incentives, but rely on hypothetical questions about risk taking and trust. We use monetary incentives for all participants. Second, their "children" are all above the age of 17 years, with an average age of 25 years, and about 40% of children no longer living together with their parents. In our case, all children are between age 6 and 16, and all of them still live with their parents. Transmission is particularly relevant for younger children as preferences are formed in the early years of life. Third, their study comes from one of the richest countries in the world (Germany), while our participants are from Bangladesh, a very poor country.[4]

Our second main contribution to the literature is that we are the first to study how parents' and children's economic preferences are related to each other in a very poor country. This aspect of our work is novel because previous work has only investigated the intergenerational transmission of economic preferences in rather highly developed and relatively rich countries (see, e.g., Bauer et al., 2014, for the Czech Republic; Almas et al., 2016, for Norway; Dohmen et al., 2012, and Falk et al., 2020, for Germany; or Brenoe and Epper, 2018, for Denmark). A large fraction of the world population lives in poverty, however,[5] which suggests that there is a need for scientific evidence about the intergenerational transmission of preferences in poor countries when trying to address ways out of poverty. Related to this aspect, we also examine whether the relationship between the economic preferences of parents and children is mediated by the socio-economic status of parents. Recent work by Falk et al. (2020) has shown for a very rich country (Germany) that the socio-economic status of parents is an excellent predictor of children's economic preferences. For other rich countries, like Denmark or Norway, the correlations of parental socio-economic status and children's economic preferences have been

[4] Bangladesh has a per capita GDP at purchasing power parity of 3,581 international $, while the US, e.g., has 57,467 $ (data from 2016; https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?view=chart,).

[5] See, e.g., the World Bank's report on extreme poverty (https://www.worldbank.org/en/topic/poverty/overview) or poverty facts at http://www.globalissues.org/article/26/poverty-facts-and-stats (accessed on 15 June, 2020).

insignificant, however (Almas et al., 2016; Brenoe and Epper, 2018). Our paper is the first to study with incentivized experiments the relation of parental socio-economic status to children's economic preferences in a very poor developing country. Since socio-economic status might be used as an indicator to target policy interventions to specific groups in a society, it seems particularly important to examine whether such targeting can work in poor countries where policy interventions might be intended to raise families and their children out of poverty.

Our third, and in our eyes most innovative, contribution is that we are the first to establish what we will call a "family cluster" with respect to how a set of different economic preferences relates to each other within whole families. Previous research has examined how parental background or one parent's economic preferences relate to single types of children's economic preferences. This means that previous work has, for instance, asked how socio-economic status of parents affects a child's time or risk preferences. Yet, it has not been asked how the different types of preferences relate to each other. Moreover, it has not been investigated whether one can classify whole families, such that by considering the mother's, the father's, plus the children's economic preferences one could find different clusters of families with respect to how the economic preferences of parents and children look like. For instance, it could be the case that parents' economic preferences and children's economic preferences are related for single preferences (like risk, time or social preferences), but beyond these relationships for single preference items, there might also be a relation between several items of preferences within the whole family. If we were able to detect such clusters – and we will be – then the next question would be whether we could identify which background characteristics of families are predictive of the cluster to which a family belongs to. This approach will allow us to show how background characteristics of parents relate to whether we can classify a whole family as more patient, more risk tolerant and more prosocial, or rather as impatient, risk averse and antisocial. As far as we can tell, no previous paper has made an attempt to address such an issue and provide a 360 degree-perspective of economic preferences within families.

We find the following main results. When we first look at parents' preferences, we observe significant correlations between a husband's and his wife's time, risk, and partly also social preferences. Given that most marriages in Bangladesh are arranged by the bride's and groom's families, these significant relationships are noteworthy, as they show a large degree of assortativity of parents. When we look at the correlations of economic preferences among siblings, these are almost always significant and of comparable magnitude to their parents' correlations.

Looking at the relationship between parents' and children's preferences, we find that both mothers' and fathers' preferences are significantly positively related to their children's economic preferences. In a nutshell, children have fairly similar preferences to their parents'. Interestingly, with only one exception, regression coefficients for mothers and for fathers do not differ from each other, and are practically the same for daughters and sons, suggesting that both parents' preferences are equally important in their relation to their children's economic preferences. This result suggests that an important channel for transmission of preferences from parents to children might be the genetic relation. While we do not have genetic data from our participants (like it could be extracted from saliva or blood, for example), we can analyze our data under the strict assumption of pure genetic transmission (in equal parts from mothers and fathers; ruling out for this analysis any other transmission channel). We find that genetics seems to play a role, but that it is certainly not the only channel of transmission, for which reason we dig deeper into the relationship between parents' and children's economic preferences.

We also explore the question whether single economic preferences – risk, time and social preferences – within families are related to family background, in particular to socio-economic status of parents. Here we observe two important findings. First, household income is neither significantly related to fathers' economic preferences nor to mothers'. The household income *is* related, however, to parents' years of schooling and an encompassing measure of IQ of both mothers and fathers. The latter relationship is expected, but we would also have expected a relation of household income to the parents' economic preferences. Second, socio-economic status of parents is also unrelated to single economic preferences of children as soon as we control for parents' economic preferences (the ability to do so being one of our major design features). Only when we exclude parents' economic preferences, we find a relation of socio-economic status of parents to time preferences and pro-sociality of children (as Falk et al., 2020, have found for Germany). In a series of robustness checks we further investigate potential transmission mechanisms. We consider parenting styles, the degree of assortativity of parents with respect to economic preferences, the influence of older siblings on younger siblings, and potential peer effects within villages. While this analysis reveals some influence of these factors, we still find a strong relation of parental economic preferences to children's economic preferences even when controlling for these other potential transmission mechanisms.

When we extend our analysis to take into account all three economic preferences simultaneously and search for family clusters with respect to a specific combination of parents' and children's preferences, we find the following novel results. First, we see that the three

economic preferences are related in very specific ways: spiteful subjects (who minimize a recipient's earnings in a series of four allocation games) are also relatively impatient and risk averse. On the contrary, there is a second type of subjects who are relatively patient, risk tolerant and non-spiteful. Importantly, these patterns can be found for both parents and children, and, most importantly, within families. In fact, our estimations identify two prototypical clusters of families: one cluster has relatively more spiteful, impatient and risk averse family members, and the other cluster is characterized by relatively more patient, risk tolerant and non-spiteful family members. In a final step of our analysis we find that the socio-economic background of parents is significantly related to the cluster to which a family is assigned to. Families with relatively higher household income and a larger number of household members are significantly more likely to be classified into the cluster with more patient, risk-tolerant and non-spiteful family members.

Our paper proceeds as follows. In section 2, we introduce our sample of 544 families (with 1,999 members), some background information about Bangladesh and our study design. In section 3, we look separately at risk, time and social preferences and the correlations for single preferences within families, controlling for a host of background variables and personality characteristics. This section also contains a discussion of transmission mechanisms, including the genetic relationship between parents and children, and additional factors like assortativity of parents, the influence of older siblings or peer effects in villages. Section 4 then investigates the interrelationship between risk, time and social preferences, first within subjects (separately for parents and children) and then within families. Finally, we present regression results about how parental background is related to which cluster a family belongs to. Section 5 concludes the paper.

# 2 Data collection and experimental procedures

## 2.1 Sample selection and characteristics

Our data were collected in four rural districts of Bangladesh (Chandpur, Gopalgonj, Netrokona, and Sunamgonj). Those districts represent four major administration divisions of the country and were originally selected to study the challenges arising from arsenic poisoning

contamination in ground water in Bangladesh for labor supply, productivity and well-being.[6] For the latter project, representative survey data and extensive information about cognitive and non-cognitive skills were collected, that were then complemented for this paper with experimental data. The sequence of waves for data collection are explained in the sequel.

For the project on arsenic poisoning (Chowdhury et al., 2015), 150 villages from the four districts and 30 households within each village were randomly selected for inclusion in the study. A detailed household survey with these households was run between March and May 2014. Due to budgetary constraints, only one third of the households in each village was randomly selected for participation in an additional survey wave in October and November 2014. A comparison of this sub-sample of 10 households per village to the full sample of 30 households does not show any meaningful differences in the observed household characteristics, however. This second wave was intended to measure the cognitive skills of both parents and their young children. For the current paper, we are only interested in the subset of households that had at least one child aged between five and 16 years. This subset contains 1,001 households[7] of which we managed to survey both parents, i.e., mother plus father, and their children in 736 households in October and November 2014.[8] Most importantly, and this is the key wave for this paper, from March to May 2016, we employed a final wave in which we elicited economic preferences of children and their parents through economic experiments and collected data on non-cognitive skills. The combination of all three waves constitutes the basis for this paper, and it includes 544 families with complete data from all waves.

In the Appendix we compare in Table A.2 this final set of 544 families, first, to the set of 192 families for which we don't have experimental measures (i.e., who participated in wave two, but not in wave three) and find that both sets are very similar to each other. Only with respect to parents' age, we find a significant difference. With respect to other important

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[6] See Chowdhury et al. (2015) for a detailed discussion on the survey method and its representation. Briefly, it is representative of the rural area of the four districts, and the sample households are similar to the rest of the rural households in terms of their observable characteristics.

[7] In Table A.1 in the Appendix we compare these 1,001 households that have children (that are a subset of the 1,500 households interviewed in the wave in October and November 2014; with the other households not having children (or not in the eligible age range)) and the remaining 3,467 households in the dataset of Chowdhury et al. (2015). Both sets differ (in small absolute amounts) in the following variables, yet in an expected way since we focus on here on the 1,001 households *with* children (a condition that not all other households satisfy): Fathers in our 1,001 households are slightly (1.3 years) older, parents less educated (0.8 years less schooling, which fits the negative relation between age and schooling in Bangladesh), households are larger (1.1 additional member), and have slightly lower per-capita income (due to the larger household size).

[8] We lost households between survey waves mostly due to temporary migration of one or more members during the survey period.

variables (like education of parents or household income) we do not observe significant differences between both sets of households. Second, we can compare our final set of 544 families to the larger set of 457 families who were intended to be included in wave two and had at least one child in the eligible age range. Table A.2 in the Appendix shows that in comparison to the latter set, our 544 families are statistically indistinguishable in background characteristics with respect to parents' age and education, and household size. Only for household income per capita, we note that our 544 families are poorer than the other 457 families that were intended for inclusion in wave two (but not in wave three). This means that within the poor country that we study (and which is a novelty of our paper), we have a comparatively poor sample of families, emphasizing our focus on how the transmission of economic preferences looks like within poor families. Overall, we see little attrition through the course of collecting data for this paper. In Table A.3 in the Appendix we take potential sampling attrition concerns into account by presenting our main results (that we present in section 3) under a specification that applies inverse probability weighting. Our results are robust to such a specification which should alleviate potential attrition concerns.

In the following, we will work with the set of 544 families for which we have all data, including the experimental measurement of time, risk and social preferences for mothers, fathers and children in the age bracket of six to 16 years. We started with the inclusion of children at age 6 because we were afraid that children younger than that age could have too much difficulties in understanding all experiments. In households with two or fewer children in the respective age bracket, all children were interviewed. When a family had more than two eligible children, only the youngest and the oldest child in this age bracket were interviewed. Given this procedure, we have data from each wave for 1,999 family members, including 911 children, 544 mothers and 544 fathers. Of those 544 families, we have 177 with only one child included, and 367 with two children.

All data collection took place at household premises. Trained enumerators (experimenters) from a professional survey firm[9] visited each household, conducted the interviews and experiments with parents and children on a one-to-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 independent simultaneous responses was implemented in order to

[9] 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.

retain anonymity of decisions and to avoid any kind of influence from one household member on another.

Table 1 presents summary statistics of our sample. It shows that we have an equal fraction of boys and girls (with 50.0% each). On average, they are over twelve years old (at the time of the experiment), and have had four years of schooling already, with 92.5% of children still attending school. On average, they have one older brother and one older sister (who are not always still living in the same household), and 0.6 younger brothers and 0.6 younger sisters. Their fathers and mothers have an average age of 47 years, respectively 38 years, and about three years of schooling. The latter means that the parents are typically less educated than their children. In 15.1% 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. About 42% of our sample is illiterate, which aligns well with a 2015 illiteracy rate of 38.5% in Bangladesh (CIA World Factbook, 2015). Eight percent of the sample has at least a secondary school certificate; this is in line with the Bangladesh Household Income and Expenditure Survey's finding of 8.9% for rural areas (Bangladesh Bureau of Statistics, 2011). Table A.4 in the Appendix reports the distribution of years of schooling for mothers and fathers. It seems that mothers are somewhat better educated than fathers; 47% of mothers and 55% of fathers have no schooling at all.

The primary occupation of the majority of fathers is agricultural worker or farmer (52.7%), while 96% of mothers work as housewife in their primary occupation. In 2016, the average annual total *household* income in our sample amounted to 113,967 Taka (about 1,400 USD), which was very similar to the 2010 rural national household average of 115,776 Taka (Bangladesh Bureau of Statistics, 2011), implying that with respect to household income our sample is a good representative of the rural areas in Bangladesh.

In our study, we use household income aggregated across all income sources and across all household members. In order to collect all the information necessary to measure household income, we have utilized the relevant survey modules used by the Bangladesh Bureau of

Statistics (BBS) in its periodical Household Income and Expenditure Survey (HIES).[10] The HIES is a locally adapted version of the World Bank's Living Standard Measurement Survey (LSMS) which is regularly used in about 100 developing countries to measure national and regional poverty, and well accepted in the scientific literature.[11] Given the dominance of the informal sector, self-employment, and household enterprises where multiple members contribute through unpaid labor, the aggregation of income across sources and members captures income much more comprehensively than using income of household heads or spouses from the labor market alone. A 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).[12] In 2016, the average household income per capita per month in our sample was 1,640 Taka (about 20 USD).

## 2.2 Experimental measurement of time, risk and social preferences

The experiments were conducted between March and May 2016. 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 or area. The experiments elicited a) time preferences, b) risk preferences, and c) social preferences, where the order was randomized at 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.[13] The incentives were scaled contingent on the participant's age. For children the payment was roughly proportional to the average weekly allowance for a given age. The experimental instructions and Table A.5 in the Appendix include the age-specific exchange rates of experimental tokens into the local currency (Taka).

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[10] The survey modules and reports are available online in the Report of the Household Income and Expenditure Survey 2010.

[11] See, for example, Chen and Ravallion (2001) or Besley and Burgess (2003). The poverty measure used in the UN's Millennium Development Goals applied the LSMS survey to calculate poverty across countries.

[12] 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.

[13] Payments were either executed by NGOs that we worked with or by helpers of the professional survey firm. 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 not be of any concern. However, as we see no difference in intertemporal choices made when the payment was executed by the NGO or by the survey firm, credibility seems to have been also unproblematic with the survey firm. Also note that in each choice there was some uncertainty involved because the earliest payment date in the intertemporal choice task was always the day after the experiment.

**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 designed 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. 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. For the analysis of time preferences, we use the *total number of patient choices*, which is a simple count (of the larger, but later, reward) made in all six choices of children (18 choices of parents).[14]

**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 the experiment administrators in the field and us, we have collected risk preferences only for half of the children (but still for all parents). In Table A.7 in the Appendix we present descriptive data for the households in which we collected risk preferences of children, and those in which we did not. There are no significant differences between both sets of households. For risk preferences, we used the *gamble number picked* as an outcome measure, a number from 1 to 6. Higher numbers are associated with a higher willingness to take risks.

[14] When looking at time preferences, we can, in principle, also define 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; see Table 2), and zero otherwise. For succinctness, we relegate the analysis of time consistency to the Appendix where we show in Table A.6 that there is a significantly positive relationship of fathers being time consistent on children's likelihood to be time consistent, which matches our general insights that parents' preferences are strongly related to their children's preferences.

*Table 2 and 3 about here*

**Social preferences:** Here we used the experimental protocol implemented in Bauer et al. (2014) who had extended Fehr et al. (2008). Each participant had to make four choices between two options each. Each option describes an allocation of $x$ units of rewards to the decision maker and $y$ units to an anonymous recipient (of same gender and of roughly same age).[15] In each of the four choices, one allocation ($x,y$) was always the allocation (1,1), while the alternative allocation was designed to classify different social preference types. The four choices are illustrated in Panel C of Table 2. From the four choices in Table 2, one can create four mutually exclusive social preference types (following Bauer et al., 2014).[16] These types – and the according choice patterns – are shown in Table 3. The types are defined as follows: (i) *altruistic* if subjects maximize the recipient's payoff in all four choices; (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 choice (the payoff of the decision maker is the same in both options in the other two choices). Note that these types are based on seven out of 16 different choice patterns in the four games. The other nine patterns have no straightforward interpretation. Yet, more than 75% of subjects can be classified as either altruistic, egalitarian, spiteful or selfish (which is a similar fraction as in Fehr et al., 2008, and Bauer et al., 2014). We take the remaining patterns (covering less than 25%) as omitted category.

Before starting any of the three experimental parts, participants had to answer control questions to check for proper understanding (see part B in the Appendix). 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.[17]

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[15] 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.

[16] Note that the mutually exclusive, and binary, set of four social preferences types is different from our measures of risk and time preferences where we measure whether someone is more or less risk tolerant or patient.

[17] For example, in analyzing time preferences, we excluded parents and children who did not understand the time preference task completely. However, in analyzing time preferences, we did not exclude other parents or children who did not understand another experiment, for example the one on risk preferences. Note that

## 2.3 Measurement of cognitive and non-cognitive skills as control variables

We included the measurement of cognitive and non-cognitive skills as control variables for the formation of economic preferences within families.

**Measures of cognitive skills:** We used a locally adapted version of the Wechsler Intelligence Scale for Children (WISC, version IV; Wechsler, 2003) and the Wechsler Adult Intelligence Scale (WAIS)[18] to measure cognitive skills. In the following, we are going to use a standardized composite measure of full-scale IQ (FSIQ).[19] Summary statistics of children's and parents' FSIQ are presented in Table A.8 in the Appendix.

**Measures of non-cognitive skills:** Here we measured personality traits and locus of control. 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. For the 15 (10) items questionnaire, each personality trait is an average of three (two) items. Hence, resultant traits are comparable. Their summary statistics are shown in Table A.8 in the Appendix. In addition to personality traits we also measured locus of control (Rotter, 1966; Lefcourt, 1991) which is an indicator of subjects' beliefs to what extent they have control over the outcome of events in their life. We followed Kosse et al. (2020) in our measurement approach, but relegate details to the Appendix (see part B and the notes to the experimental instructions) since this aspect is not central to our research question.

inclusion of subjects with difficulties in understanding would not change any of the qualitative results reported in this paper.

[18] 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 for us.

[19] This composite measure can be separated into four indices, verbal comprehension index, perceptual reasoning index, working memory index, and processing speed index. Each of the four indices is significantly related at the 1%-level to FSIQ (with correlation coefficients ranging from 0.75 to 0.91). Using the four separate indices instead of FSIQ would not change any of our main results.

# 3 Analysis of single preferences at the individual level

In this section we study time, risk, and social preferences separately. We start by presenting a descriptive overview of the experimental choices. Table 4 shows the means and corresponding standard deviations for the different measures of time, risk and social preferences. The upper panel presents data for parents, first combining husbands and wives, and then separately. The lower panel displays data for children, again first combined and then separately for daughters and sons. Note that Table 4 does not consider family membership, but presents averages across all families. In the aggregate, we note that husbands and wives are significantly different in our measure for time preferences, and partly for social preferences, but not for risk preferences. Daughters and sons, however, show no significant difference in any of our measures when we look at them in the aggregate. Recall that the relative frequencies of the four social preference types need not add up to one, as the four games allow for more choice patterns than are captured by the definition of altruistic, egalitarian, spiteful or selfish types (Bauer et al., 2014). Nevertheless, the four types capture more than 75% of subjects. It is also noteworthy that our time preference experiment allows for inconsistent choices. By the latter we refer to cases where a subject is willing to wait for a future payoff of X, but not for an even larger payoff Y>X (holding the earlier payoff constant). It is reassuring to note that among parents we do not observe any such inconsistent choices.[20] For children, this happens also only in 4.5% of cases. This fraction is comparable to the magnitudes reported in Sutter et al. (2013) for 10-18 years old.

*Table 4 about here*

## 3.1 Correlations of single economic preferences within families

Table 5 examines correlations of economic preferences within families from three perspectives. It presents correlations (i) among spouses (column (1)), (ii) between siblings (column (2)), and (iii) between parents and children. In the latter case, column (3) shows the correlations between mothers and children, and column (4) between fathers and children.

*Table 5 about here*

[20] Note that the inconsistency we are referring to here is different from time consistency as discussed in footnote 14 and Table A.6 in the Appendix.

From column (1) we see that husbands' and wives' preferences are significantly positively correlated most of the time, i.e., for risk and time preferences, and partly for social preferences. Recall that marriages in rural Bangladesh are in an overwhelming majority of cases arranged by the bride's and the groom's families (Ambrus et al., 2010). It is, therefore, not straightforward to expect similar preferences of husbands and wives, unless particular types of preferences are part of attributes sought in the marriages, whether or not the parents of the bride and the groom arrange the marriages. When comparing the correlations among spouses in column (1) to those between siblings in column (2), we note that they are of comparable magnitudes. Columns (3) and (4) address the correlations between mothers and children, respectively fathers and children. Again, we observe significant correlations in almost all cases, and, by and large, the coefficients are comparable in both columns, indicating that mothers' and fathers' economic preferences are related to their children's preferences to a similar degree. This is noteworthy because mothers spend much more time at home than fathers, for which reason one could naively expect mothers to have a tighter relationship if spending time would predominantly shape the relationships.

## 3.2 Assortativity of parents – Regression analyses

In Panel A of Table 6, we look closer at how the parents' economic preferences are related to each other, now controlling for a host of additional variables. For this purpose, we regress a husband's economic preference on his wife's corresponding preference. The first row in Table 6 basically confirms the results of column (1) in Table 5, despite controlling for a large number of background variables, including socio-economic status, cognitive ability and personality traits. With respect to both risk and time preferences, there is a positive and significant relationship of "Wife's preference" to her husband's preference. The relation in the case of social preferences is only significant for spitefulness, but not for the other social preference types. The significant relationships between husband's and wife's preferences raise the question whether they could have been caused by selection of similar partners (even in case of arranged marriages) or are a result of post-marriage convergence. The insignificant coefficient for "age of respondent" – which proxies length of marriage – in Table 6 suggests that post-marriage convergence is most likely not a main factor, but rather that the families of bride and groom seem to look for a match that includes similarities in economic preferences.[21]

[21] Please note, however, that given that all of our families have children who are at last 6 years old, spouses have been staying together for at least seven years. This means that, in principle, convergence of preferences might

*Table 6 about here*

Looking at the other control variables we only highlight a few noteworthy findings. With one exception, a husband's years of schooling are not significantly related to his economic preferences. Household income per capita is also unrelated to risk and time preferences, but somewhat to social preferences. Taken together, this means that socio-economic status plays only a minor role for husband's economic preferences when the latter are considered separately. The BIG-5 personality traits show a relationship to social preferences. More conscientious husbands are more likely to be altruistic and less likely to be selfish, and more agreeable husbands are less often spiteful.

Interestingly, IQ is weakly significantly negatively related to patience. While one should not overemphasize a weakly significant result, below we will also see such a negative relationship between IQ and patience for the 911 children in our sample. We were surprised by this result, given that for relatively rich countries the relationship between IQ and patience has often been shown to be positive (e.g., Dohmen et al., 2010, Falk et al., 2020). However, such a positive relationship does not seem to be a universal phenomenon, for which reason our findings of a potentially negative relationship may not be specific to our sample. To show this, we accessed data from the Global Preference Survey by Falk et al. (2018) and correlated their measure of patience and a proxy for IQ (math skills). In Figure A.1 in the Appendix, we show that this relation is significantly positive for richer countries, as expected, but practically flat (and insignificant) for poorer countries. Hence, our findings with respect to the relationship between IQ and patience – albeit only a side-result of our paper – are not a unique (and unusual) feature of our sample.[22]

Panel B of Table 6 presents the same investigations for wives as panel A did for husbands and shows the same general patterns of results. Here we include the husband's preferences on

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have occurred already during these early years of a marriage, implying that we cannot identify in detail whether selection or post-marriage convergence makes parents' preferences similar. Results in Carlsson et al. (2012, 2013), however, fail to report any post-marriage convergence in their sample of Chinese couples and their risk and time preferences, which supports our interpretation that post-marriage convergence is an unlikely explanation.

[22] It looks like an interesting question for future research why the relationship between IQ and patience seems to be positive in rich countries, but flat (and partly even negative) in poor countries. One speculative explanation could be that poverty teaches smarter people to take the opportunities in the present (and thus be impatient) because there might only be worse options available in the future. Experimental research on the effects of scarcity actually suggests that subjects become more present-biased under scarcity (Carvalho et al., 2016). Note that in the right-hand panel of Figure A.1 in the Appendix Bangladesh (BGD) has a relatively high level of patience, but a relatively low level of IQ, which is compatible with the negative relationship that we find in our data.

the right-hand side of the equation. Like for husbands, we confirm the previous results from column (1) in Table 5, such that there is a significant positive relationship between spouses' preferences with respect to risk and time preferences and spitefulness. Household income per capita is not in a single case significantly related to the wife's preferences. Years of schooling – another indicator for socio-economic status – is only related to risk aversion. Taking panels A and B of Table 6 together, we see that socio-economic status of parents has little relationship to their economic preferences when we investigate each preference domain separately.

## 3.3 Relation between children's and parents' preferences – Regression analyses

Table 7 shows the association between children's and each parent's preferences in order to study in more detail how economic preferences are linked within families and potentially transmitted across generations. OLS coefficients[23] are reported for risk and time preferences in columns (1) and (2), and Probit marginal effects for social preferences in columns (3) to (6). All the preference measures for time, risk and social preferences of children are positively and significantly associated with at least one parent's preference. In fact, in the majority of cases there is a significant relation to both mothers and fathers, thus confirming the correlation analysis shown in columns (3) and (4) of Table 5 above. In Table A.9 in the Appendix we show that the relation of parents' and children's preferences remains practically the same if we drop all control variables and only regress children's preferences on parental preferences. In additional regressions not shown here, we also 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 7. Yet, one strength of our design is to have both parents' economic preferences, for which reason we always include both mothers' and fathers' preferences in the following analysis.

When comparing the estimated coefficients for mothers and fathers, there is only a single measure for which our regressions in Table 7 indicate a significant difference between these coefficients, 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 is practically the same for mothers and for fathers (see the test statistics at the bottom of Table 7), and this relationship does not depend on the gender of the child, as we show in Table A.10 in the

[23] Using ordered probit estimates yields qualitatively the same results.

Appendix. Hence, it is not the case that mothers have a stronger relation to daughters, or fathers to sons, with respect to their economic preferences.

In Table 7, we also show the relation of other covariates to children's economic preferences. Age and gender are practically unimportant. Regarding personality traits, we note that agreeableness and openness are related to social preferences. Children's full-scale IQ is related to economic preferences in several dimensions. Children with higher IQ are more egalitarian and less selfish, but also less patient. Recall that we had already seen a negative relationship between IQ and patience for fathers. Hence, although surprising at first sight, the relationship between IQ and patience is recurrent within families, and we have shown above that poor countries seem to have a different relationship between IQ and patience than what we know from rich countries. This corroborates the need to do more research on the transmission of economic preferences – or more broadly speaking of non-cognitive skills – in poor countries, because the evidence from rich countries need not be applicable to poorer regions of the world.

*Table 7 about here*

Turning to variables referring to household characteristics, we find that household size is systematically related to children's social preferences. The larger the number of household members, the less likely children are egalitarian and altruistic and the more likely selfish.[24] Interestingly, the per-capita income of household does not have any significant relationship with single economic preferences of children. Looking at parents' education (years of schooling) also reveals a very weak relationship. Overall, Table 7 shows that socio-economic status of parents is practically unrelated to the economic preferences of children when we consider each preference separately. This may look surprising, given the results in Falk et al. (2020) who have found that higher socio-economic status of (German) parents is related to higher patience, risk tolerance and prosociality of children. Recall, however, that Falk et al. (2020) don't have any data on parents' preferences. If we exclude the parents' preferences from the regressions in our Table 7, income or schooling of parents turns significant for at least patience and spitefulness, as we show in Tables A.11 to A.16 in the Appendix. The latter results are consistent with Falk et al. (2020), showing that it makes a difference whether one can

[24] While we do not look specifically at single children, we note that Fehr et al. (2008) find that single children (who live almost by definition in smaller households than children with siblings) are more egalitarian and altruistic than children with siblings. Our results on the effects of household size mirror their findings (from Switzerland).

control for parental preferences or not to see whether and how socio-economic status of parents is linked to children's economic preferences.[25] In the following subsections we analyze in further detail why parents' and children's economic preferences might be related to each other. In other words, we look into possible transmission channels.

## 3.4 Possible channels of transmission I: Parents, siblings and peers

In this subsection, we look at several factors that one might subsume under the notion of environmental factors.[26] More precisely we first analyze whether parenting styles of parents can explain children's economic preferences, so that the way in which parents treat and raise their children affects the children's preferences. Next we look into whether parents who have similar economic preferences have a different relation to their children's economic preferences than parents with relatively dissimilar economic preferences. This is to examine whether it matters if parents are like-minded or not. Finally, we analyze the potential influence of older siblings and peers in one's village.

**Parenting styles**. We have data about parenting style within a family for our 544 households. The questions to assess the parenting style were taken from the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam; Wendt et. al., 2011). There are 18 items in the questionnaire (see the end of Appendix B) that can be used to score a family on each of six different parenting styles: (i) *Emotional warmth* captures the degree of affirmative attention and care in parenting. (ii) *Monitoring* measures the extent to which parents are informed about their child's activities and social contacts. (iii) *Inconsistent parenting* relates to the degree with which parents give inconsistent signals, for example by not following through on their punishments. (iv) *Negative communication* captures if parents behave negatively toward their child, for instance by scolding or shouting at them. (v) *Psychological control* assesses negative intrusive thoughts, feelings, and behavior of parents toward their child. (vi) *Strict control* indicates harsh control and authoritarian behavior of parents. Each family gets assigned a value

[25] Given that we test parents' preferences on children's preferences multiple times, we have controlled for multiple hypotheses testing (MHT), implementing the Romano-Wolf correction in STATA (Clarke et al., 2019). The Romano-Wolf correction asymptotically controls the familywise error rate, and given that it takes into account the dependence structure of the test statistics by resampling from the original data, it is considerably more powerful than other MHT procedures such as Bonferroni (Clarke et al. 2019). As can be seen in Table A.17 in the Appendix, our reported *p*-values and Romano-Wolf *p*-values are very similar in all cases.

[26] This section deals with issues covered also by the ACE twin studies where phenotypic variation is decomposed into additive genetic variance (A), shared (common C) environmental factors and non-shared (specific) environmental factors (E) plus an error term. Typically, C covers factors like the socioeconomic status of the family and parenting style. E represents determinants like unique experiences with friends or accidents. We deal with this literature in Section 3.5 while discussing genetic issues.

between 1 and 5 in each parenting style. We then standardize each parenting style variable and use the standardized values in the regression.

One could imagine that children's economic preferences depend on the way in which they are raised by their parents. For example, parental emphasis on control might affect children's risk preferences (i.e., the willingness to take a risky action that is hard to control) or social preferences might be related to parents' emotional warmth. In Table 8 we add the scores for the six different parenting styles to the regression specification that we used in Table 7. We see that negative communication as a parenting style increases the likelihood to have spiteful children, and monitoring makes egalitarian social preferences more likely. Other than that, parenting styles are not significantly related to children's economic preferences, and in the last row of Table 8 we note that the F-test for joint significance of parenting styles fails significance. So, parenting styles do not seem to have a strong influence, if at all, on economic preferences of children. It is important to note from Table 8, however, that the inclusion of parenting styles leaves the coefficients and their significance for parents' preferences (first two rows of Table 8) practically unaffected. This leads us to our next question whether the similarity of parents' preferences makes a difference for the relation to their children's economic preferences.

*Table 8 about here*

**Assortativity of parents**. To address the importance of parents' assortativity on their children's economic preferences, 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 of the overall sample, and heterogeneous parents if the absolute difference is greater than or equal to one standard deviation. 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 standard deviations in order to keep the two groups at reasonable sample sizes. Then we repeat the main regressions presented in Table 7 by taking into account this separation into homogeneous and heterogeneous parents. One might imagine that homogeneous parents might give the same example to their children (by having very similar economic preferences), for which reason it could be that those parents' preferences have a stronger relationship to their children's economic preferences.

We present the results in Table 9 which contains – in comparison to Table 7 – 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 9.

From Table 9 we note that fathers' and mothers' preferences in heterogeneous families are significantly related to their children's time preferences and some of the social preference types, but not for risk preferences. So, even if parents have comparatively diverging economic preferences, we mostly see a significant relation to their children's economic preferences. The dummy for parents' homogeneity is only weakly significant for selfish social preferences, but has no significant coefficient in all other cases. If we look at homogeneous families, where fathers' and mothers' preferences are fairly similar, we note from the post-estimation tests at the bottom of the table that they are significant mainly for social preference types, but not for time preferences and risk preferences. Overall, the evidence suggests that the degree of parents' assortativity with respect to their own economic preferences (dichotomized here as homogeneous or heterogeneous) does not matter much for the relation to their children's preferences. So, neither parenting styles nor the assortativity of parents seem to be particularly noteworthy factors for explaining the similarity of parents' and children's preferences.

*Table 9 about here*

**The role of 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 within families. To look at the role of siblings, we make use of the data from the 367 families where we interviewed two children. We want to look specifically at the potential influence of older siblings' preferences on younger siblings' preferences. We do this in two steps: first, using the specification of Table 7, 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 older sibling's residuals as explanatory variables in estimating the younger sibling's preferences. Note that all other variables, including parental preferences, remain unchanged. Table 10 shows the results. We note that

the variables for the father's preferences turn insignificant in all columns when controlling for the older sibling's preferences, but the mother's preference remains significant (in almost all columns). The older sibling's preferences are significantly related to the younger sibling's time and risk preferences, but there is no relation to social preferences. 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 10 about here*

**Community preferences**. As a final aspect of a child's environment, we look at the association between the average preferences in a child's village and the child's economic preferences, controlling for parents' preferences. Such an analysis allows first to identify whether peers in a child's village have similar preferences to those of the child – suggesting some peer effects that may shape one's preferences – and second whether the relation between parents' and children's preferences that we have seen so far (particularly in Table 7) remains significant when we consider potential peer effects. Since most of our families' social life takes place within their villages[27], it is natural to assume that preferences of surrounding villagers might play an important role.

Recall from Section 2 that our children live 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. To do so, we take the average of all villagers, including both children and parents. However, to avoid the reflection problem, we exclude a child's and his or her parents' preferences in calculating the village average (similar to Dohmen et al., 2012).[28] As expected, Table 11 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 significant (like it was in our main Table 7).

[27] As indicated earlier, 96% of mothers work as housewives, meaning that they stay within their village. Concerning fathers, 53% work as farmers and 33% are self-employed in non-agriculture. Both types of activities are done within the village, while the only remaining relevant occupations (non-agricultural worker (6%) and professional (6%)) require some travel outside the village. So, the large majority of parents works and stays within the village, and so do children (who usually attend the village's school).

[28] While most of our dependent variables are binary, the village average is continuous (for example, which proportion of villagers shows egalitarian preferences).

*Table 11 about here*

In sum, this subsection has shown that looking at possible transmission factors by considering parents (with respect to parenting style and assortativity of preferences), siblings or peers has revealed a persistent relationship between parents' economic preferences and their children's preferences. Of course, this robustness raises the question whether the documented relationship is simply caused by the genetic relationship between parents and children. Even though we do not have physiological material (like blood or saliva) to decode genetic information of parents and children, we can nevertheless address the potential transmission of economic preferences through genetic factors. This is the purpose of the following subsection.

## 3.5 Possible channels of transmission II: Genetics

Preference formation is a complex interaction between genetics, parental norm "education" and other household or external factors, with the exact interplay not yet fully understood in particular in the rural context of a developing country. In the previous sections we have established a solid intergenerational transfer of preferences from both parents to their children, controlling for a host of background variables. Preference building efforts of parents and child imitation move together with genetic factors, however. There is agreement in a substantial body of research[29] that a considerable genetic heritability of preferences exists, which might be compensated or overcompensated somewhat by parental activities. In our data set, we do not have genetic information, but even if we would have, strong identification would be challenging, because, for example, even monozygotic twins (who are genetically practically identical) can be differentially affected by parental activities.[30]

Insights on the size of potential genetic inheritance of economic preferences are provided by specific studies using monozygotic and dizygotic twins typically for developed countries to disentangle the influences of genetic and environmental factors. This literature employs a variance component analysis (ACE or ADCE modelling) to estimate a heritability coefficient that measures the degree to which genetics contributes to the total variation of preferences.

[29] See Ebstein et al. (2010) for a general introduction into the genetics of human social behavior. When dealing with the genetics of risk preferences, Zhong et al. (2009) even argue as follows (p. 103): "We do not find a significant role for shared environmental effects, a common observation in behavioral genetics that is contrary to commonly held views in economics." Cesarini et. al. (2009) reach a similar conclusion in their study on risk and giving preferences by noting (on p. 809) "strong prima facie evidence that these preferences are broadly heritable".

[30] Karlsson Linnèr et al. (2019) discuss for instance the identification challenges behind the genetic factors correlating with general risk behavior and the various risk domains.

While most of this research with twins suggests a strong genetic component, there is a large diversity across studies and for the considered preference type with respect to the preference variance explained by the genetic effects. Before returning to our data for an assessment of the potential genetic influence, we briefly summarize the findings by preference type, country source of data, and genetically caused correlation or explained variance as suggested in the twin studies.

a. *Risk preferences.* Heritability seems to be large in the studies of Zyphur et al. (2009; 63%; USA) and Zhong et al. (2009; 57%; China), but more modest in Cesarini et al. (2009; 20%; Sweden). Nicolaou and Shane (2019) support the lower heritability value with 22% for general risk preferences in their UK sample, but receive much higher values for domain-specific risk preferences in the range of 15-80%. Similar evidence is given by Ebstein et al. (2010) who report a heritability level for risk of about one third. For Swedish data, Barnea et al. (2010) and Cesarini et al. (2010) find that genetics can explain one quarter to one third of the variance in financial decision making (including, e.g., stock market participation and asset allocation). Beauchamp et al. (2017; 35-55%; Sweden) confirm sizable correlations between risk attitudes and financial investment choices, much larger as found before in Sweden, after providing measurement-error-adjusted estimates.

b. *Time preferences.* Here, the literature on twin data and genetics is scarce and more recent (Hübler, 2018). The survey of Ebstein et al. (2010) did not report a heritability measure on this issue. Anokhin et al. (2011; 30% & 51% at age 12 and 14; USA) studied delay discounting, the preference for smaller immediate rewards over larger but delayed rewards; the role of genetics was increasing with age in this longitudinal twin design. Cronqvist and Siegel (2015; 33%; Sweden) used saving behavior of twins to judge time preferences. Hübler (2018; 23%; Germany) used a novel twin data set of large size (3,000) and a direct survey measure revealing individual patience.

c. *Social preferences.* Knafo and Plomin (2006; England & Wales; 32% - 61%) used a very large sample of 9,424 pairs of twins to study their prosocial behavior as rated by their parents at the ages of 2, 3, 4 and 7, and by their teachers at age 7, identifying a strong genetic effect rising with age. Wallace et al. (2007; Sweden; larger than 40%) study fairness preferences revealing strong genetic effects. Cesarini et al. (2008; Sweden, USA; 10% - 20%) deal with cooperativeness in a transatlantic setting of two independent studies. Heritability of trust was found to explain 20% of the variance in Sweden and 10% in the U.S. The genetic component of trustworthiness was judged to be 18% in Sweden and 17% in the USA. Cesarini

et al. (2009; 20%; Sweden) dealt with the genetic components of giving. Finally, Ebstein et al. (2010) reported for prosocial behavior of girls and boys genetic heritability of over 55%.

The empirical findings on the genetic factor in economic preference formation indicate significant relevance in spite of the observed diversity. A challenge is that these findings are from a handful developed countries excluding the developing world. We have established so far in the paper that the transfer of preferences in our sample from Bangladesh is strong and stable. Given the relevance of genetics as revealed from our literature review, it is quite natural to ask whether our findings could have been driven mainly by genetic factors. We can further learn more about the process of preference formation through an econometric exercise where we impose a specific amount of intergenerational transfer in line with genetic priors from this literature. Of course, given that the empirical evidence is from twin studies, the estimates in this research about the heritability of traits mark a reference, but can only provide some orientation how close we are in our data to those genetic priors when we investigate our data that has "only" siblings (not twins) and that relates children's preferences to their parents (and not to their siblings or even twins). The evidence reported above suggests that the explained preference variation by genetics varies in the interval from 0% to 80%, with a reasonable range of 25% to 50% explained variance. This implies for the (positive) genetic child-parent preference correlation coefficient a range from 0.5 to 0.707.

Let the "true" genetic Pearson product-moment correlation coefficient between child preferences (C) and parental preference capital (MF) be r.[31] Observe that r is just the relationship between the Z-scores of C and MF ($r = Z_C/Z_{MF}$), and define $S_C$ and $S_{MF}$ the standard deviations for C and MF, respectively. If MF is the equally weighted sum of the preferences of mother M and father F (MF= 0.5 M + 0.5 F),[32] we have

(1) $C = \text{Constant} + r\, S_C/S_{MF}\, MF + u = \text{Constant} + 0.5\, r\, S_C/S_{MF}\, M + 0.5\, r\, S_C/S_{MF}\, F + u$

with the random error term u. Following the rationale outlined above, we impose r = 0.5 in our testing below, implying a genetically explained variance of 25%. A bulk of reliable estimates for all economic preferences have been around this size. It also does not demand too much from the genetic factor to explain so that we are conservative in rejecting pure genetics in case

[31] Note that $r^2$ is just the coefficient of determination of an OLS regression of MF on C.

[32] The assumption of equal weights is for simplicity of exposition and innocent, since we keep the estimations in the sequel open and we have already established (see Section 3.3 and the test statistics at the bottom of Table 7) that the effects of both parents preferences on those of the kids are practically the same which is consistent with this simplification.

of an undershooting of our preference estimates.[33] We nevertheless think that this exercise is instructive to better judge the findings we have achieved on the intergenerational transfer of economic preferences.

The regressions provided in Table 7 are consistent with this rationale including a vector of other variables X with parameters c representing other channels of preference formation:

(1') $C = \text{Constant} + a_M\ M + a_F\ F\ + c\ X\ + u$

Assuming that the transmission of preferences would only work through genetics, this would imply that the slope coefficients of M and F are the same ($a_M = a_F$) and equal to 0.25 $S_C/S_{MF}$, and the slope coefficients of X are zero. Table 12 shows the estimation results. It is basically a replication of Table 7, now using OLS in all cases for easy comparable testing; OLS delivers the exact same findings as the previous probit estimates. Most importantly, Table 12 contains at the bottom the "pure" genetic values for the coefficients of father's and mother's preferences (see row "Genetic prior preference coefficient minus 0.25*$S_C/S_{MF}$"). These coefficients are typically very different from the estimated coefficients as shown in the first two rows of Table 12. So then we show in a series of F-tests how the estimated parental preferences (at the top of Table 12) relate (i) to each other and (ii) to the estimated coefficients in case of "pure" genetic transmission (in row "Genetic prior preference coefficient minus 0.25*$S_C/S_{MF}$"). Addressing item (i) first, we note that equality of the parental parameters in line with pure genetics cannot be rejected, except for the case of being spiteful. This finding for spitefulness confirms the importance of having data for both parents. Referring to item (ii), however, the assumption of pure (i.e., exclusively) genetic transmission of preferences is rejected in all other aspects of the parental variables: As the F-tests show (in the rows "p-value for F-test: Father/Mother = 0.25*$S_C/S_{MF}$"), the estimated twelve slope coefficients all differ from the genetic prior. Finally, pure genetic transmission is also rejected by observing a significant importance of the vector X of other variables for four out of the six cases; only for "gamble number picked" (i.e., risk preferences) and "altruistic" the vector X seems to play no role (see row "p-value for F-test: joint significance of X"). Hence, not in a single case all conditions for pure genetic transmission are satisfied. Only risk preferences and altruism come close, because here we cannot reject

[33] Even with the lover number for the explanatory power of genetics, we will reject "pure" genetics in the analysis to follow.

equality of the slope coefficients of parental preferences and the vector X is jointly insignificant, but parental preferences are different (smaller) than the genetic prior.

*Table 12 about here*

To explore this further and to execute some robustness tests about preference formation, we have replicated the estimates of Table 12 by subtracting the pure genetic priors from the observed preferences of the children: $C - 0.25\, S_C/S_{MF}\,(M + F)$:

$$(1'')\ C - 0.25\, S_C/S_{MF}\,(M + F) = \text{Constant} + (a_M - 0.25\, S_C/S_{MF})\, M + (a_F - 0.25\, S_C/S_{MF})\, F + c\, X + u$$

Under pure genetics, none of the regressors representing equation (1'') should be significant. Table 13 contains the preference slope coefficients and a number of further tests. With this approach, we have corrected the observed six preferences of the children by eliminating the expected genetic transfers from the parents. All other explanatory variables (that we used in Table 12) remain unaffected and yield the same coefficients and significance levels as in Table 12, for which reason we do not show them in Table 13. If we still observe significant parental preferences while analyzing the residuals, this implies departure from pure genetics. The six provided $R^2$'s in Table 13 indicate the overall strength of these departures from pure genetics. It is lowest for gambling ($R^2 = 0.066$) and altruism ($R^2 = 0.079$) and largest for spiteful ($R^2 = 0.161$) and patience ($R^2 = 0.134$). Significant regressors indicate the sources of the departure from pure genetics. For example, for risk preferences it is the age of the child, (see Table 12 where we included the control variables that are not shown in Table 13) and for "altruism" the parental preferences of both parents.

*Table 13 about here*

Table 13 shows that the F-test is significant for parental preferences in all cases but risk preferences, rejecting again the assumption of pure genetics transmission of preferences. The estimates reveal that all mother coefficients are larger in size than those of the corresponding father coefficients, although this difference is only statistically significant for spiteful preferences. This is consistent with the observation that practically all mothers are housewives and can take care of the children, and it supports the conjecture that the departure from the

genetic prior is associated with parental (in particular mother's) preference education of the child. Most estimated parameters for both parents are negative, indicating that the transfer parent-child that we observe is smaller than what the genetic prior would predict. This can be considered as regression to the mean. It remains unclear why this is the case. Since we have only children, this could change when preferences develop over time. The exception is the case of spiteful children, which are particularly more likely with a spiteful mother, and with a higher own education of the child.[34] Here the estimated coefficient of mother's preference is even significantly larger than the genetic prior.[35]

# 4 Joint analysis of risk, time and social preferences: Identifying family clusters

In the previous section we have looked at each measure of economic preferences separately. In the following, we will, first, study the relationships of different economic preferences *within individuals*. Afterwards, we will examine whether we can identify different *clusters of families* with respect to the interrelationship of economic preferences of fathers, mothers, and children, and whether we can identify socio-economic and demographic determinants of the assignment to a particular cluster

*Table 14 about here*

We start with Table 14 and present the raw correlations of our six measures of economic preferences for husbands, wives, and children. All three panels show an interesting pattern of how the three types of economic preferences are related to each other within individuals. In particular, they reveal that more patient individuals are typically more risk tolerant (significant for wives and children) and that both risk and time preferences are also related to social preferences. For husbands and wives, we note that spiteful subjects (who minimize the

[34] A more educated child is more spiteful. This parallels our later observation in the family cluster analysis of section 4 (see in particular p. 34) that mother's education has a positive effect on the likelihood of belonging to Cluster 2-families which are more impatient, more risk averse and in particular more often spiteful.

[35] In another robustness check we have added a variable M x F, the product of parents preferences, to allow for non-linearity in parental preference education or child learning. This estimate turned out to be non-significant; a corresponding F-test is contained in Table A.18 in the Appendix. We further explored whether the parent child-transfer of preferences is time dependent, which could support the idea that there could be additional learning from parents after early childhood. Results are shown in Table A.19 in the Appendix, indicating that time-dependence of preferences is not an issue in our data set.

recipient's payoffs in the four social preference choices) are less patient and less risk taking. In other words, spiteful individuals are typically relatively impatient and risk averse. For children, the latter direction of the relationship is identical, albeit statistically insignificant. Being classified as a selfish person is positively related to patience and risk taking for all family members. Being egalitarian or altruistic – the least frequent social preference types (see Table 4) – is rarely significantly related to risk and time preferences. The unclassified social preference types (see bottom row in each panel of Table 14) are negatively correlated to the four defined social preference types (as one would expect by definition), but hardly ever related to risk and time preferences.

Overall, Table 14 shows that within individuals, our measures for three different domains of economic preferences are related in a consistent manner for husbands, wives, and children. This pattern raises the question whether families can be systematically categorized into clusters. We investigate this conjecture through the means of a cluster analysis of our data on the family level.

Cluster analysis, albeit rarely used in economics, is a suitable tool for our approach. In a nutshell, cluster analysis considers the set of economic preferences of all family members and then aims to find groups of families that are similar to each other in terms of economic preferences of all family members, but differ considerably from other groups of families with different combinations of risk, time and social preferences of all family members. There is no reason to assume a linear relationship between the different economic preferences and between all family members, but rather elements of a particular group are related to each other in terms of a generalized idea of proximity explained below. Factor analysis or principal component analysis rely on linear relationships between the different dimensions, which is an unnecessarily restrictive assumption, especially for the use with binary data (as in the social preferences domain). In comparison to model based approaches (e.g., Gaussian mixture models), cluster analysis is able to find clusters without having them or their probability distribution defined ex ante.

The approach we use in the cluster analysis is a *k-medoids*[36] clustering algorithm (Kaufman and Rousseeuw, 1987), also known as partitioning around medoids (PAM) clustering, which is more robust to outliers and noise than the well-known k-means approach. Given a number k of clusters, the algorithm works as follows: First, k points are selected from

[36] The medoid is the representative point of a cluster and is a generalization of the median: It is an existing point of the dataset (such as the median for an odd number of 1-dimensional observations) chosen such that the sum of distances from the other points of the cluster to this point is minimal.

the data as medoids. Then, every data point is associated with the closest medoid, i.e., assigned to the respective cluster. For this configuration, the total distance of the data to their respective medoid is calculated. Then, the k medoids are iteratively replaced by non-medoids if that change minimizes the total distance of the data to the medoids of the clusters. We determine the number k of clusters such that the average silhouette width[37] (Rousseeuw, 1987) or the Calinski-Harabasz statistic (Calinski and Harabasz, 1974) are minimized. Both criteria yield two as the optimal number of clusters (see Figures A.2 and A.3 in the Appendix).[38] This means that classifying families into two types of families – concerning the pattern of how risk, time and social preferences of family members look like – describes our full sample best. Accordingly, each family is assigned to one of two clusters that differ with respect to economic preferences within a family.

We used the package "cluster" in R (Maechler et al., 2017) for the cluster analysis. For the families where we have complete data for two children, we take the average of both children (using each child as a separate data point would not change any of our results qualitatively). Missing values are removed and assigned the highest possible value that is observed in all the data used multiplied by 1.1. When computing Euclidean distances, this means that (under the assumption that one just compares that one dimension) any two observations with missing values have a distance of zero, whereas compared to observations that have no missings the distance is quite big. In the data we use, this procedure corresponds to 5.32 standard deviations, where all the data are centered and standardized. For the analysis in Table 15 and 16 we use this approach, which is suitable also to deal with our missing values for half of the children with respect to risk preferences.[39] In the Appendix (Table A.20) we show, however, that dropping all subjects with missing values yields practically the same types of clusters and insights.

*Table 15 about here*

[37] The silhouette value ranges from -1 to +1 and informs about how well a data point fits to its own cluster compared to the fit to the next best cluster. The higher the silhouette value of an observation, the better it fits to the cluster it is assigned to. With binary data only, particularly high silhouette values are not to be expected.

[38] Two clusters would even be the result when performing model based clustering using a Gaussian Mixture Model approach, where the number of clusters is selected such that it maximizes the value of the Bayesian Information Criteria (BIC) as model selection criteria.

[39] Note that if someone is not classified as either spiteful, egalitarian, altruistic or selfish, this does not constitute a missing value, but it represents a classification as neither of these social preference types.

Table 15 shows the results of the 2-medoids cluster analysis. The columns labelled Cluster 1 and Cluster 2 contain the mean of the respective economic preference (of fathers, mothers, and children) in the respective cluster. The penultimate column reports the difference between both clusters, and the last column contains the *p*-value of a t-test for equality of means. The table shows that the two clusters of groups of families that we can identify are markedly different. 428 families are classified into Cluster 1, and 116 families into Cluster 2. Cluster 1-families are all significantly more patient, more risk taking, less often spiteful, and more often altruistic or selfish (while for egalitarian social preference types there is no significant difference). Cluster 2-families are more impatient, more risk averse and in particular more often spiteful. Hence, the two clusters have almost diametrically opposed economic preferences, and so whole families are very different in the expression of their economic preferences. To visualize the two clusters in a two-dimensional space we have run a principal component analysis that has identified two significant factors. The key factor is the first one that loads strongly on the combination of spitefulness, risk and time preferences (as they are shown to relate; see Table 14). The second factor captures the rest and has a less clear interpretation. Figure 1 shows that the 544 families are cleanly divided into those belonging to cluster 1 (circles) and those assigned to cluster 2 (triangles). This raises our final question whether we can identify which factors influence whether a family is assigned to Cluster 1 (the economically more promising cluster, given the evidence discussed in the introduction) or to Cluster 2.

*Figure 1 about here*

Table 16 presents a probit regression on whether a particular family has been assigned to Cluster 2 or not. Positive coefficients of the independent variables make it more likely to be assigned to Cluster 2, whereas negative coefficients mean that a family is more likely assigned to Cluster 1 (which corresponds to being less likely assigned to Cluster 2). As explanatory variables, we use fathers' and mothers' age, their years of schooling and their IQ, and in addition to that the household size (i.e., number of subjects living in the household) and the per capita monthly household income. Recall that the latter had no significant relation to single economic preferences of children when controlling for parents' preferences, but income turned partly significant when excluding parents' economic preferences, and it was also significant for fathers' altruism and selfishness. When dealing with family clusters with respect to economic preferences, Table 16 shows that income is significant such that richer households

are more likely to be classified in Cluster 1 (with more patient, more risk tolerant and less spiteful subjects).

*Table 16 about here*

In addition, we note two weakly significant effects at the 10%-level (which we do not want to overemphasize, however): larger households are more likely to belong to Cluster 1, while families with older fathers seem to be more likely assigned to Cluster 2. Note that we control for mothers' age, so the latter result could also be interpreted as if a larger difference in parents' age affects cluster assignment. The full scale IQ of parents is not related to the family's cluster belonging. Controlling for all other variables, we see that more years of schooling of mothers make it more likely to belong to Cluster 2, which is consistent with our previous finding in the genetics section 3.5 that more educated children are more spiteful, and – contrary to the father – spiteful mothers have a larger than genetically imposed impact on the spitefulness of their children.. Even though more years of a mother's schooling goes hand in hand with higher income, which countervails this effect of the mother's education on cluster assignment, the effect of the mother's schooling on cluster assignment may look surprising at first sight as it seems to be at odds with the perception that more education correlates with more patience and risk tolerance. Of course, this perception is based on evidence from rich and highly industrialized countries (like Germany, for example, see Falk et al., 2020). Much less is known about really poor regions of the world, and our project is a first undertaking to get insights into how socio-demographics and economic preferences are related in a very poor country. More evidence is certainly needed to better understand how education is related to economic preferences when households live in poverty. Recall also our previous result in section 3.2 that patience and IQ are negatively related. Also this result was at odds with evidence from rich countries (Falk et al., 2020), and, yet, for poor countries the global preference survey of Falk et al. (2018) suggests that the relation between IQ and patience need not be positive. Our results on the influence of mother's education on cluster assignment only confirm that findings from rich countries need not apply to poor countries and that more research on the transmission of economic preferences is needed from poor countries.

# 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; Falk et al., 2020). The topic has become so prominent for two reasons: First, economic preferences, like time, risk, 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., 2020) 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 a unique sample of 544 Bangladeshi families with a total of 1,999 family members. In running incentivized experiments with this sample, we have been the first to elicit a whole set of economic preferences for husbands *and* wives *and* their children, while controlling for a large set of background variables, including socio-economic status of parents. Moreover, we have been the first to analyze the patterns and the interrelations of time, risk, and social preferences within families. This means that we have not only looked at one dimension of an economic preference one after the other, but we have jointly analyzed several dimensions, first on the individual level and then on the family level by examining clusters of families. The latter aspect is a major novelty of our paper, as we have also been able to identify two distinct family clusters and analyze which background variables of parents influence to which cluster a family belongs to. As far as we can tell, no previous paper has made an attempt to provide such a 360 degree-perspective of economic preferences within families. On top of that, we provide the first evidence about economic preferences within families in a very poor country, which we see as an important complement to studies about transmission of economic preferences in rich, Western countries (e.g., Almas et al., 2016, Falk et al., 2020).

We have found that the economic preferences of mothers and fathers are in almost all cases positively and significantly related to their children's economic preferences. While we don't have genetic data from our sample, an econometric exercise that assumed pure genetic transmission of preferences from parents to children has shown that there is, indeed, reason to believe that genetics matters. However, our exercise has also shown that the assumption of

pure genetic transmission is unable to explain our data in full, suggesting that environmental factors play a significant role.

We find in almost all cases of economic preferences that the correlation between children and parents is equally strong for fathers and for mothers, clearly indicating that both parents are important in the formation of children's economic preferences. Previous studies (like, for example, Kosse and Pfeiffer, 2012, or Alan et al., 2017) have been unable to speak to the relative influence of both parents because they have only had access to the experimental choices of one parent. Given our findings that both parents are basically equally important in their relation to children's preferences, our results suggest that it is unproblematic when previous studies have measured only one parent's economic preferences when explaining children's preferences. In the context of Bangladesh, our findings of equally strong relationships of husbands and wives are also noteworthy because most mothers work at home as housewives and spend much more time with their children than fathers do.

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 when we measure and analyze them separately. This is, at first sight, in contradiction to recent work of Falk et al. (2020) who have found (for a rich country like Germany) that parental socio-economic status is a good predictor of children's economic preferences, such that richer and better educated parents have more patient, more risk tolerant and more prosocial children. Our results have not revealed a relation of socio-economic status on single preferences of children (as long as we control for parents' preferences). As such, our results are in line with Almas et al. (2016) or Brenoe and Epper (2018) who did not find a significant relationship either. However, our major innovation of examining family clusters might actually be able to reconcile these seemingly contradictory results with respect to how socio-economic status of parents is related to children's economic preferences.

In our cluster analysis, we have jointly analyzed time, risk, and social preferences and how they look like within families. Our analysis has yielded strong support for the existence of two clearly distinct clusters of families. One cluster, covering about four out of five families, is characterized by relatively patient, risk tolerant and non-spiteful economic preferences of all family members. The other cluster, applying to about one in five families, has members who are fairly impatient, pretty risk averse, and have spiteful social preferences. Analyzing the likelihood with which a particular family and its members belong to the one or the other cluster, we have seen that household income and education of parents play a role. While for single economic preferences socio-economic status of parents has not been indicative of a particular

configuration of that particular preference, the importance of the socio-economic status of parents – in our case of household income – re-emerges when we have analyzed family clusters in a joint analysis of time, risk, and social preferences. Richer households are more likely to have more patient, more risk tolerant and less spiteful members. So, when looking at the pattern of preferences across the three domains and at the level of the family, we can document an effect of parental socio-economic status also in a very poor country like Bangladesh (similar to Falk et al., 2020, for a rich country, Germany), while for single preferences such a relation was absent (like in Brenoe and Epper, 2018, or Almas et al., 2016).

Our results may become important to tackle poverty in poor countries, as they can help identifying children whose preferences are non-conducive to economic success, and as such it might become important for designing policy interventions to promote a configuration of economic preferences that leads to long-term success in life (Alan and Ertac, 2018; Kosse et al., 2020).

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# Tables

**Table 1: Descriptive statistics of participants**

| | Mean | Std. Dev. |
|---|---|---|
| **Parents (N=544 for each parent)** | | |
| Age husband (in years) | 47.16 | 8.73 |
| Age wife (in years) | 38.49 | 6.94 |
| Schooling husband (in years) | 3.04 | 4.01 |
| Schooling wife (in years) | 3.16 | 3.45 |
| Husband works as a farmer (yes=1, no=0) | 0.53 | 0.50 |
| Wife works as a housewife (yes=1, no=0) | 0.95 | 0.22 |
| **Children (N=911)** | | |
| Gender (boys= 0, girls= 1) | 0.50 | 0.50 |
| Age (in years) | 12.23 | 2.90 |
| Schooling (in years) | 3.99 | 2.73 |
| Currently attending school (yes=1, no=0) | 0.93 | 0.26 |
| Number of elder brothers | 0.96 | 1.07 |
| Number of elder sisters | 0.93 | 1.06 |
| Number of younger brothers | 0.61 | 0.76 |
| Number of younger sisters | 0.57 | 0.75 |
| **Household data (N = 544)** | | |
| Household size (# of persons) | 5.79 | 1.37 |
| Grandparents living in household (yes=1) | 0.15 | 0.36 |
| Average household income per capita per month in 2016 (in Taka) | 1640.09 | 1799.14 |
| Total village population | 1710.82 | 1851.69 |

Notes: Data refer to 2016 (except village population for 2015)

Std. Dev.: Standard deviation

**Table 2: The 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 |

*Continued on next page*

**Table 2 – continued**

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

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

Notes: Participants had to pick one out of the six gambles.

**Panel C: Social preferences**

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

**Table 3: Classification of subjects into four social preference types based on the games presented 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 of parents and children – Descriptive overview**

| **Parents** | Total | | Wives | | Husbands | | Difference (*p*-value) |
|---|---|---|---|---|---|---|---|
| | Mean | Std. dev. | Mean | Std. dev. | Mean | Std. dev. | Husbands vs Wives |
| Number of patient choices | 7.18 | 7.03 | 7.75 | 6.98 | 6.61 | 7.04 | 0.00 |
| Gamble number picked | 3.93 | 1.70 | 3.90 | 1.74 | 3.95 | 1.66 | 0.64 |
| Altruistic (1,0)[#] | 0.08 | 0.27 | 0.06 | 0.25 | 0.10 | 0.29 | 0.05 |
| Egalitarian (1,0)[#] | 0.15 | 0.36 | 0.09 | 0.29 | 0.22 | 0.41 | 0.00 |
| Spiteful (1,0)[#] | 0.20 | 0.40 | 0.22 | 0.41 | 0.19 | 0.39 | 0.20 |
| Selfish (1,0)[#] | 0.32 | 0.47 | 0.36 | 0.48 | 0.28 | 0.45 | 0.00 |
| Unclassified social preference | 0.24 | 0.43 | 0.26 | 0.44 | 0.22 | 0.41 | 0.08 |
| # Observations | 1,088 | | 544 | | 544 | | |

| **Children: Boys vs. girls** | Total | | Girls | | Boys | | Difference (*p*-value) |
|---|---|---|---|---|---|---|---|
| | Mean | Std. dev. | Mean | Std. dev. | Mean | Std. dev. | Boys vs Girls |
| Number of patient choices | 2.77 | 2.17 | 2.69 | 2.16 | 2.85 | 2.19 | 0.31 |
| Gamble number picked | 3.87 | 1.59 | 3.84 | 1.54 | 3.91 | 1.65 | 0.65 |
| Altruistic (1,0)[#] | 0.07 | 0.25 | 0.07 | 0.26 | 0.06 | 0.24 | 0.45 |
| Egalitarian (1,0)[#] | 0.17 | 0.38 | 0.17 | 0.38 | 0.17 | 0.37 | 0.77 |
| Spiteful (1,0)[#] | 0.20 | 0.40 | 0.20 | 0.40 | 0.21 | 0.41 | 0.88 |
| Selfish (1,0)[#] | 0.31 | 0.46 | 0.31 | 0.46 | 0.30 | 0.46 | 0.65 |
| Unclassified social preference | 0.25 | 0.43 | 0.24 | 0.43 | 0.27 | 0.44 | 0.34 |
| # Observations | 911 | | 458 | | 453 | | 911 |

Std. dev.: standard deviation

[#] relative frequencies of particular social preference types (recall that the sum of relative frequencies need not add up to 1 for the four social preference types together)

**Table 5: Correlations of economic preferences**

| | (1) Husbands and wives | (2) Siblings | (3) Mothers and children | (4) Fathers and children |
|---|---|---|---|---|
| Number of patient choices | 0.244*** | 0.324*** | 0.182*** | 0.165*** |
| Gamble number picked | 0.103** | 0.312** | 0.121** | 0.079 |
| Spiteful | 0.600*** | 0.514*** | 0.574*** | 0.448*** |
| Egalitarian | 0.079 | 0.148** | 0.112*** | 0.100** |
| Altruistic | 0.042 | 0.037 | 0.094** | 0.078** |
| Selfish | 0.137** | 0.305*** | 0.222*** | 0.172*** |

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

## Table 6: Assortativity of parental preferences

### Panel A: Husbands‘ preferences

| | Number of patient choices | Lottery number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1 | Selfish (0/1 |
|---|---|---|---|---|---|---|
| Wife’s preference | 0.186*** | 0.089** | 0.339*** | 0.090 | 0.029 | 0.032 |
| | (0.045) | (0.042) | (0.063) | (0.069) | (0.047) | (0.040) |
| Age of respondent | -0.034 | -0.004 | 0.002 | 0.000 | -0.001 | -0.002 |
| | (0.048) | (0.011) | (0.002) | (0.003) | (0.002) | (0.003) |
| Difference in spouses' age | 0.000 | -0.008 | -0.005* | 0.002 | 0.002 | 0.002 |
| | (0.074) | (0.017) | (0.003) | (0.004) | (0.002) | (0.005) |
| Years of schooling | -0.134 | -0.012 | 0.008 | 0.012* | -0.006 | -0.003 |
| | (0.126) | (0.029) | (0.006) | (0.007) | (0.005) | (0.008) |
| Difference in spouses’ schooling | 0.001 | 0.005 | -0.005 | -0.011 | 0.011** | 0.010 |
| | (0.116) | (0.028) | (0.006) | (0.007) | (0.004) | (0.008) |
| Number of children | 0.011 | -0.073 | -0.039 | 0.028 | -0.019 | 0.010 |
| | (0.458) | (0.114) | (0.026) | (0.029) | (0.016) | (0.030) |
| Household size | 0.403 | 0.125 | 0.012 | -0.019 | 0.009 | -0.008 |
| | (0.383) | (0.094) | (0.021) | (0.024) | (0.012) | (0.025) |
| Per capita income per month in 2016 x $10^{-4}$ | 0.279 | 0.394 | -0.040 | 0.113 | 0.155** | -0.238* |
| | (1.569) | (0.488) | (0.0912) | (0.0952) | (0.0561) | (0.141) |
| Full Scale IQ measure | -0.683* | 0.142 | 0.007 | 0.031 | -0.016 | -0.044 |
| | (0.396) | (0.096) | (0.018) | (0.023) | (0.013) | (0.028) |
| Conscientiousness | -0.110 | -0.002 | 0.013 | 0.026 | 0.033** | -0.038* |
| | (0.365) | (0.089) | (0.018) | (0.020) | (0.013) | (0.022) |
| Extraversion | -0.169 | -0.058 | -0.010 | 0.020 | 0.003 | 0.006 |
| | (0.345) | (0.092) | (0.018) | (0.020) | (0.013) | (0.023) |
| Agreeableness | 0.332 | -0.056 | -0.053*** | 0.025 | 0.002 | 0.022 |
| | (0.336) | (0.085) | (0.017) | (0.021) | (0.011) | (0.023) |
| Openness | 0.047 | 0.115 | -0.010 | -0.011 | -0.017 | 0.028 |
| | (0.308) | (0.073) | (0.015) | (0.017) | (0.011) | (0.020) |
| Neuroticism | 0.224 | -0.046 | -0.005 | -0.001 | 0.005 | 0.000 |
| | (0.323) | (0.093) | (0.017) | (0.020) | (0.013) | (0.022) |
| Locus of control | -0.328 | -0.107 | 0.011 | 0.027 | -0.019 | -0.027 |
| | (0.315) | (0.083) | (0.015) | (0.018) | (0.013) | (0.022) |
| Observations | 540 | 536 | 531 | 538 | 536 | 536 |
| $R^2$/ Pseudo-$R^2$ | 0.135 | 0.090 | 0.407 | 0.090 | 0.124 | 0.119 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |

Notes: 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 & 2, and Probit marginal effects reported in columns 3-6. $R^2$ refers to OLS, Pseudo-$R^2$ to Probit regressions. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

**Table 6 - continued**

**Panel B: Wives' preferences**

| | Number of patient choices | Lottery number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1 | Selfish (0/1 |
|---|---|---|---|---|---|---|
| Husband's preference | 0.162*** | 0.093* | 0.358*** | 0.036 | 0.015 | 0.063 |
| | (0.043) | (0.048) | (0.063) | (0.033) | (0.028) | (0.050) |
| Age of respondent | -0.096** | -0.007 | -0.003 | 0.001 | -0.002 | 0.001 |
| | (0.044) | (0.012) | (0.003) | (0.002) | (0.001) | (0.003) |
| Difference in spouses' age | 0.000 | 0.008 | -0.002 | 0.002 | -0.001 | -0.002 |
| | (0.055) | (0.016) | (0.003) | (0.002) | (0.002) | (0.004) |
| Years of schooling | -0.175 | -0.065** | 0.001 | 0.002 | 0.002 | -0.005 |
| | (0.124) | (0.030) | (0.007) | (0.004) | (0.004) | (0.009) |
| Difference in spouses' schooling | 0.185** | -0.000 | -0.008 | 0.004 | 0.001 | -0.004 |
| | (0.094) | (0.025) | (0.005) | (0.004) | (0.003) | (0.007) |
| Number of children | 0.112 | -0.114 | -0.041 | -0.009 | -0.001 | 0.023 |
| | (0.418) | (0.119) | (0.029) | (0.018) | (0.013) | (0.035) |
| Household size | -0.165 | 0.072 | 0.030 | 0.001 | 0.006 | -0.027 |
| | (0.323) | (0.093) | (0.022) | (0.015) | (0.010) | (0.028) |
| Per capita income per month in 2016 x $10^{-4}$ | 0.175 | 0.368 | -0.081 | 0.022 | -0.020 | 0.134 |
| | (1.567) | (0.595) | (0.0991) | (0.0549) | (0.0489) | (0.118) |
| Full Scale IQ measure | -0.065 | 0.146 | 0.012 | 0.010 | -0.011 | -0.034 |
| | (0.413) | (0.104) | (0.022) | (0.015) | (0.011) | (0.030) |
| Conscientiousness | -0.260 | -0.062 | 0.006 | 0.018 | 0.019* | -0.054** |
| | (0.302) | (0.079) | (0.019) | (0.012) | (0.010) | (0.023) |
| Extraversion | 0.887*** | 0.147* | -0.032 | -0.006 | 0.024*** | -0.011 |
| | (0.323) | (0.084) | (0.020) | (0.012) | (0.008) | (0.025) |
| Agreeableness | 0.070 | -0.021 | -0.012 | -0.009 | 0.005 | 0.008 |
| | (0.273) | (0.073) | (0.018) | (0.010) | (0.008) | (0.021) |
| Openness | 0.011 | 0.087 | 0.018 | 0.017 | -0.021** | -0.008 |
| | (0.338) | (0.093) | (0.023) | (0.014) | (0.009) | (0.025) |
| Neuroticism | -0.349 | -0.102 | -0.027* | 0.011 | 0.009 | 0.021 |
| | (0.298) | (0.072) | (0.015) | (0.011) | (0.009) | (0.022) |
| Locus of control | -0.018 | -0.125 | 0.017 | 0.027** | 0.004 | -0.012 |
| | (0.327) | (0.090) | (0.020) | (0.014) | (0.008) | (0.026) |
| Observations | 541 | 537 | 534 | 532 | 534 | 533 |
| $R^2$/ Pseudo-$R^2$ | 0.183 | 0.064 | 0.479 | 0.081 | 0.145 | 0.113 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |

Notes: 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 & 2, and Probit marginal effects reported in columns 3-6. $R^2$ refers to OLS, Pseudo-$R^2$ to Probit regressions. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

## Table 7: Children's preferences and their relation to parental preferences

| | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.036*** | 0.074 | 0.056 | 0.072** | 0.053 | 0.085** |
| | (0.011) | (0.049) | (0.043) | (0.034) | (0.034) | (0.040) |
| Parent's preference - mother | 0.047*** | 0.109** | 0.336*** | 0.107** | 0.108** | 0.127*** |
| | (0.012) | (0.052) | (0.054) | (0.051) | (0.047) | (0.037) |
| Gender (Male 1, Female 0) | -0.295** | -0.021 | 0.019 | 0.021 | 0.004 | 0.008 |
| | (0.141) | (0.153) | (0.025) | (0.024) | (0.015) | (0.032) |
| Age of respondent | 0.033 | -0.115** | -0.011 | 0.008 | 0.005 | 0.006 |
| | (0.057) | (0.058) | (0.009) | (0.009) | (0.005) | (0.012) |
| Years of schooling | -0.099* | 0.089 | 0.022** | -0.008 | -0.004 | -0.000 |
| | (0.053) | (0.058) | (0.010) | (0.009) | (0.005) | (0.012) |
| Attending school (=1, 0 otherwise) | -0.070 | 0.123 | 0.004 | 0.051 | 0.000 | -0.094 |
| | (0.268) | (0.371) | (0.054) | (0.042) | (0.028) | (0.067) |
| Father's years of schooling | 0.012 | -0.031 | -0.006 | -0.005 | 0.002 | 0.004 |
| | (0.025) | (0.024) | (0.004) | (0.004) | (0.002) | (0.005) |
| Mother's years of schooling | 0.000 | 0.021 | 0.005 | 0.005 | -0.002 | 0.001 |
| | (0.029) | (0.031) | (0.005) | (0.005) | (0.003) | (0.007) |
| Household size | -0.020 | 0.098 | -0.002 | -0.025* | -0.012* | 0.058*** |
| | (0.088) | (0.097) | (0.014) | (0.013) | (0.007) | (0.017) |
| Per cap income per month x $10^{-4}$ | 0.596 | -0.760 | -0.001 | 0.064 | 0.047 | -0.122 |
| | 0.406 | 0.504 | 0.074 | 0.089 | 0.034 | 0.098 |
| Full Scale IQ measure of child | -0.398*** | -0.071 | 0.018 | 0.057*** | -0.012 | -0.078*** |
| | (0.107) | (0.114) | (0.020) | (0.020) | (0.010) | (0.026) |
| Conscientiousness | -0.025 | 0.133* | 0.008 | 0.000 | 0.009 | 0.002 |
| | (0.080) | (0.077) | (0.015) | (0.013) | (0.009) | (0.017) |
| Extraversion | -0.213*** | -0.057 | -0.019 | 0.018 | 0.006 | -0.017 |
| | (0.074) | (0.076) | (0.013) | (0.013) | (0.007) | (0.016) |
| Agreeableness | -0.089 | 0.009 | -0.029** | 0.033** | -0.007 | -0.015 |
| | (0.077) | (0.085) | (0.014) | (0.014) | (0.007) | (0.017) |
| Openness | 0.092 | 0.011 | 0.023* | -0.024** | 0.005 | 0.019 |
| | (0.071) | (0.082) | (0.013) | (0.012) | (0.007) | (0.017) |
| Neuroticism | 0.016 | 0.079 | 0.008 | -0.000 | -0.004 | 0.017 |
| | (0.070) | (0.080) | (0.013) | (0.011) | (0.008) | (0.016) |
| Locus of control | 0.027 | -0.035 | -0.041*** | 0.017 | -0.006 | 0.027 |
| | (0.069) | (0.078) | (0.015) | (0.013) | (0.007) | (0.018) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| $R^2$/ Pseudo-$R^2$ | 0.148 | 0.077 | 0.394 | 0.081 | 0.083 | 0.155 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Husband=Wife | 0.525 | 0.638 | 0.001 | 0.600 | 0.372 | 0.448 |

All specifications include 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 and 2, Probit marginal effects reported in columns 3-6. $R^2$ refers to OLS, Pseudo-$R^2$ to Probit regressions. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table 8: Children's preferences and their relation to parental preferences – Taking parenting styles into account**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.034*** | 0.062 | 0.083* | 0.097** | 0.104** | 0.123*** |
| | (0.012) | (0.053) | (0.045) | (0.038) | (0.050) | (0.043) |
| Parent's preference - mother | 0.044*** | 0.098* | 0.416*** | 0.154** | 0.113** | 0.207*** |
| | (0.013) | (0.057) | (0.053) | (0.062) | (0.049) | (0.041) |
| Parenting style | -0.012 | 0.098 | 0.019 | -0.023 | 0.014 | 0.006 |
| emotional warmth (std) | (0.091) | (0.098) | (0.015) | (0.015) | (0.008) | (0.020) |
| Parenting style | 0.015 | -0.069 | -0.013 | 0.001 | 0.002 | 0.001 |
| inconsistent parenting (std) | (0.090) | (0.092) | (0.013) | (0.014) | (0.007) | (0.019) |
| Parenting style | -0.053 | 0.006 | -0.019 | 0.034** | -0.002 | -0.019 |
| monitoring (std) | (0.088) | (0.104) | (0.015) | (0.015) | (0.009) | (0.021) |
| Parenting style | -0.016 | -0.042 | 0.031** | -0.004 | -0.014 | 0.004 |
| negative communication (std) | (0.091) | (0.103) | (0.015) | (0.014) | (0.009) | (0.020) |
| Parenting style | -0.022 | -0.168 | -0.003 | 0.009 | 0.006 | 0.021 |
| psychological control (std) | (0.102) | (0.108) | (0.016) | (0.015) | (0.008) | (0.023) |
| Parenting style | -0.056 | 0.099 | -0.007 | -0.015 | 0.011 | -0.010 |
| strict control (std) | (0.094) | (0.107) | (0.014) | (0.014) | (0.009) | (0.022) |
| Gender (Male 1, Female 0) | -0.304** | 0.084 | 0.016 | 0.024 | 0.006 | 0.009 |
| | (0.152) | (0.163) | (0.025) | (0.025) | (0.017) | (0.035) |
| Age of respondent | 0.079 | -0.099* | -0.007 | -0.002 | 0.005 | 0.010 |
| | (0.065) | (0.059) | (0.010) | (0.010) | (0.005) | (0.013) |
| Years of schooling | -0.134** | 0.077 | 0.023** | -0.001 | -0.005 | -0.010 |
| | (0.059) | (0.063) | (0.010) | (0.010) | (0.006) | (0.013) |
| Attending school (=1) | -0.090 | 0.108 | 0.051 | 0.048 | 0.003 | -0.118* |
| | (0.290) | (0.384) | (0.045) | (0.045) | (0.031) | (0.071) |
| Father's years of schooling | -0.000 | -0.050* | -0.007* | -0.004 | 0.002 | 0.000 |
| | (0.026) | (0.026) | (0.004) | (0.004) | (0.003) | (0.006) |
| Mother's years of schooling | 0.033 | 0.014 | 0.005 | 0.004 | -0.002 | 0.005 |
| | (0.031) | (0.032) | (0.005) | (0.005) | (0.003) | (0.007) |
| Household size | -0.001 | 0.110 | -0.000 | -0.032** | -0.014* | 0.075*** |
| | (0.094) | (0.103) | (0.013) | (0.015) | (0.008) | (0.019) |
| Per cap income/month x $10^{-4}$ | 0.062 | -0.075 | -0.000 | 0.006 | 0.003 | -0.006 |
| | (0.043) | (0.057) | (0.007) | (0.009) | (0.004) | (0.011) |
| Full Scale IQ measure of child | -0.373*** | -0.100 | 0.014 | 0.051** | -0.018 | -0.055* |
| | (0.116) | (0.134) | (0.020) | (0.021) | (0.012) | (0.030) |
| Conscientiousness | -0.031 | 0.095 | 0.004 | 0.007 | 0.007 | 0.002 |
| | (0.087) | (0.078) | (0.014) | (0.014) | (0.010) | (0.019) |
| Extraversion | -0.269*** | -0.062 | -0.024** | 0.020 | 0.012 | -0.017 |
| | (0.078) | (0.082) | (0.012) | (0.013) | (0.008) | (0.018) |
| Agreeableness | -0.134 | -0.031 | -0.013 | 0.021 | -0.003 | -0.018 |
| | (0.084) | (0.086) | (0.014) | (0.013) | (0.009) | (0.019) |
| Openness | 0.157** | 0.056 | 0.023* | -0.024* | 0.008 | 0.020 |
| | (0.077) | (0.088) | (0.013) | (0.012) | (0.008) | (0.019) |
| Neuroticism | 0.070 | -0.019 | 0.018 | -0.016 | -0.001 | 0.034* |
| | (0.075) | (0.082) | (0.013) | (0.012) | (0.008) | (0.018) |

| | | | | | | |
|---|---|---|---|---|---|---|
| Locus of control | 0.046 | -0.015 | -0.048*** | 0.010 | 0.001 | 0.041** |
| | (0.079) | (0.087) | (0.016) | (0.014) | (0.007) | (0.020) |
| Observations | 779 | 390 | 776 | 776 | 776 | 776 |
| $R^2$/ Pseudo-$R^2$ | 0.153 | 0.095 | 0.393 | 0.0943 | 0.0883 | 0.126 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value (F-test) Father=Mother | 0.595 | 0.671 | 0.000168 | 0.444 | 0.905 | 0.167 |
| p-value for F-test: joint significance of parents preferences | 6.89e-06 | 0.0818 | 0 | 0.000569 | 0.000142 | 3.05e-09 |
| p-value for F-test: joint significance of parenting style | 0.927 | 0.408 | 0.271 | 0.250 | 0.300 | 0.946 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table 9: Children's preferences and their relation to parental preferences – Adding homogeneity/heterogeneity of parents**

| VARIABLES | (1) number of patient choices | (2) Gamble number picked: | (3) spiteful | (4) egalitarian | (5) altruistic | (6) selfish |
|---|---|---|---|---|---|---|
| Father's preference | 0.044** | 0.029 | -0.066 | 0.081** | 0.009 | 0.104** |
| | (0.018) | (0.064) | (0.044) | (0.037) | (0.034) | (0.051) |
| Mother's preference | 0.050** | 0.072 | 0.515*** | 0.060 | 0.072 | 0.133*** |
| | (0.020) | (0.068) | (0.088) | (0.052) | (0.058) | (0.045) |
| Father's preference × | -0.028 | 0.069 | 0.267** | -0.048 | 0.109 | 0.000 |
| parents homogeneity | (0.048) | (0.154) | (0.120) | (0.066) | (0.092) | (0.078) |
| Mother's preference × | 0.012 | 0.059 | -0.113*** | 0.114 | 0.062 | -0.051 |
| parents homogeneity | (0.048) | (0.169) | (0.031) | (0.129) | (0.081) | (0.067) |
| Parents homogeneity | 0.159 | -0.666 | 0.006 | 0.018 | -0.016 | -0.091* |
| (1=homogeneous) | (0.324) | (0.561) | (0.048) | (0.038) | (0.016) | (0.047) |
| Observations | 906 | 456 | 895 | 896 | 902 | 896 |
| (Pseudo) R-squared | 0.141 | 0.069 | 0.392 | 0.072 | 0.083 | 0.157 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value: Father=Mother | 0.716 | 0.580 | 9.59e-06 | 0.707 | 0.338 | 0.651 |
| p-value (F-test): joint significance of parents preferences | 0.016 | 0.569 | 0.000 | 0.035 | 0.241 | 0.001 |
| p-value (F-test): father's preference + father × parents homogeneous | 0.722 | 0.502 | 0.00632 | 0.792 | 0.00624 | 0.108 |
| p-value (F-test): mother's preference + mother × parents homogeneous | 0.155 | 0.394 | 7.30E-06 | 0.0666 | 0.00289 | 0.2 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table 10: Children's preferences and their relation to parental preferences – Estimating the older sibling's influence**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.019 | 0.182 | -0.048 | 0.044 | 0.050 | 0.114* |
| | (0.017) | (0.115) | (0.050) | (0.044) | (0.056) | (0.063) |
| Parent's preference - mother | 0.056*** | 0.354*** | 0.484*** | 0.039 | 0.166* | 0.126** |
| | (0.017) | (0.123) | (0.106) | (0.055) | (0.090) | (0.062) |
| Older's siblings preference residuals | 0.318*** | 0.274** | 0.006 | -0.086 | -0.036 | 0.060 |
| | (0.054) | (0.134) | (0.046) | (0.214) | (0.049) | (0.047) |
| Gender (Male 1, Female 0) | -0.040 | 0.204 | 0.003 | 0.019 | 0.003 | 0.019 |
| | (0.218) | (0.388) | (0.041) | (0.028) | (0.021) | (0.053) |
| Age of respondent | 0.272** | -0.142 | -0.030 | -0.003 | 0.012 | 0.014 |
| | (0.108) | (0.172) | (0.023) | (0.014) | (0.009) | (0.026) |
| Years of schooling | -0.291** | -0.046 | 0.040* | 0.004 | -0.013 | -0.011 |
| | (0.124) | (0.193) | (0.023) | (0.015) | (0.013) | (0.030) |
| Attending school (=1, 0 otherwise) | -0.185 | 0.744 | | 0.024 | 0.042** | -0.407*** |
| | (0.456) | (0.758) | | (0.050) | (0.020) | (0.112) |
| Father's years of schooling | -0.005 | -0.104* | -0.012* | -0.006 | -0.001 | 0.002 |
| | (0.036) | (0.058) | (0.007) | (0.005) | (0.003) | (0.009) |
| Mother's years of schooling | -0.018 | 0.040 | 0.007 | 0.007 | -0.004 | 0.010 |
| | (0.042) | (0.070) | (0.008) | (0.006) | (0.004) | (0.011) |
| Household size | 0.187 | 0.163 | -0.005 | -0.036** | -0.006 | 0.077*** |
| | (0.118) | (0.169) | (0.021) | (0.018) | (0.010) | (0.029) |
| Per cap income per month x $10^4$ | 0.027 | -0.187 | 0.014 | 0.004 | 0.012** | -0.021 |
| | (0.051) | (0.176) | (0.012) | (0.009) | (0.005) | (0.014) |
| Full Scale IQ measure of child | -0.048 | 0.488* | 0.034 | 0.025 | 0.002 | -0.095** |
| | (0.174) | (0.269) | (0.035) | (0.024) | (0.019) | (0.046) |
| Conscientiousness | -0.076 | 0.351 | -0.011 | -0.006 | 0.000 | 0.048 |
| | (0.128) | (0.221) | (0.019) | (0.016) | (0.013) | (0.031) |
| Extraversion | -0.192 | 0.154 | 0.003 | 0.013 | -0.004 | 0.043 |
| | (0.122) | (0.208) | (0.019) | (0.018) | (0.011) | (0.029) |
| Agreeableness | 0.031 | -0.144 | -0.007 | 0.040*** | -0.019* | -0.000 |
| | (0.119) | (0.232) | (0.024) | (0.015) | (0.010) | (0.028) |
| Openness | 0.066 | -0.002 | 0.028 | 0.009 | 0.008 | 0.021 |
| | (0.123) | (0.189) | (0.018) | (0.016) | (0.010) | (0.028) |
| Neuroticism | 0.112 | 0.334* | 0.017 | 0.002 | 0.004 | 0.022 |
| | (0.118) | (0.193) | (0.020) | (0.014) | (0.011) | (0.028) |
| Locus of control | 0.082 | 0.123 | -0.044* | -0.018 | -0.006 | 0.050* |
| | (0.110) | (0.187) | (0.024) | (0.016) | (0.010) | (0.027) |
| Observations | 363 | 90 | 338 | 359 | 359 | 359 |
| $R^2$/ Pseudo-$R^2$ | 0.229 | 0.414 | 0.450 | 0.140 | 0.148 | 0.182 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Father=Mother | 0.174 | 0.286 | 0.000460 | 0.924 | 0.289 | 0.885 |
| p-value for F-test: joint significance of parents' preferences | 0.000743 | 0.00876 | 4.45e-08 | 0.341 | 0.0107 | 0.0177 |

All specifications include 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 and 2, Probit marginal effects reported in columns 3-6. $R^2$ refers to OLS, Pseudo-$R^2$ to Probit regressions. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table 11: Children's preferences and their relation to parental preferences – Taking into account peers in one's village**

| | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - husband | 0.031*** | 0.071 | 0.036 | 0.062* | 0.057 | 0.073* |
| | (0.011) | (0.049) | (0.040) | (0.034) | (0.036) | (0.040) |
| Parent's preference - wife | 0.041*** | 0.105** | 0.239*** | 0.099** | 0.122** | 0.114*** |
| | (0.011) | (0.052) | (0.052) | (0.050) | (0.054) | (0.037) |
| Average village preference | 0.297*** | -0.056 | 0.337*** | 0.174** | -0.047 | 0.165** |
| | (0.074) | (0.103) | (0.065) | (0.076) | (0.074) | (0.081) |
| Gender (Male 1, Female 0) | -0.299** | -0.015 | 0.021 | 0.020 | 0.005 | 0.006 |
| | (0.140) | (0.153) | (0.026) | (0.024) | (0.015) | (0.032) |
| Age of respondent | 0.029 | -0.118** | -0.013 | 0.008 | 0.005 | 0.005 |
| | (0.056) | (0.058) | (0.009) | (0.009) | (0.005) | (0.012) |
| Years of schooling | -0.109** | 0.093 | 0.023** | -0.009 | -0.004 | -0.001 |
| | (0.052) | (0.059) | (0.010) | (0.009) | (0.005) | (0.012) |
| Attending school (=1, 0 otherwise) | -0.015 | 0.112 | -0.005 | 0.052 | -0.000 | -0.089 |
| | (0.268) | (0.367) | (0.056) | (0.042) | (0.028) | (0.066) |
| Father's years of schooling | 0.015 | -0.030 | -0.006 | -0.004 | 0.002 | 0.004 |
| | (0.023) | (0.024) | (0.004) | (0.004) | (0.002) | (0.005) |
| Mother's years of schooling | -0.003 | 0.019 | 0.003 | 0.005 | -0.002 | 0.001 |
| | (0.028) | (0.031) | (0.005) | (0.005) | (0.003) | (0.007) |
| Household size | -0.003 | 0.105 | -0.005 | -0.024* | -0.012* | 0.056*** |
| | (0.083) | (0.098) | (0.013) | (0.013) | (0.007) | (0.016) |
| Per cap income per month x $10^4$ | 0.044 | -0.073 | 0.001 | 0.004 | 0.005 | -0.014 |
| | (0.040) | (0.050) | (0.007) | (0.009) | (0.003) | (0.010) |
| Full Scale IQ measure of child | -0.342*** | -0.065 | 0.019 | 0.054*** | -0.011 | -0.072*** |
| | (0.106) | (0.115) | (0.020) | (0.019) | (0.011) | (0.026) |
| Conscientiousness | -0.033 | 0.114 | 0.008 | -0.001 | 0.009 | 0.004 |
| | (0.081) | (0.077) | (0.015) | (0.013) | (0.009) | (0.018) |
| Extraversion | -0.215*** | -0.072 | -0.002 | 0.015 | 0.006 | -0.017 |
| | (0.073) | (0.077) | (0.013) | (0.013) | (0.007) | (0.016) |
| Agreeableness | -0.085 | -0.003 | -0.024* | 0.032** | -0.008 | -0.015 |
| | (0.075) | (0.085) | (0.015) | (0.013) | (0.007) | (0.017) |
| Openness | 0.090 | 0.017 | 0.028** | -0.024** | 0.005 | 0.018 |
| | (0.072) | (0.082) | (0.013) | (0.012) | (0.007) | (0.017) |
| Neuroticism | 0.007 | 0.086 | 0.007 | -0.002 | -0.004 | 0.019 |
| | (0.070) | (0.081) | (0.013) | (0.011) | (0.008) | (0.016) |
| Locus of control | 0.016 | -0.035 | -0.019 | 0.011 | -0.005 | 0.020 |
| | (0.069) | (0.079) | (0.017) | (0.013) | (0.007) | (0.018) |
| Observations | 902 | 454 | 900 | 900 | 900 | 900 |
| $R^2$/ Pseudo-$R^2$ | 0.168 | 0.074 | 0.426 | 0.0876 | 0.0847 | 0.159 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Husband=Wife | 0.567 | 0.650 | 0.00819 | 0.560 | 0.322 | 0.453 |
| p-value for F-test: joint significance of parents' preferences | 2.04e-06 | 0.0310 | 2.06e-08 | 0.0139 | 0.000677 | 0.000980 |

All specifications include 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 and 2, Probit marginal effects reported in columns 3-6. $R^2$ refers to OLS, Pseudo-$R^2$ to Probit regressions. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table 12: Child-parent preference relationships: Robustness checks for Table 7 and explorations of a genetic prior for transmission**

| VARIABLES | Number patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.036*** | 0.074 | 0.085** | 0.073** | 0.061 | 0.085** |
| | (0.011) | (0.049) | (0.043) | (0.035) | (0.040) | (0.040) |
| Parent's preference - mother | 0.047*** | 0.109** | 0.342*** | 0.110** | 0.100** | 0.123*** |
| | (0.012) | (0.052) | (0.049) | (0.053) | (0.046) | (0.037) |
| Gender (Male 1, Female 0) | -0.295** | -0.021 | 0.010 | 0.016 | 0.008 | 0.006 |
| | (0.141) | (0.153) | (0.021) | (0.025) | (0.018) | (0.029) |
| Age of respondent | 0.033 | -0.115** | -0.006 | 0.007 | 0.007 | 0.006 |
| | (0.057) | (0.058) | (0.007) | (0.009) | (0.006) | (0.011) |
| Years of schooling | -0.099* | 0.089 | 0.017** | -0.009 | -0.005 | 0.001 |
| | (0.053) | (0.058) | (0.008) | (0.010) | (0.006) | (0.011) |
| Attending school (=1, 0 otherwise) | -0.070 | 0.123 | 0.006 | 0.054 | 0.004 | -0.090 |
| | (0.268) | (0.371) | (0.038) | (0.049) | (0.040) | (0.060) |
| Father's years of schooling | 0.012 | -0.031 | -0.006 | -0.004 | 0.002 | 0.004 |
| | (0.025) | (0.024) | (0.004) | (0.004) | (0.003) | (0.005) |
| Mother's years of schooling | 0.000 | 0.021 | 0.005 | 0.005 | -0.002 | 0.001 |
| | (0.029) | (0.031) | (0.005) | (0.005) | (0.003) | (0.006) |
| Household size | -0.020 | 0.098 | -0.000 | -0.022* | -0.012 | 0.055*** |
| | (0.088) | (0.097) | (0.011) | (0.013) | (0.008) | (0.016) |
| Per cap income per month x $10^4$ | 0.060 | -0.076 | -0.002 | 0.007 | 0.005 | -0.010 |
| | (0.041) | (0.050) | (0.009) | (0.011) | (0.005) | (0.007) |
| Full Scale IQ measure of child | -0.398*** | -0.071 | 0.009 | 0.061*** | -0.014 | -0.071*** |
| | (0.107) | (0.114) | (0.017) | (0.022) | (0.012) | (0.024) |
| Conscientiousness | -0.025 | 0.133* | 0.008 | 0.003 | 0.009 | 0.002 |
| | (0.080) | (0.077) | (0.012) | (0.013) | (0.010) | (0.017) |
| Extraversion | -0.213*** | -0.057 | -0.019* | 0.019 | 0.006 | -0.015 |
| | (0.074) | (0.076) | (0.010) | (0.014) | (0.010) | (0.015) |
| Agreeableness | -0.089 | 0.009 | -0.026** | 0.032** | -0.011 | -0.019 |
| | (0.077) | (0.085) | (0.012) | (0.013) | (0.010) | (0.016) |
| Openness | 0.092 | 0.011 | 0.020* | -0.025** | 0.006 | 0.017 |
| | (0.071) | (0.082) | (0.011) | (0.013) | (0.008) | (0.015) |
| Neuroticism | 0.016 | 0.079 | 0.003 | 0.002 | -0.006 | 0.016 |
| | (0.070) | (0.080) | (0.010) | (0.011) | (0.009) | (0.015) |
| Locus of control | 0.027 | -0.035 | -0.040*** | 0.019 | -0.009 | 0.025 |
| | (0.069) | (0.078) | (0.013) | (0.014) | (0.009) | (0.017) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| R-squared | 0.148 | 0.077 | 0.422 | 0.074 | 0.041 | 0.172 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| Genetic prior preference coefficient minus $0.25*S_C/S_{MF}$ | 0.077 | 0.234 | 0.250 | 0.260 | 0.233 | 0.215 |
| p-value for F-test: Father=Mother | 0.525 | 0.638 | 0.001 | 0.552 | 0.535 | 0.502 |
| p-value (F-test): Father=$0.25*S_C/S_{MF}$ | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 |
| p-value (F-test): Mother=$0.25*S_C/S_{MF}$ | 0.010 | 0.016 | 0.062 | 0.005 | 0.004 | 0.012 |

| | | | | | | |
|---|---|---|---|---|---|---|
| p-value for F-test: joint significance of control variables (Xs) except parents' preferences | 0.000 | 0.348 | 0.001 | 0.007 | 0.565 | 0.000 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

Notes: Table 12 repeats the regressions from Table 7 now all using OLS for robustness checks and first explorations of genetic restrictions. Probit (Table 7) and OLS estimates have the same findings. The genetic prior is a Pearson product-moment correlation coefficient of r = 0.5 and equal parental weight during inheritance. Pure genetics implies identical preference slope coefficients of 0.25*SC/SMF for each trait for both parents and non-significance of all other regressors X. The Table informs about the implied genetic priors across traits and various tests. Equality of parental preference coefficients can only be rejected for the spiteful trait. The genetic prior coefficient is rejected in all cases, although somewhat stronger for father than for mother. X is significant for all traits but gambling rejection pure genetics.

## Table 13: Child preferences corrected for genetic priors

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | -0.041*** | 0.041 | -0.165*** | -0.187*** | -0.172*** | -0.162*** |
| | (0.011) | (0.049) | (0.043) | (0.035) | (0.040) | (0.040) |
| Parent's preference - mother | -0.030** | 0.076 | 0.092* | -0.149*** | -0.133*** | -0.124*** |
| | (0.012) | (0.052) | (0.049) | (0.053) | (0.046) | (0.037) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| R-squared | 0.134 | 0.066 | 0.161 | 0.100 | 0.079 | 0.124 |
| District Fixed Effects included? | Yes | Yes | Yes | Yes | Yes | Yes |
| joint significance of parents prefs. | 0.000 | 0.207 | 0.001 | 0.000 | 0.000 | 0.000 |
| joint significance of Xs. | 0.000 | 0.348 | 0.001 | 0.007 | 0.565 | 0.000 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

Notes: Under pure genetics, none of the regressors representing equation (1") in section 3.5 should be significant. Table 13 contains the preference slope coefficients using equation (1") and various significance tests. The genetic prior is a Pearson product-moment correlation coefficient of r = 0.5 and equal parental weight during inheritance. Pure genetics implies identical preference slope coefficients of 0.25*SC/SMF for each trait for both parents and non-significance of all other regressors X. Child preferences are corrected for genetic priors according to (C – 0.25 SC/SMF (M + F)). The estimated coefficients are then difference tests between the estimated preference coefficients (from Table 12) and the genetic priors. All other explanatory variables (that we used in Table 12) remain unaffected and yield the same coefficients and significance levels as in Table 12, for which reason we do not show them in Table 13. The table reveals that gambling follows well the genetic prior. For all other traits the parental slope preference parameters are different from the genetic prior. And besides of altruistic trait, the regressors X are relevant.

## Table 14: Correlations across preferences (within individuals)

| **Husband** | Number of patient choices | Gamble number picked | Spiteful | Egalitarian | Altruistic | Selfish |
|---|---|---|---|---|---|---|
| Gamble number picked | 0.00980 | | | | | |
| Spiteful | -0.2298*** | -0.1206** | | | | |
| Egalitarian | -0.0782 | -0.0541 | -0.2559*** | | | |
| Altruistic | 0.1068** | 0.00970 | -0.1581*** | -0.1711*** | | |
| Selfish | 0.1358** | 0.1446*** | -0.3014*** | -0.3262*** | -0.2015*** | |
| Unclassified | 0.0735 | 0.0051 | -0.2573*** | -0.2785*** | -0.1720*** | -0.3280*** |

| **Wife** | Number of patient choices | Gamble number picked | Spiteful | Egalitarian | Altruistic | Selfish |
|---|---|---|---|---|---|---|
| Gamble number picked | 0.1121** | | | | | |
| Spiteful | -0.2917*** | -0.1077* | | | | |
| Egalitarian | -0.0534 | -0.0851* | -0.1665*** | | | |
| Altruistic | 0.0416 | -0.0287 | -0.1373* | -0.0834 | | |
| Selfish | 0.1712*** | 0.1670*** | -0.3960*** | -0.2407*** | -0.1984*** | |
| Unclassified | 0.0968* | -0.0102 | -0.3141*** | -0.1909*** | -0.1573*** | -0.4539*** |

| **Children** | Number of patient choices | Gamble number picked | Spiteful | Egalitarian | Altruistic | Selfish |
|---|---|---|---|---|---|---|
| Gamble number picked | 0.1240** | | | | | |
| Spiteful | -0.0621 | -0.0443 | | | | |
| Egalitarian | -0.2126*** | -0.0736 | -0.2286*** | | | |
| Altruistic | 0.0106 | 0.00750 | -0.1369*** | -0.1223*** | | |
| Selfish | 0.1967*** | 0.0433 | -0.3360*** | -0.3002*** | -0.1798*** | |
| Unclassified | 0.0261 | 0.0552 | -0.2938*** | -0.2625*** | -0.1572*** | -0.3858*** |

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

**Table 15: Summary of characteristics represented in two clusters resulting from partitioning around medoids (2-Medoids) - Aggregating offspring at the household level**

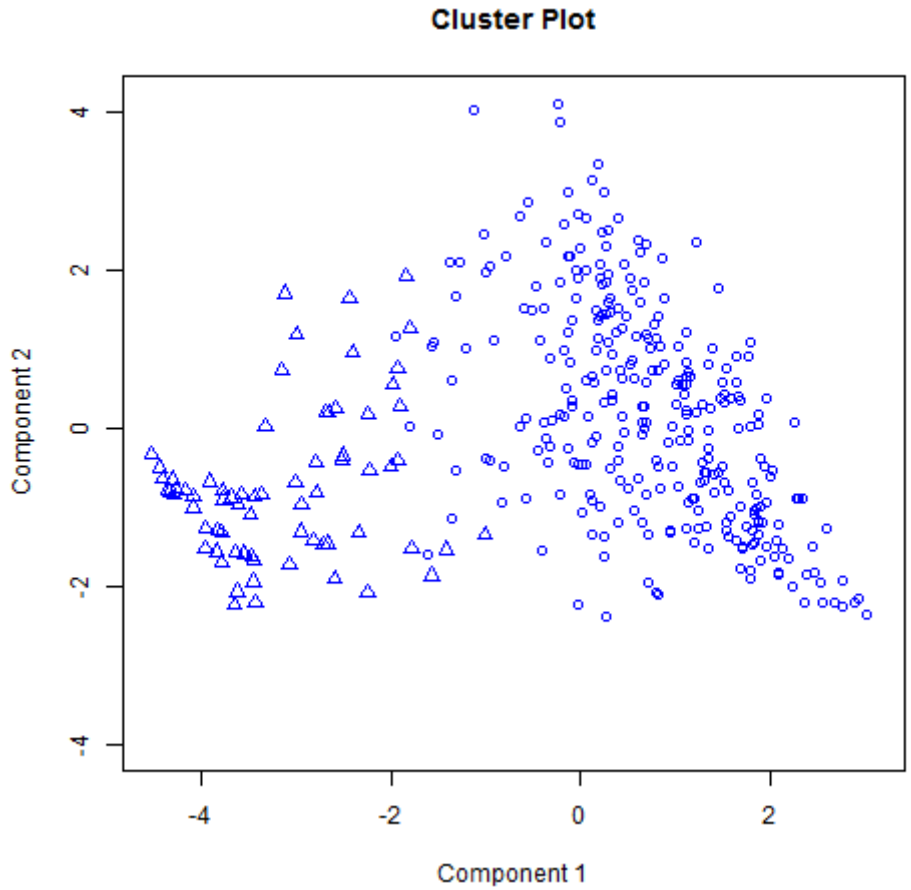
| | Cluster 1 | Cluster 2 | Difference | *p*-value |
|---|---|---|---|---|
| Number of patient choices children | 2.92 | 2.47 | 0.45 | 0.03 |
| Number of patient choices father | 7.75 | 2.41 | 5.35 | 0.00 |
| Number of patient choices mother | 9.21 | 2.36 | 6.85 | 0.00 |
| Gamble number picked children | 3.94 | 3.64 | 0.30 | 0.12 |
| Gamble number picked father | 4.12 | 3.31 | 0.81 | 0.00 |
| Gamble number picked mother | 4.00 | 3.56 | 0.44 | 0.02 |
| Spiteful children | 0.07 | 0.67 | -0.59 | 0.00 |
| Spiteful father | 0.04 | 0.77 | -0.73 | 0.00 |
| Spiteful mother | 0.04 | 0.86 | -0.82 | 0.00 |
| Egalitarian children | 0.19 | 0.13 | 0.06 | 0.07 |
| Egalitarian father | 0.23 | 0.16 | 0.07 | 0.12 |
| Egalitarian mother | 0.11 | 0.03 | 0.07 | 0.02 |
| Altruistic children | 0.08 | 0.00 | 0.08 | 0.00 |
| Altruistic father | 0.12 | 0.01 | 0.11 | 0.00 |
| Altruistic mother | 0.08 | 0.01 | 0.07 | 0.01 |
| Selfish children | 0.36 | 0.11 | 0.25 | 0.00 |
| Selfish father | 0.34 | 0.04 | 0.30 | 0.00 |
| Selfish mother | 0.45 | 0.04 | 0.41 | 0.00 |
| Unclassified social preference child | 0.30 | 0.09 | 0.21 | 0.00 |
| Unclassified social preference father | 0.27 | 0.02 | 0.25 | 0.00 |
| Unclassified social preference mother | 0.32 | 0.06 | 0.26 | 0.00 |
| Number of families | 428 | 116 | | |

**Table 16: Determinants of families belonging to Cluster 2 (impatient, risk averse, and spiteful), depending upon parents' background characteristics – Probit regression**

| | marginal effects at mean | Std. Error |
|---|---|---|
| Per capita income per month in 2016 x $10^{-4}$ | -0.241** | 0.100 |
| Household size | -0.027* | 0.014 |
| Age father (in years) | 0.021* | 0.012 |
| Age mother (in years) | -0.004 | 0.015 |
| Schooling father (in years) | 0.012 | 0.022 |
| Schooling mother (in years) | 0.064** | 0.026 |
| Full scale IQ father | 0.000 | 0.002 |
| Full scale IQ mother | 0.003 | 0.002 |
| N | 544 | |

Pseudo $R^2 = 0.065$
Log likelihood = -263.59
*** p<0.01, ** p<0.05, * p<0.1

**Figure 1: The two family clusters dependent on two factors from a principal component analysis of economic preferences**




Circles indicate families that are assigned to Cluster 1, triangles represent families assigned to Cluster 2. Component 1 on the horizontal axis can be interpreted as a factor capturing spitefulness, risk and time preferences. Negative values represent more spiteful, risk averse and impatient families, positive values less spiteful, more risk tolerant and more patient families. Component 2 (the other factor with a loading larger than one) has no straightforward interpretation.

# Appendix to

# Economic preferences across generations and family clusters: A large-scale experiment

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## A. Additional Tables and Figures

**Table A.1 - A comparison of 3,467 households (who only took part in wave one or have no children of age 6-16) to 1,001 households who have children and were invited to the second wave of data collection**

| | (1) | (2) | t-test |
|---|---|---|---|
| | 3,467 houseolds | 1,001 households | (1)-(2) |
| Variable | Mean/SE | Mean/SE | Difference |
| Age father | 44.264 | 45.610 | -1.345*** |
| | [0.241] | [0.310] | |
| Age mother | 36.612 | 37.004 | -0.392 |
| | [0.208] | [0.246] | |
| Schooling father | 4.016 | 3.194 | 0.823*** |
| | [0.077] | [0.128] | |
| Schooling mother | 3.922 | 3.189 | 0.733*** |
| | [0.066] | [0.108] | |
| Household size | 4.623 | 5.750 | -1.127*** |
| | [0.027] | [0.045] | |
| Grand parents in household | 0.201 | 0.145 | 0.056*** |
| | [0.007] | [0.011] | |
| Per capita income per month | 2,687.559 | 1,874.033 | 813.526*** |
| | [77.738] | [77.473] | |

The value displayed for t-tests are the differences in the means across the groups.
***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

**Table A.2: Difference in observable characteristics between the 544 households for which we have all data, including experimental data, and the 457 households for which we lack experimental data but who were invited in wave two in 2016 to collect data on cognitive skills (separated by those 265 households who then did not participate in wave two and those 192 households who were invited and participated in the collection of cognitive skills)**

| | Attrited households (N=457) | | | Surveyed households (N=544) | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | t-test | t-test | t-test | t-test |
| | Intended to conduct cognitive ability survey | Only cognitive ability survey conducted | (1) & (2) together | Experiments conducted | (1)-(2) | (1)-(4) | (2)-(4) | (3)-(4) |
| | Mean [SE] | Mean [SE] | Mean [SE] | Mean [SE] | Difference | Difference | Difference | Difference |
| Age father | 47.290 | 43.103 | 45.613 | 45.607 | 4.187*** | 1.683** | -2.504*** | 0.007 |
| | [0.728] | [0.635] | [0.514] | [0.377] | | | | |
| Age mother | 38.340 | 35.281 | 37.038 | 36.976 | 3.059*** | 1.364** | -1.695*** | 0.062 |
| | [0.576] | [0.508] | [0.401] | [0.304] | | | | |
| Schooling father | 3.607 | 3.154 | 3.426 | 3.007 | 0.453 | 0.600** | 0.147 | 0.418 |
| | [0.246] | [0.299] | [0.190] | [0.173] | | | | |
| Schooling mother | 3.359 | 3.120 | 3.257 | 3.132 | 0.239 | 0.227 | -0.013 | 0.125 |
| | [0.212] | [0.244] | [0.160] | [0.147] | | | | |
| Household size | 5.732 | 5.635 | 5.691 | 5.800 | 0.097 | -0.068 | -0.164 | -0.108 |
| | [0.096] | [0.093] | [0.068] | [0.059] | | | | |
| Grand parents in household | 0.147 | 0.130 | 0.140 | 0.149 | 0.017 | -0.002 | -0.019 | -0.009 |
| | [0.022] | [0.024] | [0.016] | [0.015] | | | | |
| Per capita Income/month | 2511.7 | 1661.2 | 2154.4 | 1638.5 | 850.5*** | 873.2*** | 22.7 | 515.9*** |
| | [187.1] | [139.3] | [124.2] | [95.6] | | | | |
| Village population | 1662.9 | 1764.7 | 1705.6 | 1752.6 | -101.7 | -89.7 | 12.0 | -47.0 |
| | [115.2] | [140.8] | [89.2] | [83.0] | | | | |
| N | 265 | 192 | 457 | 544 | | | | |

SE: standard errors

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

**Table A.3: Children's preferences and their relation to parental preferences, using inverse probability weighting to account for possible attrition**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference – husband | 0.0382*** | 0.0759 | 0.0672** | 0.0714** | 0.040 | 0.0637** |
| | (0.0104) | (0.0470) | (0.034) | (0.030) | (0.030) | (0.032) |
| Parent's preference – wife | 0.0460*** | 0.110* | 0.29*** | 0.118*** | 0.104** | 0.105*** |
| | (0.0107) | (0.0470) | (0.046) | (0.043) | (0.044) | (0.029) |
| Gender (Male 1, Female 0) | -0.291* | -0.0428 | 0.012 | 0.019 | -0.002 | -0.006 |
| | (0.138) | (0.150) | (0.019) | (0.023) | (0.015) | (0.027) |
| Age of respondent | 0.0549 | -0.113* | -0.005 | 0.010 | 0.005 | 0.000 |
| | (0.0527) | (0.0540) | (0.006) | (0.009) | (0.005) | (0.009) |
| Years of schooling | -0.104* | 0.0939 | 0.012 | -0.007 | -0.002 | -0.005 |
| | (0.0527) | (0.0546) | (0.008) | (0.008) | (0.005) | (0.010) |
| Attending school (=1, 0 otherwise) | 0.0509 | 0.147 | 0.016 | 0.065* | -0.011 | -0.099* |
| | (0.268) | (0.328) | (0.039) | (0.038) | (0.031) | (0.057) |
| Father's years of schooling | 0.00498 | -0.0307 | -0.006** | -0.002 | 0.003 | 0.002 |
| | (0.0223) | (0.0235) | (0.003) | (0.004) | (0.002) | (0.004) |
| Mother's years of schooling | -0.00191 | 0.0213 | 0.005 | 0.003 | -0.001 | 0.002 |
| | (0.0274) | (0.0296) | (0.003) | (0.005) | (0.003) | (0.005) |
| Household size | -0.00934 | 0.100 | -0.002 | -0.03437*** | -0.009 | 0.0423*** |
| | (0.0775) | (0.0896) | (0.009) | (0.010) | (0.007) | (0.013) |
| Per cap income per month x $10^4$ | 91.41** | -78.77 | -0.158 | 0.827*** | 0.934*** | -0.309*** |
| | (28.97) | (51.58) | (1.642) | (0.011) | (0.007) | (0.014) |
| Full Scale IQ measure of child | -0.454*** | -0.0834 | 0.012 | 0.0559*** | -0.012 | -0.0358* |
| | (0.104) | (0.113) | (0.015) | (0.020) | (0.010) | (0.019) |
| Conscientiousness | -0.000783 | 0.140 | 0.014 | -0.008 | 0.006 | -0.008 |
| | (0.0780) | (0.0748) | (0.011) | (0.011) | (0.009) | (0.014) |
| Extraversion | -0.195** | -0.0491 | -0.010 | 0.018 | 0.009 | -0.011 |
| | (0.0707) | (0.0721) | (0.009) | (0.012) | (0.008) | (0.013) |
| Agreeableness | -0.0727 | 0.00378 | -0.0193** | 0.0278** | -0.005 | -0.006 |
| | (0.0760) | (0.0820) | (0.009) | (0.013) | (0.007) | (0.014) |
| Openness | 0.110 | 0.00802 | 0.0219** | -0.0255** | 0.009 | 0.018 |
| | (0.0730) | (0.0790) | (0.011) | (0.010) | (0.008) | (0.014) |
| Neuroticism | 0.00926 | 0.0723 | 0.001 | 0.004 | -0.006 | 0.012 |
| | (0.0692) | (0.0775) | (0.010) | (0.011) | (0.007) | (0.013) |
| Locus of control | 0.0134 | -0.0381 | -0.0265*** | 0.0234* | -0.009 | 0.018 |
| | (0.0699) | (0.0791) | (0.010) | (0.012) | (0.007) | (0.014) |
| Observations | 1468 | 561 | 1107 | 1107 | 1107 | 1107 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Father=Mother | 0.64 | 0.615 | 0.041 | 0.021 | 0.197 | 0.044 |
| p-value for F-test: joint significance of parents preferences | 0.000 | 0.013 | 0.000 | 0.001 | 0.015 | 0.000 |

This table uses the specification of Table 7 in the main paper and applies inverse probability weighting as a means to account for possible attrition. The table shows coefficients and in parentheses standard errors. The results are practically the same as in Table 7. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

**Table A.4: Schooling of parents (distribution of years of schooling of mothers and fathers)**

| Years of schooling | Mother | | Father | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| 0 | 257 | 47.24 | 299 | 54.96 |
| 1 | 4 | 0.74 | 5 | 0.92 |
| 2 | 10 | 1.84 | 19 | 3.49 |
| 3 | 21 | 3.86 | 16 | 2.94 |
| 4 | 47 | 8.64 | 25 | 4.6 |
| 5 | 74 | 13.6 | 51 | 9.38 |
| 6 | 23 | 4.23 | 19 | 3.49 |
| 7 | 28 | 5.15 | 12 | 2.21 |
| 8 | 38 | 6.99 | 28 | 5.15 |
| 9 | 22 | 4.04 | 26 | 4.78 |
| 10 | 4 | 0.74 | 5 | 0.92 |
| 11 | 12 | 2.21 | 21 | 3.86 |
| 12 | 1 | 0.18 | 1 | 0.18 |
| 13 | 3 | 0.55 | 10 | 1.84 |
| 14 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 4 | 0.74 |
| 16 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 3 | 0.55 |

**Table A.5: 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 A.6: Children's time consistency and its relation to parents' time consistencies**

| | Children's time consistency (1,0) |
|---|---|
| Father is time consistent | 0.078** |
| | (0.038) |
| Mother is time consistent | -0.009 |
| | (0.036) |
| Gender (Male 1, Female 0) | -0.055* |
| | (0.033) |
| Age of respondent | 0.014 |
| | (0.012) |
| Years of schooling | -0.001 |
| | (0.013) |
| Attending school (=1, 0 otherwise) | 0.098 |
| | (0.072) |
| Father's years of schooling | -0.007 |
| | (0.005) |
| Mother's years of schooling | 0.012* |
| | (0.007) |
| Household size | -0.009 |
| | (0.017) |
| Per cap income per month x $10^4$ | -0.002 |
| | (0.008) |
| Full Scale IQ measure of child | -0.047* |
| | (0.026) |
| Conscientiousness | -0.001 |
| | (0.018) |
| Extraversion | 0.008 |
| | (0.017) |
| Agreeableness | 0.044** |
| | (0.017) |
| Openness | -0.038** |
| | (0.016) |
| Neuroticism | 0.008 |
| | (0.016) |
| Locus of control | -0.028 |
| | (0.017) |
| Observations | 907 |
| Pseudo-$R^2$ | 0.0447 |
| District Fixed Effects are included? | Yes |
| p-value for F-test: Father=Mother | 0.110 |
| p-value for F-test: joint significance of parents preferences. | 0.115 |

The dependent variable is 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; see Table 2 in the main paper), and zero otherwise. The results show that there is also a strong relationship between children and parents in this variable.

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1.

**Table A.7: Differences 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 | p-value |
| | (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 |
| Grandparents 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 | | |

se: standard error

**Table A.8: Descriptive statistics: Cognitive and non-cognitive skills**

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

Notes: See section 2.3 in the main paper and Appendix B for details about the elicitation of cognitive and non-cognitive skills.

**Table A.9: Children's preferences and their relation to parental preferences**

| | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - husband | 0.038*** | 0.060 | 0.076* | 0.072** | 0.058 | 0.098** |
| | (0.011) | (0.047) | (0.044) | (0.034) | (0.036) | (0.040) |
| Parent's preference - wife | 0.047*** | 0.104** | 0.346*** | 0.123** | 0.108** | 0.124*** |
| | (0.012) | (0.049) | (0.052) | (0.052) | (0.048) | (0.037) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| $R^2$/ Pseudo - $R^2$ | 0.054 | 0.027 | 0.347 | 0.027 | 0.045 | 0.099 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Husband=Wife | 0.644 | 0.545 | 0.001 | 0.424 | 0.432 | 0.627 |

OLS coefficients reported in columns 1 and 2, Probit marginal effects reported in columns 3-6. Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

This table shows that the relation of parents' and children's preferences remains practically the same (in comparison to Table 7 in the main paper) if we drop all control variables and only regress children's preferences on parental preferences.

**Table A.10: Interacting parent's gender and child's gender**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.041** | 0.027 | 0.098* | 0.105** | 0.054 | 0.121** |
| | (0.016) | (0.069) | (0.050) | (0.045) | (0.055) | (0.055) |
| Parent's preference - mother | 0.057*** | 0.120 | 0.378*** | 0.162** | 0.088 | 0.094* |
| | (0.016) | (0.074) | (0.063) | (0.074) | (0.064) | (0.048) |
| Gender (boys= 0, girls= 1) | -0.085 | -0.283 | 0.030 | 0.042 | 0.005 | 0.004 |
| | (0.241) | (0.510) | (0.022) | (0.028) | (0.017) | (0.035) |
| Father's preference × boys | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| Mother's preference × girls | -0.019 | -0.031 | -0.067 | -0.110 | 0.023 | 0.064 |
| | (0.021) | (0.096) | (0.064) | (0.106) | (0.095) | (0.064) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| R-squared | 0.149 | 0.080 | 0.424 | 0.077 | 0.041 | 0.174 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Father=Mother | 0.522 | 0.381 | 0.00401 | 0.519 | 0.702 | 0.719 |
| p-value for F-test: joint significance of parents preferences. | 3.21e-06 | 0.232 | 0 | 0.00556 | 0.203 | 0.0101 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table A.11: Horse-race regressions – Number of patient choices as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Persona-lity Dropped |
|---|---|---|---|---|---|---|
| Number of patient choices father | 0.034*** | 0.034*** | 0.038*** | | 0.033*** | 0.037*** |
| | (0.011) | (0.011) | (0.011) | | (0.011) | (0.011) |
| Number of patient choices mother | 0.045*** | 0.048*** | 0.049*** | | 0.049*** | 0.045*** |
| | (0.012) | (0.011) | (0.012) | | (0.011) | (0.012) |
| Gender (boys= 0, girls= 1) | -0.294** | -0.290** | | -0.247* | -0.290** | |
| | (0.141) | (0.141) | | (0.145) | (0.141) | |
| Age (in years) | 0.035 | 0.035 | | 0.036 | 0.011 | |
| | (0.057) | (0.058) | | (0.058) | (0.052) | |
| Schooling (in years) | -0.098* | -0.098* | | -0.101* | -0.094* | |
| | (0.053) | (0.054) | | (0.054) | (0.053) | |
| Currently attending school (yes=1, no=0) | -0.076 | -0.082 | | 0.010 | -0.112 | |
| | (0.269) | (0.271) | | (0.280) | (0.268) | |
| Schooling father | 0.012 | 0.010 | | 0.012 | | -0.010 |
| | (0.024) | (0.024) | | (0.026) | | (0.024) |
| Schooling mother | 0.001 | 0.003 | | -0.020 | | -0.004 |
| | (0.029) | (0.029) | | (0.030) | | (0.029) |
| Household size | -0.020 | -0.015 | | 0.008 | | 0.049 |
| | (0.088) | (0.087) | | (0.092) | | (0.057) |
| Per capita income per month in 2016 in thousands Taka | 0.063 | 0.065 | | 0.065* | | 0.056 |
| | (0.041) | (0.040) | | (0.039) | | (0.043) |
| Full Scale IQ measure of child | -0.405*** | -0.406*** | | -0.404*** | -0.387*** | |
| | (0.107) | (0.107) | | (0.109) | (0.103) | |
| Standardized values of conscientiousness | -0.032 | -0.033 | | -0.055 | -0.035 | |
| | (0.080) | (0.078) | | (0.080) | (0.078) | |
| Standardized values of extraversion | -0.228*** | -0.226*** | | -0.215*** | -0.222*** | |
| | (0.074) | (0.073) | | (0.074) | (0.074) | |
| Standardized values of agreeableness | -0.087 | -0.083 | | -0.070 | -0.084 | |
| | (0.077) | (0.076) | | (0.076) | (0.075) | |
| Standardized values of openness | 0.094 | 0.099 | | 0.072 | 0.110 | |
| | (0.071) | (0.071) | | (0.073) | (0.071) | |
| Standardized values of neuroticism | 0.023 | 0.024 | | 0.049 | 0.028 | |
| | (0.070) | (0.069) | | (0.070) | (0.069) | |
| Standardized values of locus of control ) | -0.005 | 0.014 | | 0.081 | 0.022 | |
| | (0.072) | (0.070) | | (0.072) | (0.070) | |
| Observations | 906 | 906 | 906 | 906 | 906 | 906 |
| R-squared | 0.151 | 0.150 | 0.054 | 0.109 | 0.142 | 0.070 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| p-value for F-test: Father=Mother | 0.520 | 0.449 | 0.542 | 0.542 | 0.375 | 0.683 |
| p-value for F-test: joint significance of parents preferences | 6.14e-07 | 7.58e-08 | 6.77e-09 | 6.77e-09 | 5.64e-08 | 1.28e-07 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.12: Horse-race regressions – Gamble number picked (risk preferences) as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Persona-lity Dropped |
|---|---|---|---|---|---|---|
| Gamble number picked father | 0.077 | 0.086* | 0.071 | | 0.080* | 0.072 |
| | (0.049) | (0.047) | (0.046) | | (0.046) | (0.046) |
| Gamble number picked mother | 0.109** | 0.110** | 0.108** | | 0.099** | 0.121** |
| | (0.051) | (0.051) | (0.049) | | (0.049) | (0.050) |
| Gender (boys= 0, girls= 1) | -0.022 | -0.012 | | 0.014 | -0.005 | |
| | (0.153) | (0.153) | | (0.153) | (0.153) | |
| Age (in years) | -0.117** | -0.125** | | -0.128** | -0.109** | |
| | (0.057) | (0.058) | | (0.059) | (0.051) | |
| Schooling (in years) | 0.089 | 0.099* | | 0.103* | 0.105* | |
| | (0.058) | (0.059) | | (0.060) | (0.058) | |
| Currently attending school (yes=1, no=0) | 0.119 | 0.089 | | 0.028 | 0.039 | |
| | (0.367) | (0.370) | | (0.371) | (0.377) | |
| Schooling father | -0.032 | -0.031 | | -0.027 | | -0.026 |
| | (0.024) | (0.024) | | (0.024) | | (0.023) |
| Schooling mother | 0.020 | 0.017 | | 0.013 | | 0.022 |
| | (0.031) | (0.030) | | (0.030) | | (0.030) |
| Household size | 0.102 | 0.089 | | 0.086 | | 0.071 |
| | (0.098) | (0.095) | | (0.096) | | (0.063) |
| Per capita income per month in 2016 in thousands | -0.075 | -0.075 | | -0.055 | | -0.088* |
| | (0.050) | (0.049) | | (0.047) | | (0.048) |
| Full Scale IQ measure of child | -0.064 | -0.064 | | -0.075 | -0.117 | |
| | (0.114) | (0.115) | | (0.117) | (0.115) | |
| Standardized values of conscientiousness | 0.137* | 0.157** | | 0.178** | 0.161** | |
| | (0.077) | (0.077) | | (0.078) | (0.079) | |
| Standardized values of extraversion | -0.050 | -0.049 | | -0.052 | -0.056 | |
| | (0.077) | (0.076) | | (0.077) | (0.074) | |
| Standardized values of agreeableness | 0.008 | -0.001 | | -0.002 | 0.008 | |
| | (0.084) | (0.084) | | (0.086) | (0.084) | |
| Standardized values of openness | 0.008 | 0.014 | | 0.014 | 0.004 | |
| | (0.082) | (0.082) | | (0.082) | (0.082) | |
| Standardized values of neuroticism | 0.076 | 0.066 | | 0.055 | 0.066 | |
| | (0.081) | (0.080) | | (0.082) | (0.078) | |
| Standardized values of Locus of control | -0.017 | -0.023 | | -0.005 | -0.007 | |
| | (0.080) | (0.078) | | (0.079) | (0.076) | |
| Observations | 456 | 456 | 456 | 456 | 456 | 456 |
| R-squared | 0.078 | 0.070 | 0.021 | 0.049 | 0.053 | 0.040 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| p-value for F-test: Father=Mother | 0.661 | 0.748 | 0.606 | 0.606 | 0.790 | 0.510 |
| p-value for F-test joint significance of parents' preferences | 0.0214 | 0.00971 | 0.0130 | 0.0130 | 0.0185 | 0.00830 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.13: Horse-race regressions – Spitefulness as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Personality Dropped |
|---|---|---|---|---|---|---|
| Spiteful father | 0.038 | 0.093** | 0.133*** | | 0.093** | 0.120*** |
| | (0.040) | (0.045) | (0.048) | | (0.044) | (0.045) |
| Spiteful mother | 0.281*** | 0.417*** | 0.446*** | | 0.418*** | 0.446*** |
| | (0.058) | (0.050) | (0.050) | | (0.050) | (0.050) |
| Gender (boys= 0, girls= 1) | 0.023 | 0.018 | | 0.002 | 0.014 | |
| | (0.025) | (0.025) | | (0.025) | (0.025) | |
| Age (in years) | -0.012 | -0.009 | | -0.002 | -0.010 | |
| | (0.009) | (0.009) | | (0.010) | (0.009) | |
| Schooling (in years) | 0.022** | 0.022** | | 0.015 | 0.023** | |
| | (0.010) | (0.010) | | (0.010) | (0.010) | |
| Currently attending school (yes=1, no=0) | 0.007 | 0.018 | | 0.037 | 0.013 | |
| | (0.053) | (0.051) | | (0.051) | (0.053) | |
| Schooling father | -0.006 | -0.007 | | -0.005 | | -0.005 |
| | (0.004) | (0.004) | | (0.004) | | (0.004) |
| Schooling mother | 0.005 | 0.007 | | 0.012** | | 0.010* |
| | (0.005) | (0.005) | | (0.005) | | (0.005) |
| Household size | -0.000 | -0.004 | | -0.015 | | -0.012 |
| | (0.013) | (0.015) | | (0.015) | | (0.011) |
| Per capita income per month in 2016 in thousands | -0.003 | 0.000 | | -0.006 | | 0.002 |
| | (0.007) | (0.007) | | (0.007) | | (0.008) |
| Full Scale IQ measure of child | 0.021 | 0.019 | | 0.014 | 0.019 | |
| | (0.020) | (0.020) | | (0.020) | (0.019) | |
| Standardized values of conscientiousness | 0.011 | 0.010 | | 0.018 | 0.010 | |
| | (0.014) | (0.014) | | (0.014) | (0.014) | |
| Standardized values of extraversion | -0.011 | -0.017 | | -0.036*** | -0.020 | |
| | (0.012) | (0.013) | | (0.012) | (0.013) | |
| Standardized values of agreeableness | -0.031** | -0.029** | | -0.033** | -0.029** | |
| | (0.015) | (0.014) | | (0.014) | (0.014) | |
| Standardized values of openness | 0.023* | 0.021 | | 0.008 | 0.019 | |
| | (0.013) | (0.013) | | (0.013) | (0.013) | |
| Standardized values of neuroticism | 0.006 | 0.011 | | 0.002 | 0.010 | |
| | (0.013) | (0.013) | | (0.013) | (0.013) | |
| Standardized values of locus of control | -0.028* | -0.049*** | | -0.111*** | -0.052*** | |
| | (0.015) | (0.016) | | (0.016) | (0.016) | |
| Observations | 904 | 904 | 904 | 904 | 904 | 904 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| pseudo-R-squared | 0.413 | 0.371 | 0.312 | 0.191 | 0.363 | 0.326 |
| p-value for F-test: Father=Mother | 0.00271 | 0.000128 | 0.000412 | 0.000412 | 0.000110 | 0.000143 |
| p-value for F-test: joint significance of parents prefs. | 3.38e-10 | 0 | 0 | 0 | 0 | 0 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.14: Horse-race regressions – Egalitarian social preference as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Personality Dropped |
|---|---|---|---|---|---|---|
| Egalitarian - father | 0.073** | 0.079** | 0.078** | | 0.079** | 0.074** |
| | (0.034) | (0.035) | (0.035) | | (0.036) | (0.035) |
| Egalitarian - mother | 0.109** | 0.103** | 0.122** | | 0.103** | 0.120** |
| | (0.052) | (0.052) | (0.052) | | (0.051) | (0.053) |
| Gender (boys= 0, girls= 1) | 0.021 | 0.019 | | 0.015 | 0.018 | |
| | (0.024) | (0.024) | | (0.024) | (0.024) | |
| Age (in years) | 0.008 | 0.007 | | 0.005 | 0.009 | |
| | (0.009) | (0.009) | | (0.009) | (0.009) | |
| Schooling (in years) | -0.008 | -0.008 | | -0.007 | -0.009 | |
| | (0.009) | (0.009) | | (0.009) | (0.009) | |
| Currently attending school (yes=1, no=0) | 0.051 | 0.049 | | 0.051 | 0.048 | |
| | (0.042) | (0.043) | | (0.044) | (0.046) | |
| Schooling -father | -0.005 | -0.004 | | -0.003 | | -0.001 |
| | (0.004) | (0.004) | | (0.004) | | (0.004) |
| Schooling mother | 0.005 | 0.003 | | 0.004 | | 0.003 |
| | (0.005) | (0.005) | | (0.005) | | (0.005) |
| Household size | -0.025* | -0.026* | | -0.025* | | -0.022** |
| | (0.013) | (0.013) | | (0.014) | | (0.011) |
| Per capita income per month in 2016 in thousands | 0.007 | 0.006 | | 0.007 | | 0.006 |
| | (0.009) | (0.009) | | (0.009) | | (0.008) |
| Full Scale IQ measure of child | 0.057*** | 0.058*** | | 0.061*** | 0.058*** | |
| | (0.020) | (0.020) | | (0.020) | (0.020) | |
| Standardized values of conscientiousness | -0.000 | 0.001 | | 0.002 | 0.004 | |
| | (0.013) | (0.013) | | (0.013) | (0.013) | |
| Standardized values of extraversion | 0.017 | 0.020 | | 0.020 | 0.018 | |
| | (0.013) | (0.013) | | (0.013) | (0.013) | |
| Standardized values of agreeableness | 0.033** | 0.031** | | 0.031** | 0.030** | |
| | (0.014) | (0.013) | | (0.014) | (0.014) | |
| Standardized values of openness | -0.024** | -0.026** | | -0.023* | -0.026** | |
| | (0.012) | (0.012) | | (0.012) | (0.012) | |
| Standardized values of neuroticism | 0.000 | -0.001 | | -0.000 | -0.002 | |
| | (0.011) | (0.011) | | (0.012) | (0.012) | |
| Standardized values of locus of control | 0.015 | 0.018 | | 0.019 | 0.016 | |
| | (0.013) | (0.013) | | (0.013) | (0.013) | |
| Observations | 904 | 904 | 904 | 904 | 904 | 904 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| pseudo-R-squared | 0.0808 | 0.0748 | 0.0224 | 0.0597 | 0.0677 | 0.0325 |
| p-value for F-test: Father=Mother | 0.592 | 0.733 | 0.503 | 0.503 | 0.737 | 0.477 |
| p-value for F-test: joint significance of parents prefs. | 0.00543 | 0.00610 | 0.00293 | 0.00293 | 0.00542 | 0.00489 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.15: Horse-race regressions – Altruistic social preferences as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Personality Dropped |
|---|---|---|---|---|---|---|
| Altruistic father | 0.051 | 0.064* | 0.069* | | 0.074* | 0.061* |
| | (0.033) | (0.037) | (0.039) | | (0.039) | (0.037) |
| Altruistic mother | 0.103** | 0.094** | 0.099** | | 0.092** | 0.101** |
| | (0.044) | (0.044) | (0.046) | | (0.045) | (0.046) |
| Gender (boys= 0, girls= 1) | 0.004 | 0.008 | | 0.011 | 0.007 | |
| | (0.015) | (0.016) | | (0.017) | (0.016) | |
| Age (in years) | 0.005 | 0.005 | | 0.005 | 0.004 | |
| | (0.005) | (0.005) | | (0.005) | (0.005) | |
| Schooling (in years) | -0.004 | -0.004 | | -0.003 | -0.004 | |
| | (0.005) | (0.005) | | (0.006) | (0.005) | |
| Currently attending school (yes=1, no=0) | -0.001 | 0.001 | | 0.001 | -0.001 | |
| | (0.028) | (0.030) | | (0.032) | (0.031) | |
| Schooling father | 0.002 | 0.002 | | 0.002 | | 0.001 |
| | (0.002) | (0.002) | | (0.003) | | (0.002) |
| Schooling mother | -0.002 | -0.002 | | -0.003 | | -0.003 |
| | (0.003) | (0.003) | | (0.003) | | (0.003) |
| Household size | -0.012* | -0.010 | | -0.009 | | -0.004 |
| | (0.007) | (0.007) | | (0.008) | | (0.006) |
| Per capita income per month in 2016 in thousands | 0.005 | 0.005 | | 0.005 | | 0.005 |
| | (0.003) | (0.004) | | (0.004) | | (0.004) |
| Full Scale IQ measure of child | -0.012 | -0.015 | | -0.015 | -0.015 | |
| | (0.010) | (0.012) | | (0.012) | (0.012) | |
| Standardized values of conscientiousness | 0.009 | 0.009 | | 0.010 | 0.010 | |
| | (0.009) | (0.009) | | (0.010) | (0.009) | |
| Standardized values of extraversion | 0.006 | 0.006 | | 0.008 | 0.006 | |
| | (0.007) | (0.008) | | (0.008) | (0.008) | |
| Standardized values of agreeableness | -0.007 | -0.008 | | -0.009 | -0.008 | |
| | (0.007) | (0.008) | | (0.008) | (0.008) | |
| Standardized values of openness | 0.005 | 0.007 | | 0.008 | 0.008 | |
| | (0.007) | (0.007) | | (0.008) | (0.008) | |
| Standardized values of neuroticism | -0.004 | -0.005 | | -0.004 | -0.004 | |
| | (0.008) | (0.008) | | (0.009) | (0.008) | |
| Standardized values of locus of control | -0.007 | -0.002 | | -0.001 | -0.002 | |
| | (0.007) | (0.007) | | (0.007) | (0.007) | |
| Observations | 904 | 904 | 904 | 904 | 904 | 904 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| pseudo-R-squared | 0.0835 | 0.0616 | 0.0261 | 0.0379 | 0.0463 | 0.0386 |
| p-value for F-test: Father=Mother | 0.374 | 0.630 | 0.660 | 0.660 | 0.784 | 0.532 |
| p-value for F-test: joint significance of parents prefs. | 0.000431 | 0.00102 | 0.000844 | 0.000844 | 0.000842 | 0.00121 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.16: Horse-race regressions – Selfishness as dependent variable**

| VARIABLES | (1) District FE Included | (2) District FE Excluded | (3) Parents Prefs Only | (4) Parents Prefs Dropped | (5) SES Dropped | (6) Personality Dropped |
|---|---|---|---|---|---|---|
| Selfish father | 0.082** | 0.129*** | 0.150*** | | 0.125*** | 0.146*** |
| | (0.041) | (0.041) | (0.040) | | (0.040) | (0.041) |
| Selfish mother | 0.114*** | 0.182*** | 0.194*** | | 0.172*** | 0.194*** |
| | (0.037) | (0.037) | (0.037) | | (0.037) | (0.037) |
| Gender (boys= 0, girls= 1) | 0.007 | 0.018 | | 0.007 | 0.014 | |
| | (0.032) | (0.032) | | (0.032) | (0.032) | |
| Age (in years) | 0.006 | 0.006 | | 0.004 | -0.008 | |
| | (0.012) | (0.012) | | (0.012) | (0.011) | |
| Schooling (in years) | -0.000 | 0.002 | | 0.001 | 0.004 | |
| | (0.012) | (0.013) | | (0.012) | (0.012) | |
| Currently attending school (yes=1, no=0) | -0.095 | -0.095 | | -0.111* | -0.105 | |
| | (0.066) | (0.069) | | (0.067) | (0.069) | |
| Schooling father | 0.005 | 0.002 | | 0.000 | | 0.001 |
| | (0.005) | (0.005) | | (0.005) | | (0.005) |
| Schooling mother | 0.001 | 0.001 | | -0.001 | | -0.002 |
| | (0.007) | (0.007) | | (0.007) | | (0.007) |
| Household size | 0.058*** | 0.066*** | | 0.065*** | | 0.054*** |
| | (0.017) | (0.017) | | (0.018) | | (0.014) |
| Per capita income per month in 2016 in thousands | -0.011 | -0.009 | | -0.009 | | -0.010 |
| | (0.010) | (0.010) | | (0.009) | | (0.010) |
| Full Scale IQ measure of child | -0.078*** | -0.080*** | | -0.084*** | -0.079*** | |
| | (0.026) | (0.027) | | (0.027) | (0.026) | |
| Standardized values of conscientiousness | 0.000 | 0.001 | | -0.001 | -0.007 | |
| | (0.017) | (0.017) | | (0.017) | (0.017) | |
| Standardized values of extraversion | -0.020 | -0.018 | | -0.013 | -0.016 | |
| | (0.016) | (0.016) | | (0.016) | (0.016) | |
| Standardized values of agreeableness | -0.014 | -0.013 | | -0.016 | -0.010 | |
| | (0.016) | (0.017) | | (0.017) | (0.017) | |
| Standardized values of openness | 0.020 | 0.026 | | 0.026 | 0.025 | |
| | (0.017) | (0.017) | | (0.017) | (0.017) | |
| Standardized values of neuroticism | 0.020 | 0.018 | | 0.019 | 0.022 | |
| | (0.016) | (0.016) | | (0.016) | (0.016) | |
| Standardized values of locus of control | 0.020 | 0.043** | | 0.063*** | 0.044** | |
| | (0.018) | (0.018) | | (0.018) | (0.018) | |
| Observations | 904 | 904 | 904 | 904 | 904 | 904 |
| District Fixed Effects are included? | Yes | No | No | No | No | No |
| pseudo-R-squared | 0.158 | 0.122 | 0.0566 | 0.0807 | 0.102 | 0.0843 |
| p-value for F-test: Father=Mother | 0.548 | 0.330 | 0.416 | 0.416 | 0.383 | 0.380 |
| p-value for F-test: joint significance of parents prefs. | 0.000461 | 3.26e-09 | 0 | 0 | 1.58e-08 | 0 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1
FE: fixed effects

**Table A.17: Multiple hypothesis testing (Romano-Wolf) – Using the specification of Table 7**

| | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | 0.036*** | 0.074 | 0.056 | 0.072** | 0.053 | 0.085** |
| | (0.011) | (0.049) | (0.043) | (0.034) | (0.034) | (0.040) |
| Usual p-value | 0.001 | 0.129 | 0.157 | 0.024 | 0.053 | 0.029 |
| Romano-Wolf p-value | 0.002 | 0.126 | 0.178 | 0.026 | 0.065 | 0.035 |
| Parent's preference – mother | 0.047*** | 0.109** | 0.336*** | 0.107** | 0.108** | 0.127*** |
| | -0.012 | -0.052 | -0.054 | -0.051 | -0.047 | -0.037 |
| Usual p-value | 0.000 | 0.035 | 0.000 | 0.019 | 0.001 | 0.001 |
| Romano-Wolf p-value | 0.000 | 0.033 | 0.000 | 0.018 | 0.003 | 0.000 |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| $R^2$/ Pseudo-$R^2$ | 0.148 | 0.077 | 0.394 | 0.081 | 0.083 | 0.155 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p-value for F-test: Father=Mother | 0.525 | 0.638 | 0.001 | 0.600 | 0.372 | 0.448 |
| p-value for F-test: joint significance of parents prefs. | 0.000 | 0.024 | 0.000 | 0.005 | 0.000 | 0.000 |

The table only shows the estimated coefficients for father's and mother's preference, but hides all other independent variables included in Table 7 in the main paper. Below the estimated coefficients, the tables show the standard errors in parentheses and then the p-value displayed in Table 7 and the Romano-Wolf p-value that accounts for multiple hypothesis testing. As one can see, these p-values are very similar to the ones shown in Table 7.

**Table A.18: Interacting mother's and father's preferences while accounting for genetic transmission**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Parent's preference - father | -0.035** | 0.024 | -0.212*** | -0.186*** | -0.163*** | -0.144*** |
| | (0.017) | (0.137) | (0.050) | (0.036) | (0.042) | (0.050) |
| Parent's preference - mother | -0.025 | 0.059 | 0.062 | -0.147** | -0.120** | -0.111** |
| | (0.015) | (0.125) | (0.055) | (0.058) | (0.050) | (0.043) |
| Father's preference × mother's preference | -0.001 | 0.004 | 0.099 | -0.007 | -0.098 | -0.039 |
| | (0.002) | (0.031) | (0.088) | (0.127) | (0.126) | (0.080) |
| Gender (boys= 0, girls= 1) | -0.295** | -0.023 | 0.010 | 0.016 | 0.008 | 0.007 |
| | (0.141) | (0.152) | (0.021) | (0.025) | (0.018) | (0.030) |
| Age (in years) | 0.034 | -0.115* | -0.007 | 0.007 | 0.007 | 0.006 |
| | (0.057) | (0.059) | (0.007) | (0.009) | (0.006) | (0.011) |
| Schooling (in years) | -0.100* | 0.090 | 0.016** | -0.009 | -0.005 | 0.001 |
| | (0.053) | (0.060) | (0.008) | (0.010) | (0.006) | (0.011) |
| Currently attending school (yes=1, no=0) | -0.069 | 0.125 | 0.007 | 0.054 | 0.005 | -0.091 |
| | (0.268) | (0.371) | (0.037) | (0.049) | (0.040) | (0.060) |
| Schooling father | 0.012 | -0.031 | -0.005 | -0.004 | 0.002 | 0.004 |
| | (0.025) | (0.024) | (0.004) | (0.004) | (0.003) | (0.005) |
| Schooling mother | -0.000 | 0.021 | 0.005 | 0.005 | -0.002 | 0.001 |
| | (0.029) | (0.031) | (0.005) | (0.005) | (0.003) | (0.006) |
| Household size | -0.019 | 0.098 | -0.001 | -0.022* | -0.012 | 0.056*** |
| | (0.088) | (0.098) | (0.011) | (0.013) | (0.008) | (0.016) |
| Per capita income per month in 2016 in thousands | 0.060 | -0.076 | -0.002 | 0.007 | 0.006 | -0.010 |
| | (0.040) | (0.050) | (0.009) | (0.012) | (0.005) | (0.007) |
| Full Scale IQ measure of child | -0.399*** | -0.072 | 0.011 | 0.062*** | -0.014 | -0.070*** |
| | (0.107) | (0.115) | (0.017) | (0.022) | (0.012) | (0.024) |
| Standardized values of conscientiousness | -0.025 | 0.133* | 0.008 | 0.003 | 0.009 | 0.002 |
| | (0.080) | (0.077) | (0.012) | (0.013) | (0.010) | (0.017) |
| Standardized values of extraversion | -0.215*** | -0.057 | -0.019* | 0.019 | 0.006 | -0.015 |
| | (0.074) | (0.076) | (0.010) | (0.014) | (0.010) | (0.015) |
| Standardized values of agreeableness | -0.089 | 0.009 | -0.027** | 0.032** | -0.011 | -0.020 |
| | (0.077) | (0.085) | (0.012) | (0.013) | (0.010) | (0.016) |
| Standardized values of openness | 0.090 | 0.011 | 0.021* | -0.025** | 0.006 | 0.017 |
| | (0.072) | (0.082) | (0.011) | (0.013) | (0.008) | (0.015) |
| Standardized values of neuroticism | 0.015 | 0.078 | 0.003 | 0.002 | -0.006 | 0.016 |
| | (0.070) | (0.080) | (0.010) | (0.011) | (0.009) | (0.015) |
| Standardized values of locus of control | 0.027 | -0.034 | -0.039*** | 0.019 | -0.008 | 0.025 |
| | (0.069) | (0.078) | (0.013) | (0.014) | (0.009) | (0.017) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| $R^2$/ Pseudo-$R^2$ | 0.135 | 0.066 | 0.163 | 0.100 | 0.080 | 0.124 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p value for F-test: parents preferences interactions | 0.621 | 0.890 | 0.261 | 0.959 | 0.437 | 0.621 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table A.19: Interacting parental preferences and children's age while accounting for genetic transmission**

| VARIABLES | Number of patient choices | Gamble number picked | Spiteful (0/1) | Egalitarian (0/1) | Altruistic (0/1) | Selfish (0/1) |
|---|---|---|---|---|---|---|
| Preference - father | -0.182*** | 0.284 | -0.312* | -0.213 | -0.192 | -0.267* |
| | (0.045) | (0.201) | (0.162) | (0.138) | (0.129) | (0.154) |
| Preference - mother | 0.007 | 0.404* | -0.009 | -0.058 | -0.351* | 0.107 |
| | (0.045) | (0.213) | (0.169) | (0.211) | (0.211) | (0.145) |
| Age of the child (in years) | -0.024 | 0.073 | -0.011 | 0.007 | 0.006 | 0.012 |
| | (0.063) | (0.105) | (0.007) | (0.009) | (0.006) | (0.012) |
| Father's pref. X age of the child | 0.012*** | -0.020 | 0.012 | 0.002 | 0.001 | 0.009 |
| | (0.003) | (0.016) | (0.013) | (0.011) | (0.010) | (0.012) |
| Mother's pref. X age of the child | -0.003 | -0.027 | 0.008 | -0.007 | 0.018 | -0.019* |
| | (0.003) | (0.017) | (0.014) | (0.016) | (0.018) | (0.011) |
| Gender (boys= 0, girls= 1) | -0.272* | -0.029 | 0.011 | 0.016 | 0.007 | 0.005 |
| | (0.140) | (0.153) | (0.021) | (0.025) | (0.017) | (0.029) |
| Schooling (in years) | -0.081 | 0.089 | 0.017** | -0.009 | -0.005 | 0.001 |
| | (0.054) | (0.059) | (0.008) | (0.010) | (0.006) | (0.011) |
| Currently attending school (yes=1, no=0) | -0.065 | 0.083 | 0.003 | 0.053 | 0.005 | -0.086 |
| | (0.270) | (0.361) | (0.037) | (0.049) | (0.040) | (0.059) |
| Schooling father | 0.009 | -0.028 | -0.006 | -0.004 | 0.002 | 0.004 |
| | (0.024) | (0.025) | (0.004) | (0.004) | (0.003) | (0.005) |
| Schooling mother | 0.004 | 0.020 | 0.005 | 0.005 | -0.002 | 0.001 |
| | (0.029) | (0.031) | (0.004) | (0.005) | (0.003) | (0.006) |
| household size | -0.028 | 0.094 | -0.000 | -0.022* | -0.012 | 0.055*** |
| | (0.088) | (0.096) | (0.011) | (0.013) | (0.008) | (0.016) |
| Per capita income per month in 2016 in thousands | 0.062 | -0.071 | -0.002 | 0.007 | 0.005 | -0.009 |
| | (0.042) | (0.051) | (0.009) | (0.012) | (0.005) | (0.007) |
| Full Scale IQ measure of chil | -0.418*** | -0.089 | 0.009 | 0.061*** | -0.015 | -0.075*** |
| | (0.107) | (0.114) | (0.017) | (0.022) | (0.012) | (0.024) |
| Standardized values of (conscientiousness) | -0.023 | 0.125 | 0.008 | 0.003 | 0.008 | 0.000 |
| | (0.079) | (0.077) | (0.012) | (0.013) | (0.010) | (0.017) |
| Standardized values of (extraversion) | -0.209*** | -0.053 | -0.021** | 0.019 | 0.005 | -0.018 |
| | (0.073) | (0.076) | (0.010) | (0.014) | (0.010) | (0.015) |
| Standardized values of (agreeableness) | -0.097 | 0.032 | -0.023* | 0.032** | -0.011 | -0.018 |
| | (0.076) | (0.085) | (0.012) | (0.013) | (0.010) | (0.016) |
| Standardized values of (openness) | 0.086 | 0.010 | 0.021** | -0.025** | 0.006 | 0.017 |
| | (0.071) | (0.082) | (0.011) | (0.013) | (0.008) | (0.015) |
| Standardized values of (neuroticism) | 0.018 | 0.092 | 0.005 | 0.002 | -0.006 | 0.017 |
| | (0.070) | (0.080) | (0.010) | (0.011) | (0.009) | (0.015) |
| Standardized values of (loc_index) | 0.020 | -0.039 | -0.041*** | 0.020 | -0.010 | 0.025 |
| | (0.069) | (0.077) | (0.013) | (0.014) | (0.009) | (0.017) |
| Observations | 906 | 456 | 904 | 904 | 904 | 904 |
| $R^2$/ Pseudo-$R^2$ | 0.145 | 0.076 | 0.164 | 0.101 | 0.081 | 0.127 |
| District Fixed Effects are included? | Yes | Yes | Yes | Yes | Yes | Yes |
| p value for F-test: joint significance parents prefs. and child age interactions | 0.004 | 0.097 | 0.296 | 0.898 | 0.611 | 0.224 |

Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

**Table A.20: Dropping all subjects with missing data for the cluster analysis**

| | Cluster 1 | Cluster 2 | Difference | (p-value) |
|---|---|---|---|---|
| Patient choices – Offspring Mean | 2.81 | 2.33 | 0.48 | 0.05 |
| Patient choices -father | 7.96 | 2.44 | 5.51 | 0.00 |
| Patient choices - mother | 9.22 | 2.34 | 6.87 | 0.00 |
| Gamble number picked - Offspring Mean | 3.92 | 3.68 | 0.24 | 0.24 |
| Gamble number picked - father | 4.17 | 3.10 | 1.07 | 0.00 |
| Gamble number picked - mother | 4.01 | 3.59 | 0.42 | 0.06 |
| Spiteful – Offspring Mean | 0.08 | 0.79 | -0.71 | 0.00 |
| Spiteful - father | 0.07 | 0.80 | -0.73 | 0.00 |
| Spiteful - mother | 0.05 | 0.90 | -0.85 | 0.00 |
| Egalitarian – Offspring Mean | 0.19 | 0.06 | 0.13 | 0.00 |
| Egalitarian - father | 0.23 | 0.14 | 0.08 | 0.12 |
| Egalitarian - mother | 0.10 | 0.03 | 0.07 | 0.06 |
| Altruistic – Offspring Mean | 0.09 | 0.00 | 0.09 | 0.00 |
| Altruistic - father | 0.12 | 0.01 | 0.11 | 0.01 |
| Altruistic - mother | 0.07 | 0.01 | 0.06 | 0.07 |
| Selfish – Offspring Mean | 0.33 | 0.08 | 0.25 | 0.00 |
| Selfish - father | 0.33 | 0.03 | 0.30 | 0.00 |
| Selfish - mother | 0.45 | 0.00 | 0.45 | 0.00 |
| Number of observations | 300 | 70 | | |

In this table we account for the fact that we elicited risk preferences for only half of the children. Note that it happened that in households with two children one child was asked about risk preferences, but the other not. In such cases we simply drop the other child (that had no risk elicitation) and take the rest of the household for the cluster analysis. If in a household we had two children and both were asked about risk preferences, then we take the average of both children to take this household into account for the cluster analysis. In total, we have 370 households (not 544 as in the full sample) that we can use with this approach for the cluster analysis. The cluster analysis yields again two clusters as the optimal number of clusters, and again these two clusters exhibit strongly different economic preferences of fathers, mothers and children, very much like in Table 15 in the main paper. This means that different ways of handling missing data lead to the same pattern of two clusters where one has relatively patient, risk tolerant and non-spiteful family members, while the other has relatively impatient, risk averse and spiteful family members.

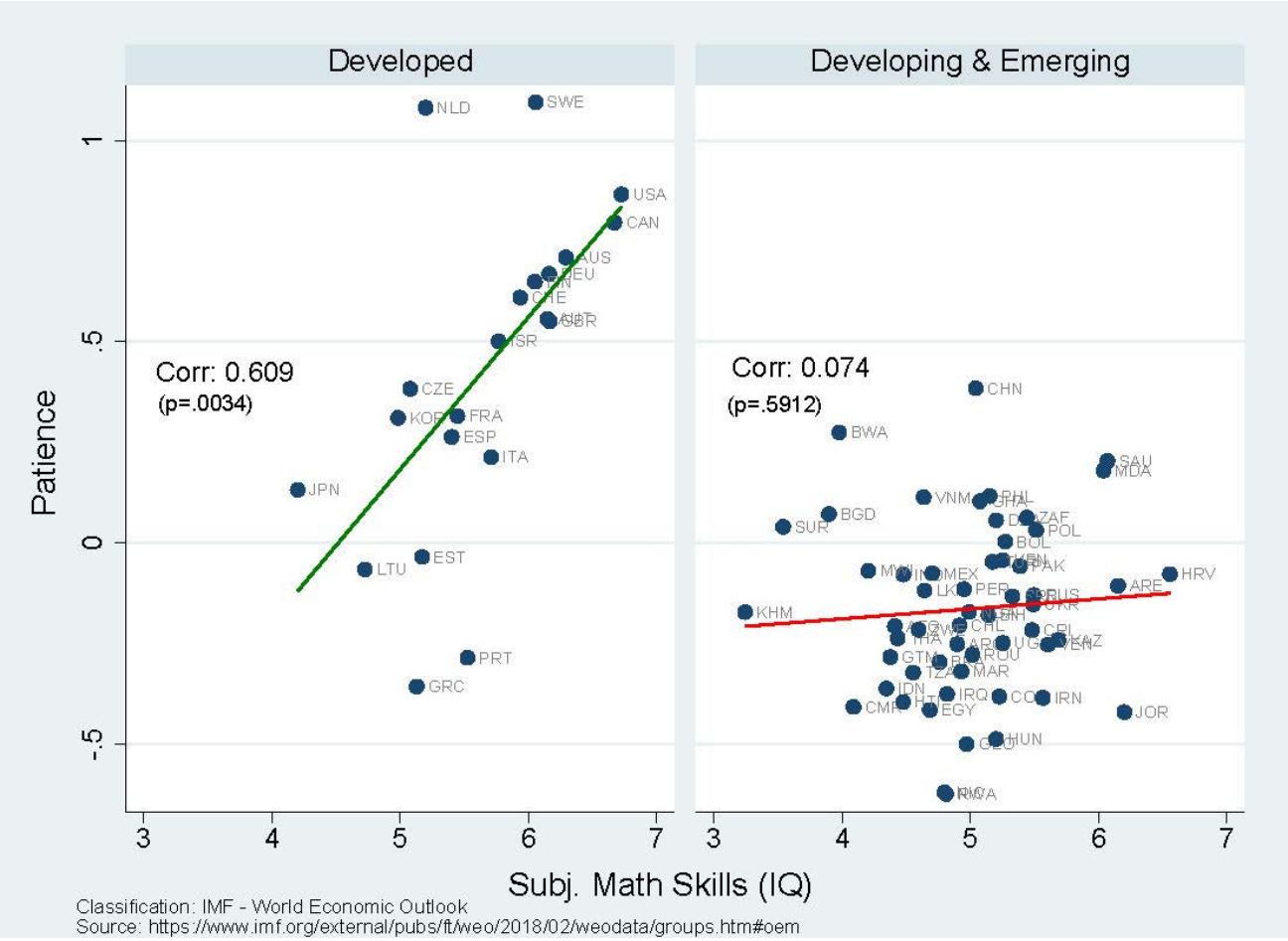



**Figure A.1: IQ and patience in the countries included in the global preference survey of Falk et al. (2018)**

We show on the vertical axis the average level of patience in a particular country and on the horizontal axis the average level of math skills as a proxy for IQ. We use the classification of the International Monetary Fund to classify countries as developed or developing&emerging (see https://www.imf.org/external/pubs/ft/weo/2018/02/weodata/groups.htm#oem)
On the left-hand side we see for rich countries a clearly positive and very steep relationship between patience and IQ, while on the right-hand side the relationship is flat and far from significantly different from zero.

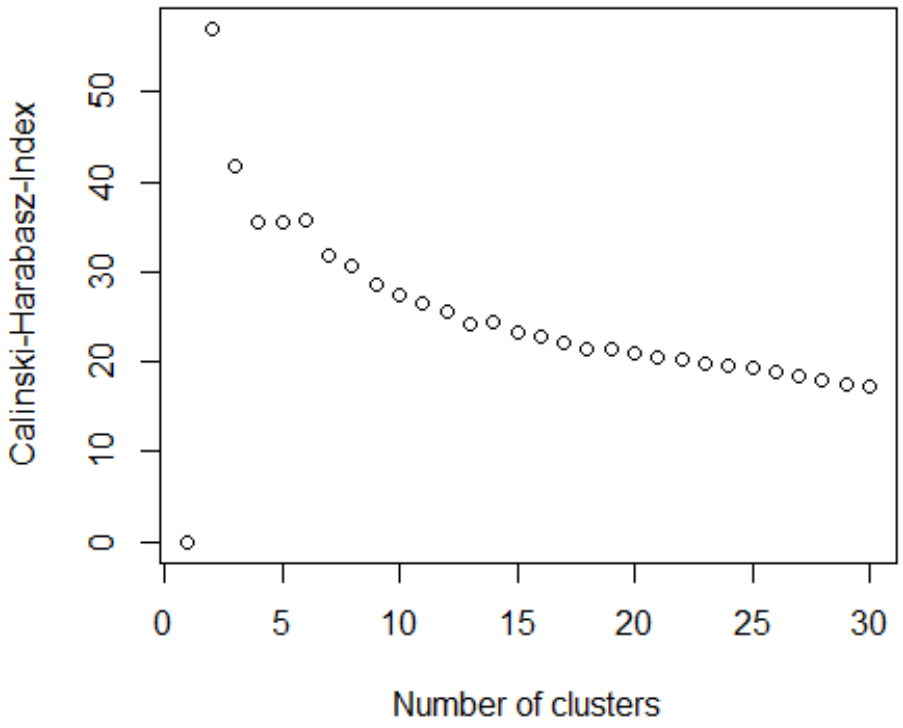



**Figure A.2: The Calinski-Harabasz-Index for Different Numbers of Clusters, Aggregating Offspring at the Household Level**

The optimal number of clusters is two according to this index.

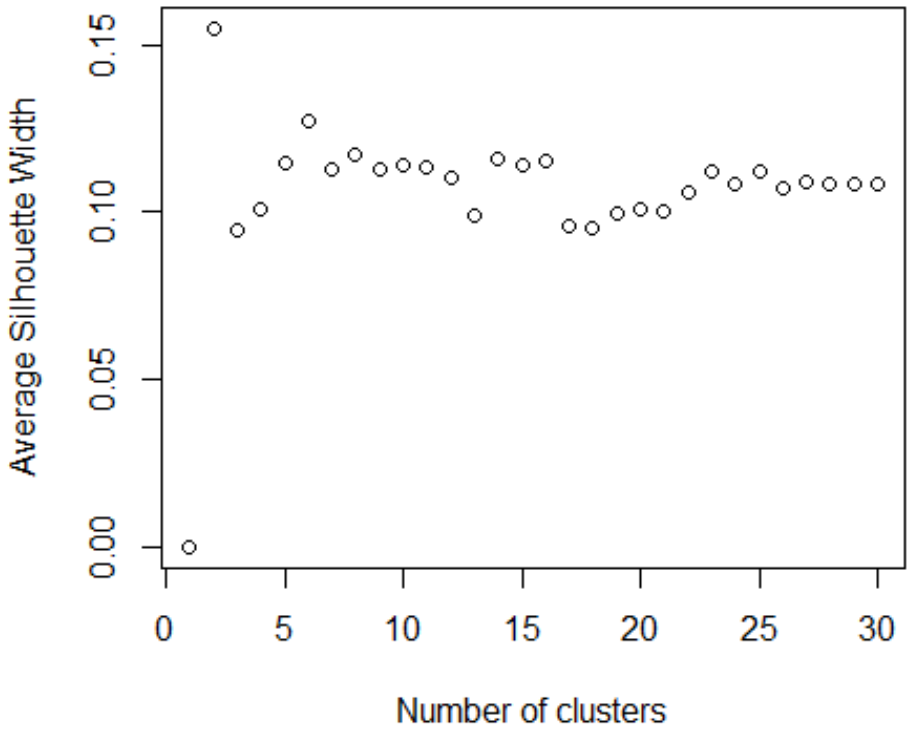



**Figure A.3: The Average Silhouette Width for Different Numbers of Clusters, Aggregating Offspring at the Household Level**

The optimal number of clusters is two according to the average silhouette width.

# B. Experimental instructions and procedures

## B.1. 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 A.2.
- **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 preferences 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 A.2 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

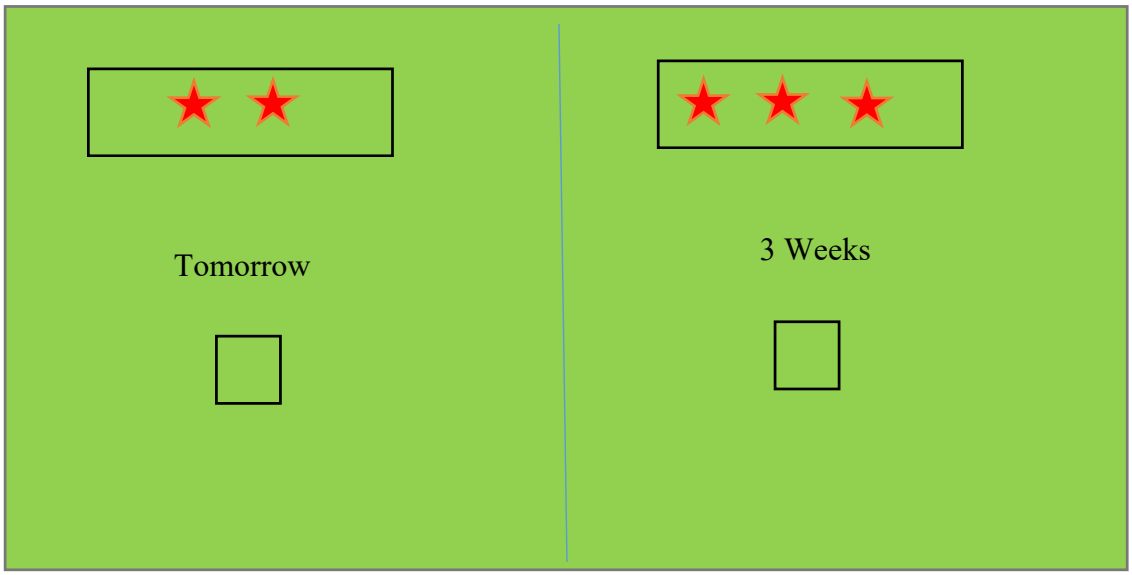
As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid and that you will have to draw a number to determine it. If this game is paid, only one of the six decisions counts. That means you will receive the stars for one of the six parts only. The decisions 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: |__|

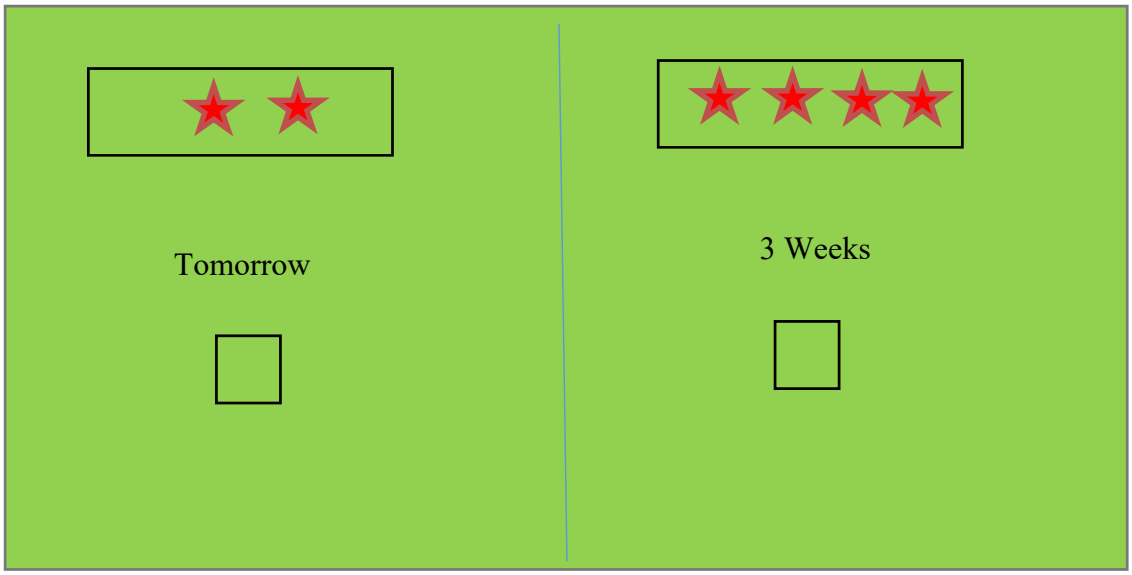
1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

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.

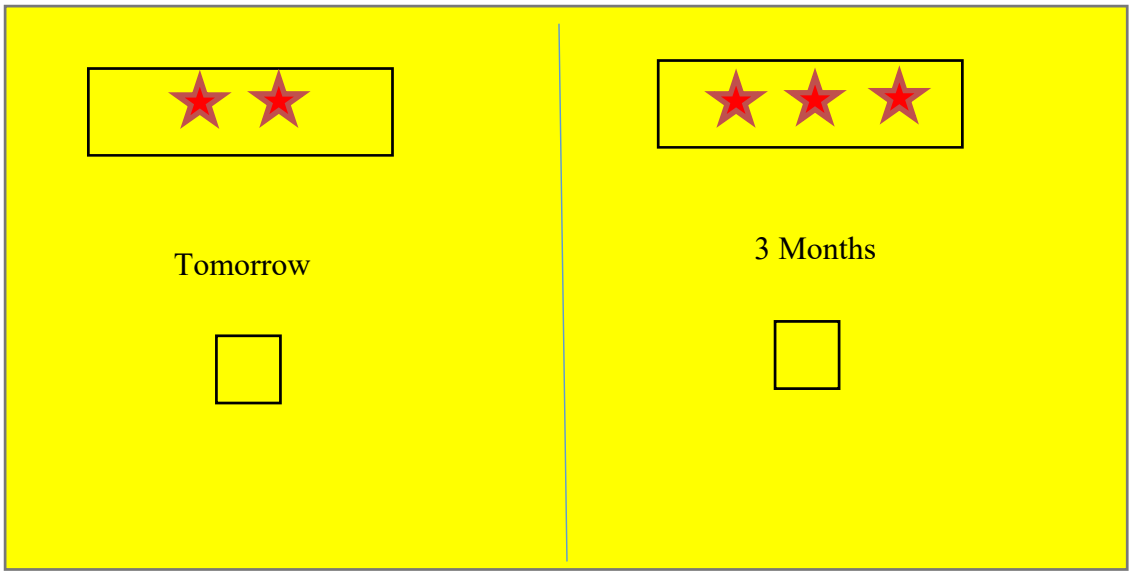
**Decision sheet-1**



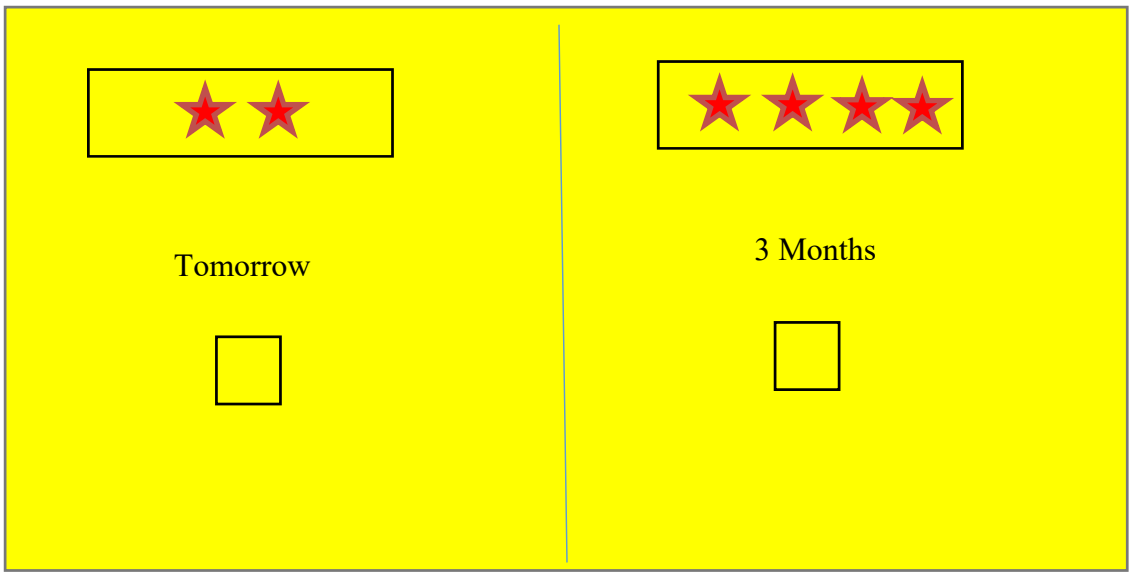
**Decision sheet-2**



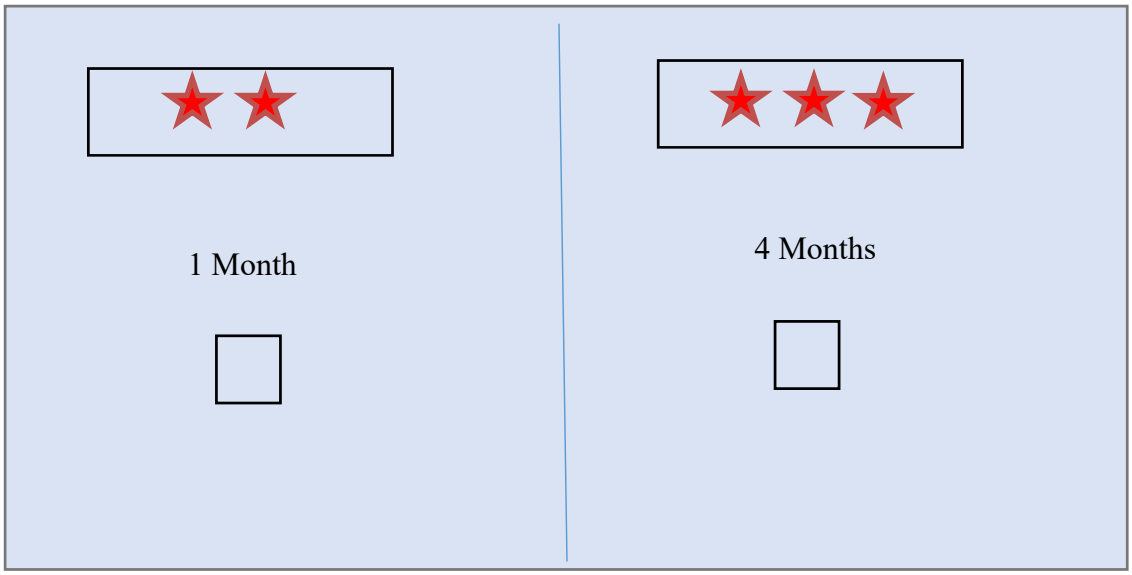
**Decision sheet-3**



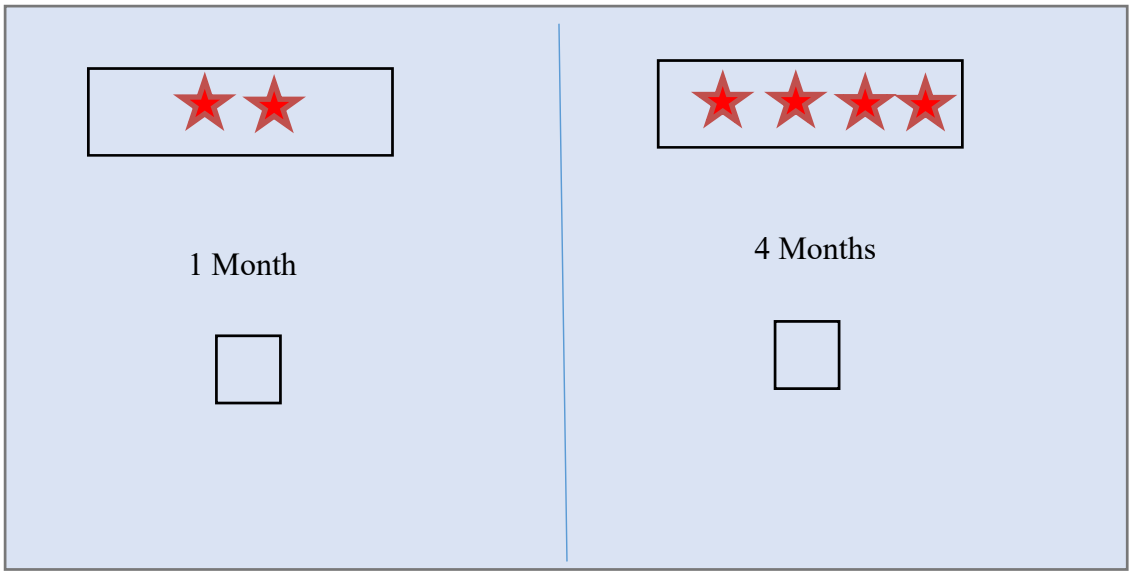
**Decision sheet-4**



**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.

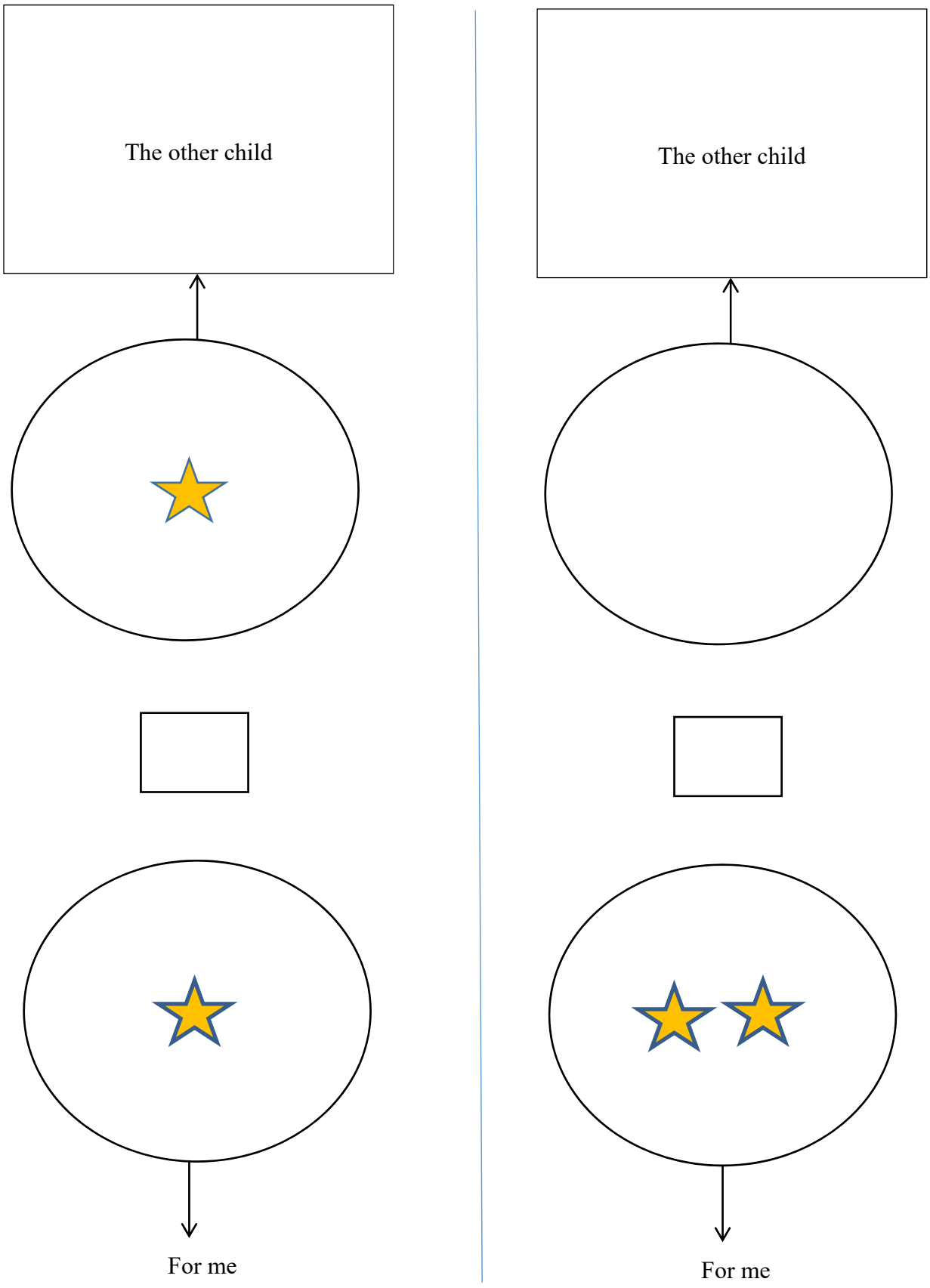
1. Child understood the game after: |__|

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

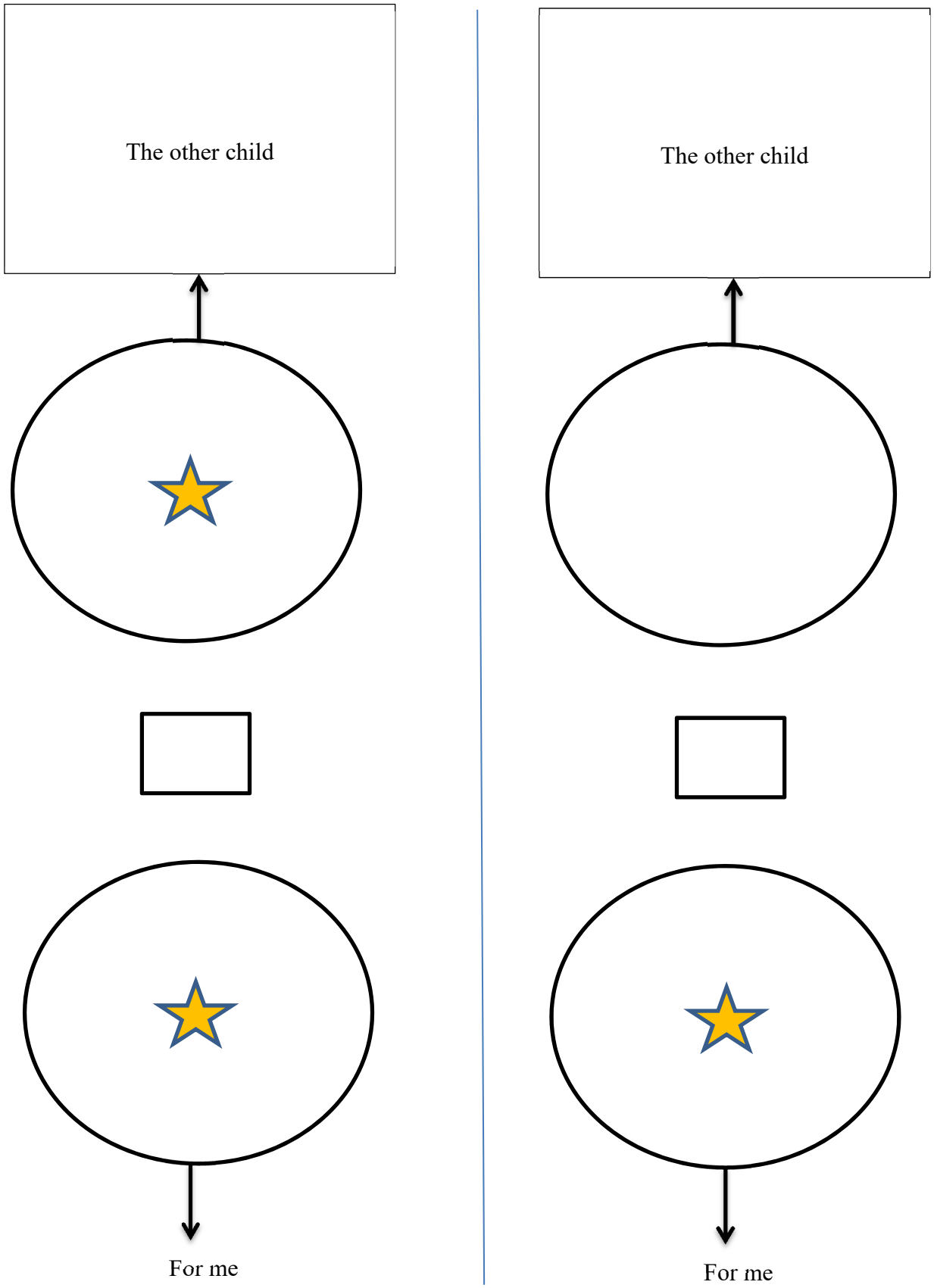
*Are you ok so far? Leave time for questions and answer them privately.*

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.

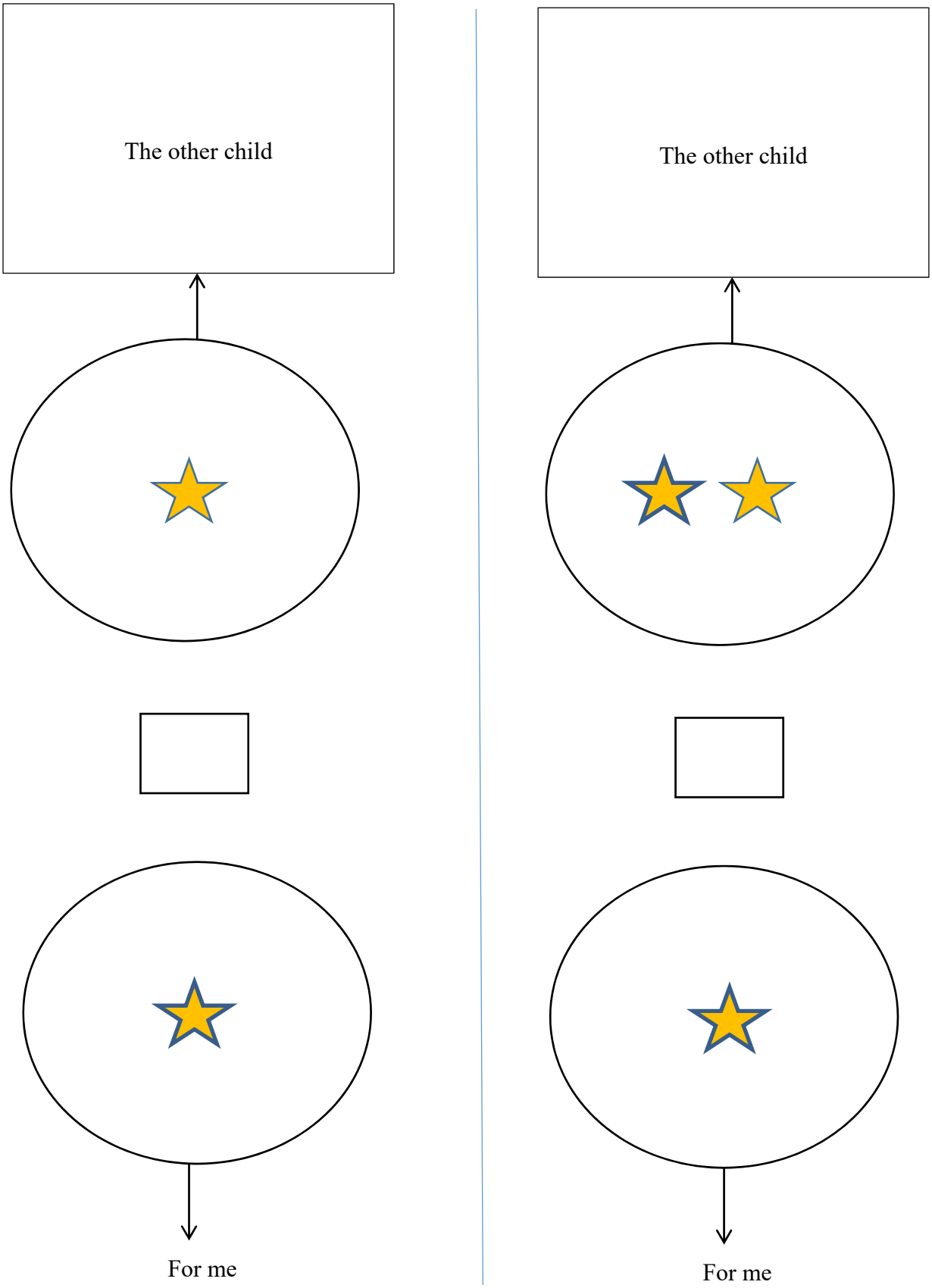
**Decision sheet 1**



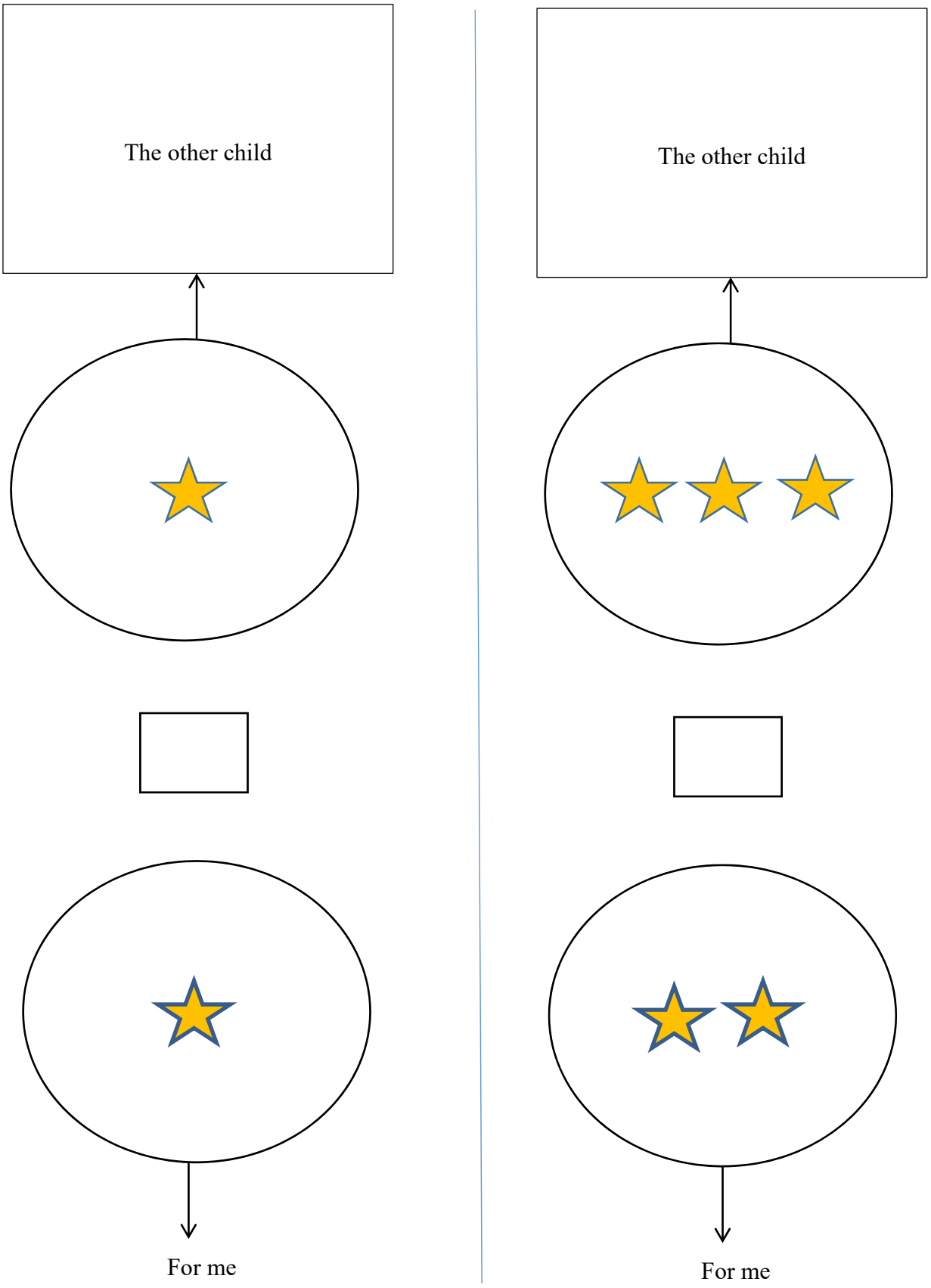
**Decision sheet 2**



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**

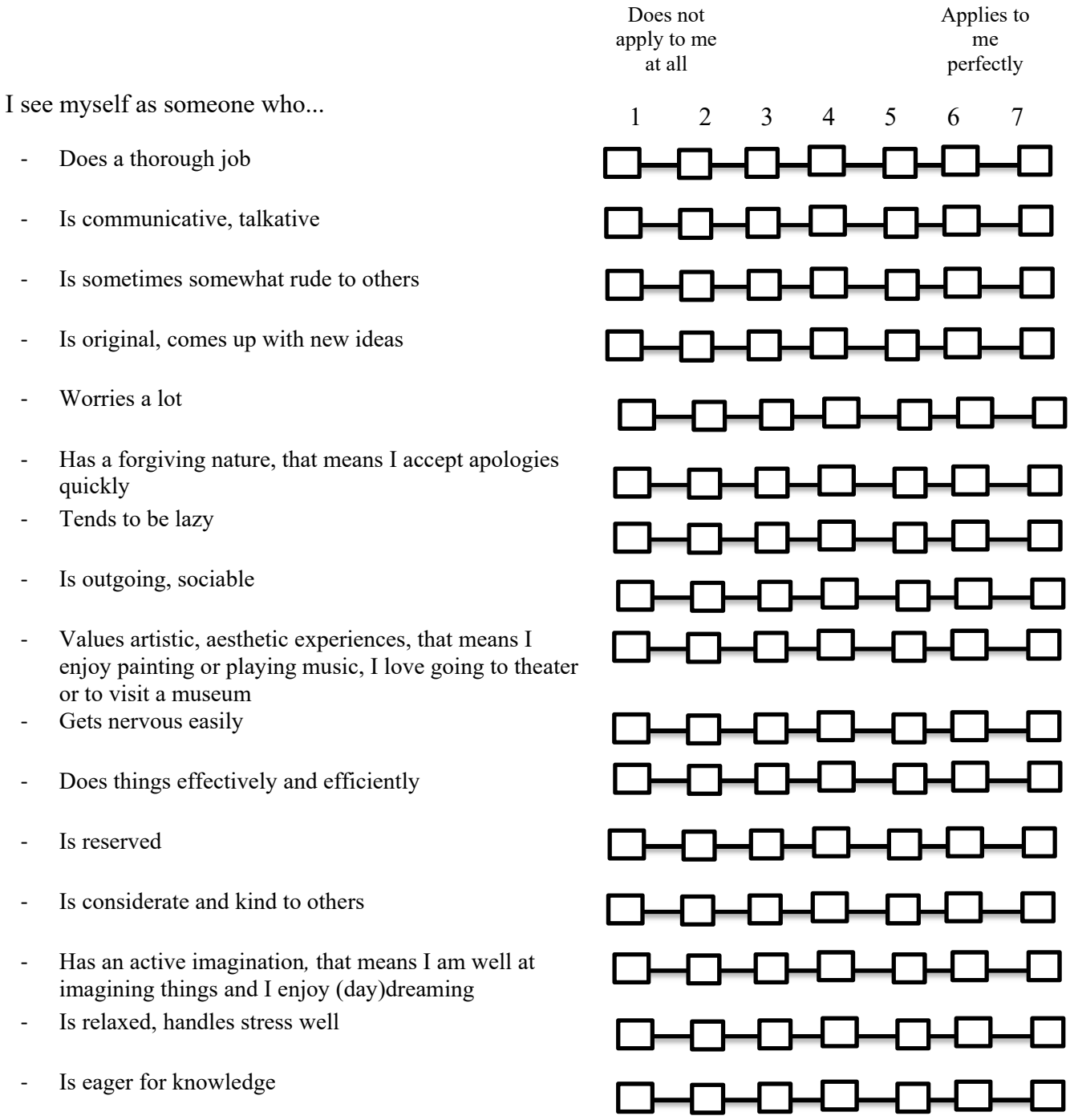
**How would you rank your child in comparison to other children of the same age? My child...**

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



## Locus of control (from Kosse et al., 2018)

*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

***Notes regarding measurement:*** *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). 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.*

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)

## B.2. 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 Preferences 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.

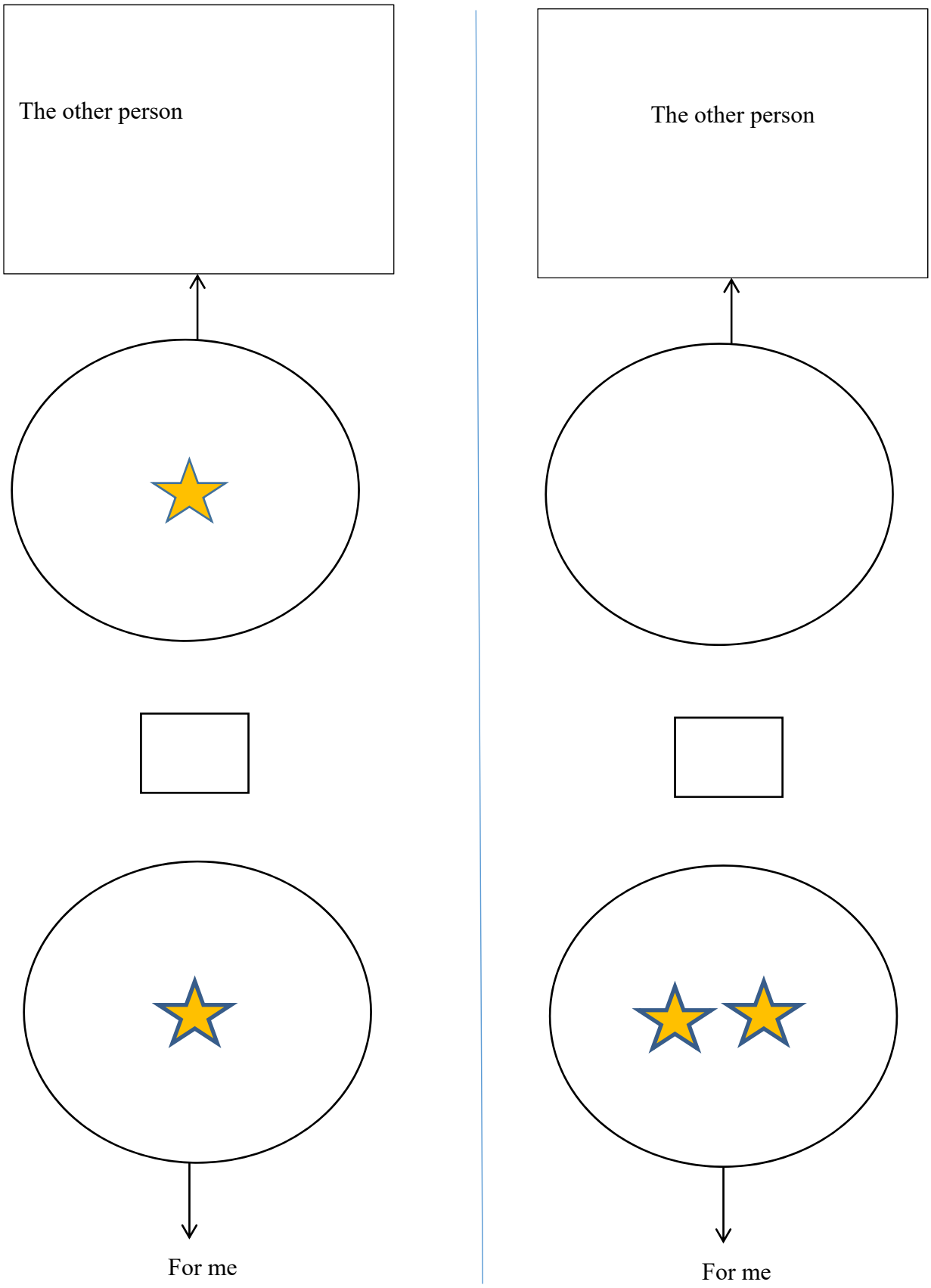
1. Respondent understood the game after: |__|

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

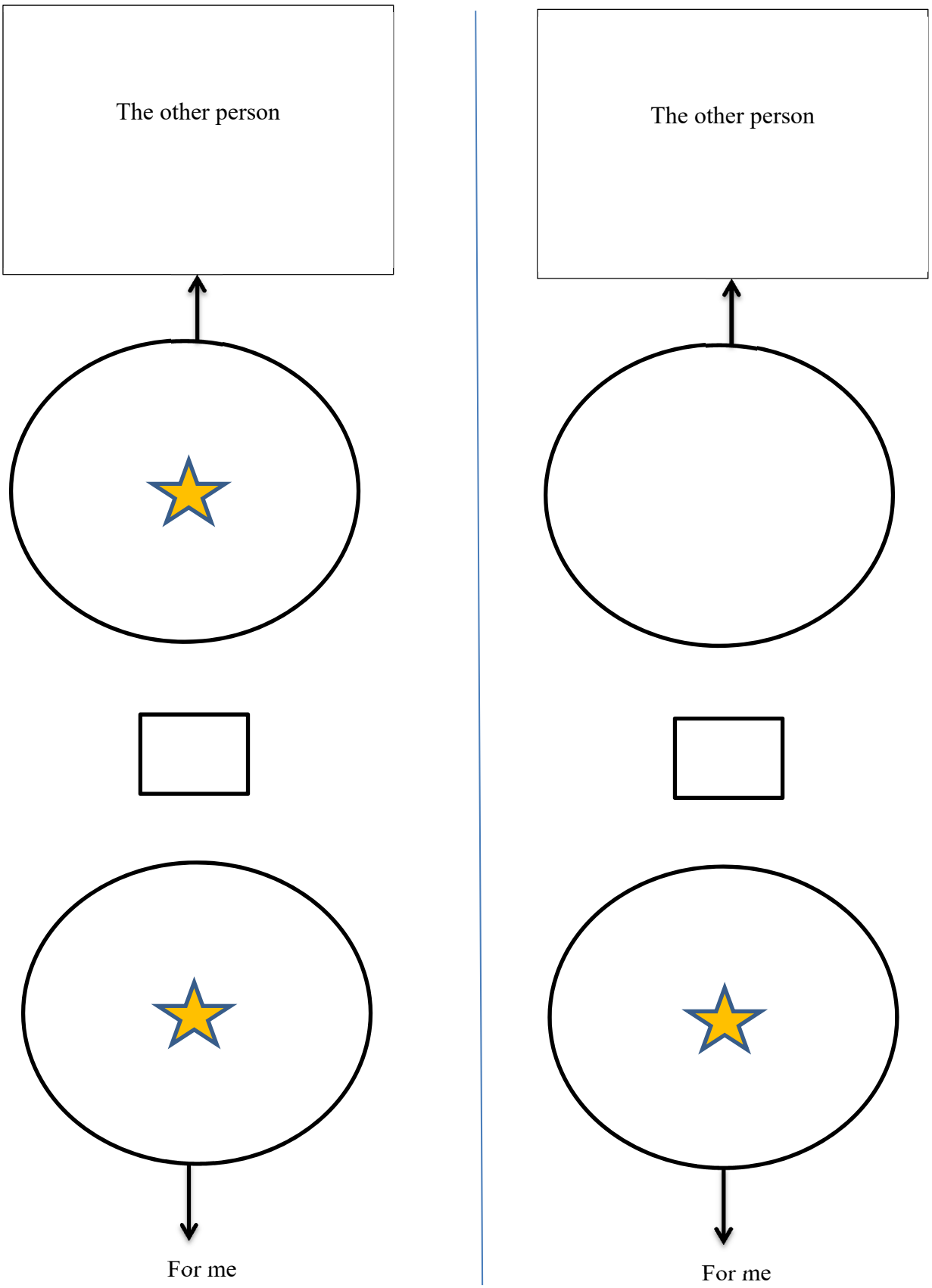
*Are you ok so far? Leave time for questions and answer them privately.*

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.

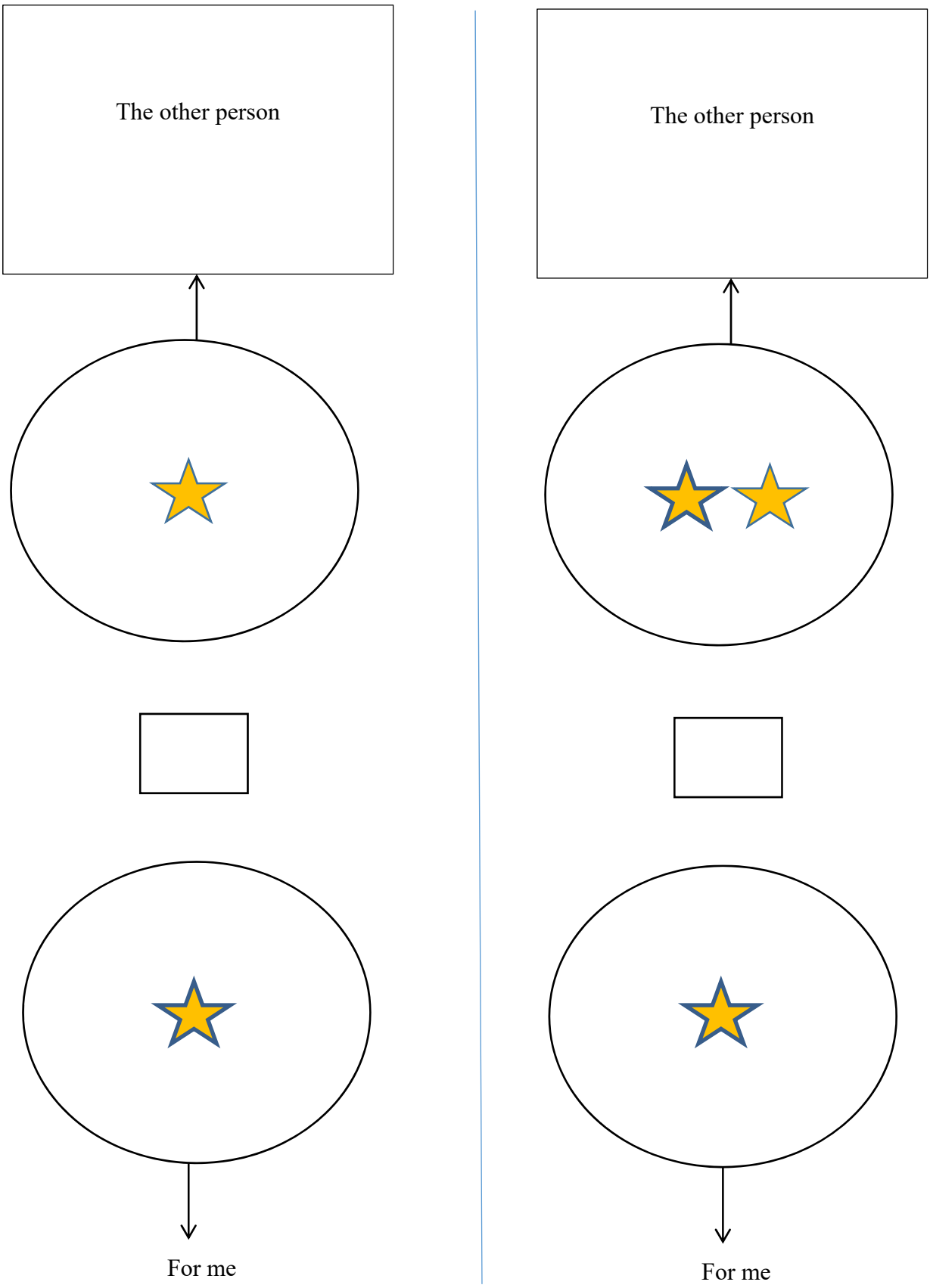
**Decision sheet 1**



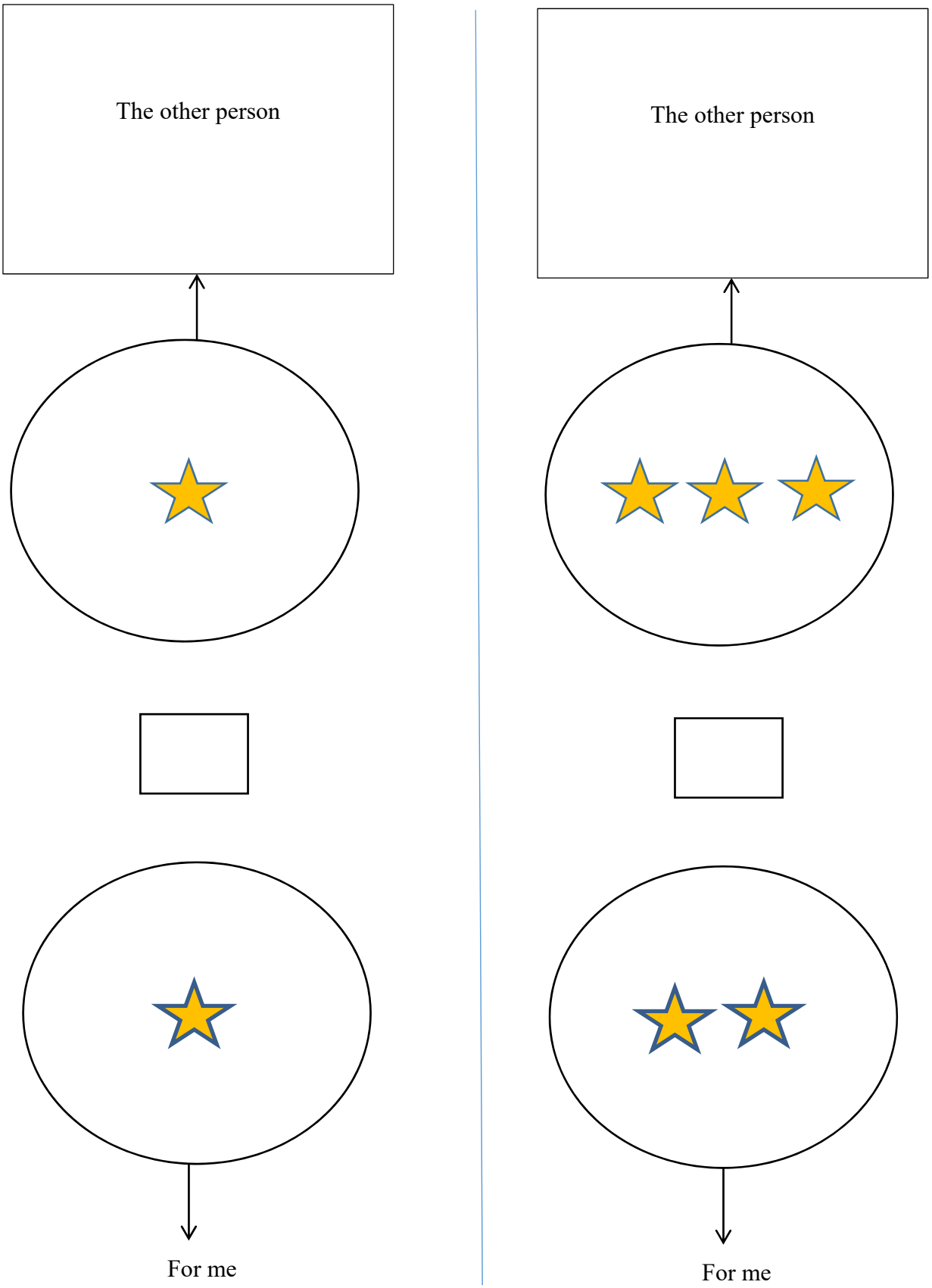
**Decision sheet 2**



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)**

| - | Does not apply to me at all | | | | | | Applies to me perfectly |
|---|---|---|---|---|---|---|---|
| - I see myself as someone who... | 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 | | | | | | | |
| - 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)

**Parenting styles**

In this survey module, each mother was asked to rate 18 items on a five-point scale ('never' to 'very frequently'). The items are related to raising their child(ren), and mothers answered only once, hence for each item, each household has only one value for all of their children. These items were then categorized into six scales indicating to which degree their parenting style is characterized by: emotional warmth, inconsistent parenting, monitoring, negative communication, psychological control and strict control. Each 'style' is then normalized to a mean of zero and standard deviation of one. A detailed description of the parenting style measures can be found in Thönnissen et al. (2019)

**Emotional warmth**
1. I use words and gestures to show my child that I love him/her.
2. I comfort my child when he/she feels sad.
3. I praise my child.

**Inconsistent parenting**
1. I threaten my child with punishment, but don't actually follow through with it.
2. I reduce punishments or lift them ahead of time.
3. It is hard for me to be consistent in my childrearing.[1]

**Monitoring**
1. I talk to my child about things he/she has done, seen, or experienced when he/she was out.
2. When my child is outside the home, I know exactly where he/she is.
3. I try to actively influence my child's circle of friends.

**Negative communication**
1. I criticize my child.
2. I shout at my child when he/she did something wrong.
3. I scold my child when I am angry at him/her.

**Psychological control**
1. I feel that my child is ungrateful because he/she disobeys.
2. I stop talking to my child for a while when he/she did something wrong.
3. I am disappointed and sad when my child misbehaves.

**Strict control**
1. I punish my child when he/she was disobedient.
2. I tend to be strict with my child.
3. I make it clear to my child that he/she should not oppose orders and decisions.

Thönnissen, C., Wilhelm, B., Alt, P., Greischel, H., and Walper, S. (2019).Manual of the German Family Panel: Scales and Instruments Manual (Waves 1 to 10), Release 10.0. Report, Panel Analysis of Intimate Relationships and Family Dynamics.

[1] Due to a translation issue, the dimension "inconsistent parenting" is reduced to item number 3: "It is hard for me to be consistent in my childrearing." Translation of the other two items into Bengali did not properly convey the true meaning