Economic preferences across generations and family clusters: A large-scale experiment in a developing country*

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Abstract

Our large-scale experiment with 544 families from rural Bangladesh finds substantial 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. We discuss possible transmission channels and are the first to classify all families into one of two clusters, with either relatively patient, risk-tolerant and pro-social members or relatively impatient, risk averse and spiteful members. Classifications correlate with socio-economic background variables. We find that our results differ from evidence for rich countries.

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, genetics, family clusters, socio-economic status, developing country, Bangladesh, lab-in-the-field 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; Schneider and Sutter, 2021). 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) 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., 2021).[1]

The rapidly growing literature in economics 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 (see Falk et al., 2021, for a recent example). 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., 2021).

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

[1] A different strand of literature based in behavioral genetics and economics suggests that large parts of human phenotypes are inheritable, although time, risk and social preferences have not yet been widely studied (see, e.g., Bouchard and McGue, 1981, 2003; DeFries and Fulker, 1985; Ebstein et al., 2010; Le et al., 2010). We discuss in the online Appendix B how our paper relates to this literature.

different types that share a combination of specific economic preferences. So far, previous 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 several 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 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

[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 revealed 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).

preferences will be related to both parents' economic preferences to the same extent. Moreover, 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 do not use any incentives, but rely on hypothetical questions about risk taking and trust. We use monetary incentives for all participants, and as far as we know ours is the first paper to do this for fathers *and* mothers *and* children. Second, their "children" are all above the age of 17 years, with an average age of 25 years, and about 40% of children live no longer 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. Moreover, when children live no longer together with their parents, other persons (like partners and peers) might potentially confound the transmission from parents. 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 study how parents' and children's economic preferences are related to each other in a developing 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., Dohmen et al., 2012, and Falk et al., 2021, for Germany; Bauer et al., 2014, for the Czech Republic; Almas et al., 2016, for Norway; Brenoe and Epper, 2018, for Denmark). A large fraction of the world population lives in low-income countries, 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. This feature of our work – having data from a poor country – also allows comparing the data patterns that we find

[4] In 2016, when we ran the experiments, Bangladesh had a per capita GDP at purchasing power parity of 3,581 international $, while the US, e.g., had 57,467 $ (data from 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).

(e.g., how economic preferences are related to IQ or age or education) to what is known from rich and highly developed countries. In other words, we can examine whether established data patterns from rich countries also prevail in a developing country like Bangladesh, which may be relevant for drawing policy conclusions. 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. (2021) 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 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 poor developing country (with a population of about 165 millions). 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 establish what we will call "family clusters" 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 attempted 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.

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 (like Falk et al., 2021, 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, and the influence of older siblings on younger siblings, also controlling for 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 considering 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 whole 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. Section 4 discusses plausible transmission mechanisms, including assortativity of parents or the influence of older siblings. Section 5 then investigates the interrelationship between risk, time and social preferences, first within subjects (separately for parents and children) and then within families, identifying clusters of families with specific patterns of economic preferences and regressing cluster membership on parental background. Section 6 provides a short discussion of how our results from a developing country differ from data patterns established in rich and highly developed countries. Section 7 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 children. For the current paper, we are only interested in the subset of households that had at least one child aged between six and 16 years (at the time of running the experiments). 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. 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 here on the 1,001 households *with* children (a condition that not all other households satisfy): Fathers in our 1,001 households are slightly older (1.3 years), 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 a 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 any significant differences between both sets of households. Second, we 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.[9]

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. For the experiment, 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 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 visited each household, conducted the interviews and experiments with parents and children on a one-to-one basis.[10] 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 retain anonymity of decisions and to avoid any kind of influence from one household member on another.

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[9] 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.

[10] 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.

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, children 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, at least one grandparent lives 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 more 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).[11] The HIES is a locally adapted version of the World Bank's Living Standard Measurement Survey

[11] The survey modules and reports are available online in the Report of the Household Income and Expenditure Survey 2010. See http://203.112.218.65:8008/WebTestApplication/userfiles/Image/LatestReports/HIES-10.pdf (accessed 28 July 2021).

(LSMS) which is regularly used in about 100 developing countries to measure national and regional poverty, and well accepted in the scientific literature.[12] 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).[13] In 2016, the average household income per capita and month 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.[14] 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).

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

[12] 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.

[13] 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.

[14] 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.

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 how often the larger, but later, reward was chosen in all six (18) choices.[15]

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.

Table 2 and 3 about here

[15] 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.

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).[16] 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).[17] 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, which means to choose always the allocation (1,1); (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 of 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.[18]

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[16] 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.

[17] 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.

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

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)[19] to measure cognitive skills. In the following, we are going to use a standardized composite measure of full-scale IQ (FSIQ).[20] 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.

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

[19] We worked with local academics with expertise in the adaptation and use of WISC version IV. In particular, Salim Hossain from 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.

[20] 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.

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 have significantly different time preferences, and partly social preferences, but no differences in risk preferences. Daughters and sons, however, show no significant difference in any of our measures. 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.[21] For children, this happens 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

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,

[21] 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.

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 both 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 abilities 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. Unfortunately, we do not have data on the length of the marriage. Yet, data from rural Bangladesh by Ambrus et al. (2010) show that the correlation coefficient between a woman's year of marriage (age at marriage) and her year of birth (age) is 0.965. This allows us to take the "age of respondent" as a reasonable proxy for the length of marriage. The insignificance of this variable 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.[22]

[22] 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 in Table 6 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 related 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 single, 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 initially, given that for relatively rich countries the relationship between IQ and patience has often been shown to be positive (e.g., Mischel and Metzner, 1962, Funder and Block, 1989, Dohmen et al., 2010, Falk et al., 2021). However, such a positive relationship does not seem to be a universal phenomenon, as we discuss in more detail in Section 6 below where we highlight differences in data patterns between our sample from a poor country and previous evidence from rich countries.

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 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 of 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.

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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.

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 parents' 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 analyses.

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)[24], and this relationship does not depend on the gender of the child, as we show in Table A.10 in the 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 largely insignificant (except that boys are less patient and older children take less risk). Regarding personality traits, we note that agreeableness and openness are related to social preferences. Children's full-scale IQ is related to economic

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

[24] Based on the means and standard deviations of all six preferences (time, risk, and social preferences) and given the sample size (see Table 4), our experimental data is able to detect a 0.1 standard deviation size effect with more than 0.8 power.

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, this negative relationship is recurrent within families in our sample from a poor country (see Section 6 for a discussion of this finding).

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.[25] Interestingly, the per-capita income of households does not have any significant relationship with single economic preferences of children, and also parents' education (years of schooling) is insignificant.[26]

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. (2021) 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. (2021) do not 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. (2021), showing that it makes a difference whether one can control for parental preferences or not to see whether and how socio-economic status of parents is linked to single economic preferences of children.[27] In the following section we examine why parents' and children's

[25] While we do not look specifically at single children (who have no siblings), 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).

[26] Household income is not significantly related to parents' preferences. In additional regressions we can show that an interaction term of household income with parental preferences is always insignificant (for both parents and for all six preferences considered in Table 7). Interaction of parental preferences with parents' years of schooling is only once (out of twelve cases) significant at the 10%-level, and insignificant in all other cases.

[27] 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

economic preferences might be related to each other. In other words, we look into possible transmission channels.

4 Channels of intergenerational transmission

In this section, we look at several factors that one might subsume under the notion of environmental factors. 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. Second, 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. Third, we control for an indirect influence of parents working through older siblings. As a robustness check, we finally analyze whether our results are robust to controlling for peer effects within one's village.

Parenting styles. The questions to assess the parenting style were taken from the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam; Wendt et. al., 2011).[28] There are 18 items in the questionnaire (see the end of Appendix C) that can be used to score a family on each of six different parenting styles: Emotional warmth, monitoring, inconsistent parenting, negative communication, psychological control, and strict control.[29] We then used a principal components analysis (PCA) to classify households with respect to the extent of a positive and negative parenting style. We use the PCA-index for both styles as explanatory variables in Table 8 (that is based on Table 7, but adds parenting styles as controls).[30] We see that neither positive nor negative parenting is significantly related to children's preferences, nor are they jointly significant (as can be seen in the last row of Table 8). While it seems that parenting styles are unimportant for the economic preferences of children, their inclusion in

in the Appendix, our reported *p*-values and Romano-Wolf *p*-values are very similar in all cases to those reported in Table 7. In the Appendix, we show in Tables A.18 to A.20 that also the ensuing analyses in Tables 8 to 10 of the main paper are robust to multiple hypothesis testing.

[28] Parenting styles were surveyed after the experiments, and we obtained data for 459 out of our full sample of 544 households.

[29] Due to a translation error we had to drop the questions related to inconsistent parenting.

[30] In additional regressions we can show that using standardized values of the different styles (emotional warmth, monitoring, negative communication, psychological control, and strict control) separately also yields insignificant results for parenting styles (both for individual styles and for their joint significance). It is also the case that parenting styles are unrelated to parents' economic preferences (see Table A.21 in the Appendix).

Table 8 leaves the coefficients and their significance for parents' preferences (first two rows of Table 8) largely unaffected.

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 divergent 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

Controlling for peer preferences. As a final aspect of a child's environment, we check whether the correlations between parents' and children's preferences remain robust when controlling for the potential influence of peers within villages. Since most of our families'

social life takes place within their villages[31], it is natural to assume that preferences of surrounding villagers might play an important role and thus influence the transmission of preferences within families. 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).[32] 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 peer effects within villages, the positive association observed between children's and their parents' preferences still remains significant. For mothers there is hardly any change (compare Table 11 to Table 7), while for fathers we see only three (partly weakly) significant relations.

Table 11 about here

In sum, this section has shown that looking at possible transmission factors by considering parents (with respect to parenting style and assortativity of preferences) and siblings has revealed a persistent relationship between parents' economic preferences and their children's preferences. This robustness might hint at a significant role of genetics for this intergenerational transmission of economic preferences. Unfortunately, we do not have any genetic data to analyze, but in Appendix B we provide an econometric exercise that discusses what our data might imply with respect to the genetic transmission of preferences. There we show that our data are not consistent with a story of pure genetic transmission.

[31] 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).

[32] While most of our dependent variables are binary, the village average is continuous (for example, which proportion of villagers shows egalitarian preferences). The actual number of villages in our final sample is 122.

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

In the previous sections we have looked at each measure of economic preferences separately. In the following, we, first, study the relationships of different economic preferences *within individuals*. Previous work that has linked theoretically two (out of our three) different preference domains each (e.g., Halevy, 2013; Saito, 2013; Epper and Fehr-Duda, 2018; Kölle and Wenner, 2021) suggests that we can expect significant relationships across all domains studied here, and also for fathers, mothers, and children. However, this has not been investigated so far. Second, 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.

5.1 Correlations across preference domains

We start with Table 12 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 recipient's payoffs in the four social preference tasks) 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 12) 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.

Table 12 about here

Overall, Table 12 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.

5.2 Identifying family clusters

Albeit rarely used in economics, cluster analysis 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*[33] 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 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[34] (Rousseeuw, 1987) or the

[33] 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.

[34] 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.

Calinski-Harabasz statistic (Calinski and Harabasz, 1974) are minimized. Both criteria yield two as the optimal number of clusters (see Figures A.1 and A.2 in the Appendix).[35] 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., 2019) 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 missing values, 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 Tables 13 and 14 we use this approach, which is suitable also to deal with our missing values for half of the children with respect to risk preferences.[36] In the Appendix (Table A.22) we show, however, that dropping all subjects with missing values yields practically the same types of clusters and insights.

Table 13 about here

Table 13 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 significantly more patient, more risk taking, less often spiteful, and more often

[35] 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.

[36] 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.

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 12). 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 the 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 14 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 14 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 members).

Table 14 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.[37] 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 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 mainly based on evidence from rich and highly developed countries (like Germany, for example, see Falk et al., 2021). This seeming inconsistency raises the more general question of how our data from a poor and developing country relate to prior evidence from rich countries. While the breadth of this question in itself – comparing economic preferences between low-income and high-income countries – transgresses the scope of this paper, we would like to offer a brief discussion of the major differences between our data patterns and those from rich countries. The following section is therefore intended to broaden the lens from this paper's main focus on how preferences are transmitted and clustered within families to a wider perspective of how data patterns on economic preferences might differ between developing and developed countries. After this ensuing discussion we will conclude the paper.

6 Discussion of key differences of our data in comparison to evidence from rich, developed countries

Recall from Tables 6 and 7 that we had found a negative correlation between IQ and patience. At first sight, this finding is at odds with plenty of evidence from rich countries (e.g., Mischel and Metzner, 1962, Falk et al., 2021). Yet, there is hardly any research available on how IQ and patience are related to each other in developing countries, which leaves it open whether the patterns found in high-income countries apply also to low-income countries. In fact, one might observe a transition during economic development in the following sense: it seems plausible that a higher IQ goes hand in hand with higher patience in developed and rich economies, because patience pays off in general in such a stable environment (Moffitt et al.,

[37] This is consistent with our finding in Appendix B on genetics that more educated children are more spiteful, and spiteful mothers (but not fathers) have a larger than genetically imposed impact on the spitefulness of their children.

2011; Golsteyn et al., 2014). Yet, in developing and particularly in very poor countries, patience might not be a good strategy for survival, but rather subjects might be well-advised to grab what is available at present because there might only be worse options available in the future. A higher IQ might make it all the clearer that this strategy (of grabbing what is available) is a reasonable strategy for survival, which then would go hand in hand with impatience.[38] Such an interpretation can be put to a test as it would suggest to find a positive relationship between IQ and patience in rich countries, a negative relation in very poor countries, and something in between (probably a flat relation) in middle-income countries.

Actually, such a pattern is what we observe in Figure 2. To construct it, we have first applied the World Bank's classification of countries into high-income, middle-income and low-income countries.[39] Then we have accessed the data from the Global Preferences Survey of Falk et al. (2018) and have taken math skills as a proxy for IQ (shown on the horizontal axis) and linked this proxy to patience (on the vertical axis). For high-income countries, we see a clearly (and significantly) positive relationship between IQ and patience, for middle-income countries a flat relationship, and for low-income countries a negative one (albeit insignificant). While this is highly aggregated evidence, our results from Tables 6 and 7 and the evidence in Figure 2 suggest that the prevailing pattern from rich countries on a positive relationship between IQ and patience need not reflect a universal pattern, but that the relationship may depend on the stage of a country's economic development. In the Appendix we present in Figures A.3 and A.4 how IQ (again proxied by math skills) is related to risk preferences and social preferences (both as measured in the Global Preference Survey by Falk et al., 2018) and how this relationship looks like in high-income, middle-income, and low-income countries. For risk and social preferences, we see less of a difference across countries with different income levels, and – contrary to our findings for patience – our data patterns for risk and social preferences do not look different from what can be found in rich countries.

Figure 2 about here

Another noteworthy, and at first sight surprising, finding of our paper is the negative influence of mothers' education on the likelihood of a family to be in the cluster with more patient, more risk tolerant and less spiteful members. In Figure 3, we use again the World

[38] Note that independent of IQ, poverty has been found to make subjects more present-biased (Carvalho et al., 2016).

[39] See https://datahelpdesk.worldbank.org/knowledgebase/articles/906519 (accessed on 1 June 2021).

Bank's classification of high-income, middle-income, and low-income countries and then show for the different sets of countries the relation between the level of patience (taken from the Global Preference Survey of Falk et al., 2018) and the average years of schooling in a particular country (taken from the United Nations Development Program; see http://hdr.undp.org/en/indicators/103006). For high-income countries, we see a clearly positive relationship: the average level of patience increases with the length of schooling. This relationship lets our result on a negative influence of (mothers') education on being in the cluster with higher patience appear to be surprising. However, for middle-income and low-income countries, we do not see a positive relationship in the aggregate. In fact, for Bangladesh there is a negative correlation ($r = -0.021$; $p = 0.19$) between years of schooling and patience if we look at the individual country level.

Figure 3 about here

More generally, evidence by Morrisset and Revoredo (1999) and Hua and Erreygers (2019) suggests that in developing countries, there can be a negative relation between education and savings in the short- and medium-run. Adding to this the observation that patience and savings are typically positively related (Falk et al., 2018), our finding that mother's education is positively related to the cluster with more impatient family members is compatible with these patterns from the literature. In Figures A.5 and A.6 in the Appendix we present the analogous data to those in Figure 3, but there for risk and social preferences. For risk, there is hardly any noticeable difference across countries with different income levels,[40] but for social preferences we note a negative (although insignificant) relation to education for low-income countries, which is compatible with our cluster analysis results. So, overall Figure 3 and Figures A.5 and A.6 in the Appendix show that the income level of countries matters for how schooling is related to economic preferences, yet the relation is not universal across all sets of countries, which we consider an important insight.

In addition to the data patterns on the relationship of economic preferences to IQ or education, there are also a few noteworthy aspects of how age is related to economic preferences. For example, the evidence from Fehr et al. (2008, 2013) from Switzerland and Austria shows a clearly declining fraction of spiteful subjects with increasing age (from the age

[40] For example, Vieider et al. (2018) do not find a significant relation between education and subjects' risk taking in poor Ethiopia. For Germany, however, higher education seems to be related to more risk tolerance (Falk et al., 2021).

of three to early adulthood). In our sample, the relation between spitefulness and age of children tends to be positive (for children up to 10 years, the fraction is at most 17% in each yearly cohort, but for children above age 10 the fraction ranges from 18% to 32% in yearly cohorts). Similarly, in our sample we find that parents are, on average, less patient than children. In rich countries we usually see an increase in patience with increasing age (see Sutter et al., 2019). In Bangladesh, this is not the case, and this might be driven by the developing country context discussed at the beginning of this discussion section and by strong improvements in education between the generations of parents and their children.

In sum, this section was intended to discuss briefly the most salient differences in our data patterns when comparing them to evidence from rich, developed countries. The main take-away from this discussion is that one should exert caution in applying evidence from rich, developed countries to poor, developing countries, and vice versa. Rather, we believe that we need to learn more about whether so-called well-established relationships (like between IQ and patience, for example) are really universal, or perhaps just confined to W.E.I.R.D. (western, educated, industrial, rich, and democratic) countries, in which only a minority of the World's population live. Collecting more evidence in the future will then also help us better understand the channels for the intergenerational transmission of economic preferences and how they might depend on the economic development of countries.

7 Conclusions

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., 2021). 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; Kosse and Tincani, 2020). 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 families (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 in an incentivized way 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 (incentivized) 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., 2021), because we reveal a few notable data patterns that deviate from the evidence from rich countries.

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. 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 (except for spitefulness where mothers are more important), 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 husbands 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. (2021) 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 to 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, risk averse, and have spiteful social preferences. Analyzing the likelihood with which a particular family and its members belong to 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., 2021, 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).

Importantly, some of our results look different from well-known patterns from rich countries. For instance, we have seen a negative relationship between IQ and patience or a negative influence of (mothers') education on being assigned to the cluster with more patient, more risk tolerant and more prosocial family members. In our discussion section, we have provided evidence that these relationships – while unusual for high-income countries – are not at all uncommon in low-income countries (like Bangladesh in our case). These insights may serve as a note of caution when data from richer countries on economic preferences and their interrelationship to cognitive skills or socio-demographic background data were to be used to draw policy conclusions for poorer countries. Rather, it seems important to extend our

knowledge of how economic preferences are formed and related to each other in poor countries, as better knowledge may ultimately help identifying children and families 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: Summary 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 1 star for other child	1 star for me 0 star for other child	(1,1) vs. (1,0)
Envy game	1 star for me 1 star for other child	1 star for me 2 stars for other child	(1,1) vs. (1,2)
Sharing game	1 star for me 1 star for other child	2 star for me 0 stars for other child	(1,1) vs. (2,0)
Efficiency game	1 star for me 1 star for other child	2 stars for me 3 stars for other child	(1,1) vs. (2,3)

Table 3: Classification of subjects into four social preference types based on the games 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
Number of 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
Number of Observations	911		458		453		911

Std. dev.: standard deviation

[#] relative frequencies of particular social preference types (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. Additional covariates controlled for in all specifications, but not reported in the table, are: 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. Additional covariates controlled for in all specifications, but not reported in the table, are: 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

Additional covariates controlled for in all specifications, but not reported in the table, are: 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	0.035***	0.071	0.069	0.091**	0.104**	0.119***
	(0.012)	(0.052)	(0.044)	(0.037)	(0.050)	(0.043)
Parent's preference - mother	0.044***	0.102*	0.427***	0.153**	0.106**	0.206***
	(0.012)	(0.056)	(0.053)	(0.060)	(0.048)	(0.041)
Negative parenting	-0.074	-0.030	0.004	0.002	0.006	0.000
	(0.057)	(0.059)	(0.009)	(0.009)	(0.006)	(0.013)
Positive parenting	-0.010	0.108	-0.001	0.001	0.009	-0.011
	(0.075)	(0.086)	(0.013)	(0.012)	(0.007)	(0.017)
Gender (Male 1, Female 0)	-0.305**	0.106	0.015	0.026	0.004	0.007
	(0.152)	(0.162)	(0.026)	(0.025)	(0.017)	(0.035)
Age of respondent	0.079	-0.098*	-0.006	-0.003	0.005	0.011
	(0.064)	(0.059)	(0.010)	(0.010)	(0.005)	(0.013)
Years of schooling	-0.136**	0.077	0.022**	0.001	-0.004	-0.010
	(0.059)	(0.061)	(0.010)	(0.010)	(0.006)	(0.013)
Attending school (=1)	-0.083	0.098	0.053	0.044	0.005	-0.114
	(0.289)	(0.392)	(0.044)	(0.046)	(0.030)	(0.071)
Father's years of schooling	-0.000	-0.050*	-0.008*	-0.004	0.001	-0.000
	(0.026)	(0.027)	(0.004)	(0.004)	(0.003)	(0.006)
Mother's years of schooling	0.032	0.017	0.006	0.003	-0.002	0.005
	(0.031)	(0.032)	(0.005)	(0.005)	(0.003)	(0.007)
Household size	0.001	0.118	0.002	-0.032**	-0.015*	0.075***
	(0.092)	(0.102)	(0.013)	(0.015)	(0.008)	(0.019)
Per cap income/month x 10^{-4}	0.063	-0.076	0.000	0.006	0.003	-0.005
	(0.043)	(0.057)	(0.007)	(0.009)	(0.004)	(0.011)
Full Scale IQ measure of child	-0.371***	-0.103	0.015	0.052**	-0.020	-0.055*
	(0.116)	(0.130)	(0.021)	(0.021)	(0.013)	(0.030)
Conscientiousness	-0.030	0.108	0.005	0.006	0.007	0.003
	(0.087)	(0.078)	(0.014)	(0.014)	(0.010)	(0.019)
Extraversion	-0.270***	-0.057	-0.026**	0.022	0.011	-0.018
	(0.077)	(0.083)	(0.013)	(0.013)	(0.008)	(0.018)
Agreeableness	-0.137	-0.032	-0.016	0.023*	-0.003	-0.019
	(0.083)	(0.086)	(0.014)	(0.014)	(0.009)	(0.018)
Openness	0.155**	0.071	0.025*	-0.025*	0.008	0.018
	(0.077)	(0.087)	(0.013)	(0.013)	(0.008)	(0.019)
Neuroticism	0.068	-0.015	0.015	-0.015	-0.002	0.033*
	(0.075)	(0.081)	(0.013)	(0.012)	(0.009)	(0.018)
Locus of control	0.045	-0.005	-0.046***	0.009	-0.000	0.040**
	(0.079)	(0.085)	(0.016)	(0.014)	(0.008)	(0.020)
Observations	779	390	776	776	776	776
R^2/ Pseudo-R^2	0.153	0.084	0.383	0.084	0.078	0.124
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes
p-value (F-test) Father=Mother	0.591	0.701	0.000	0.395	0.987	0.155
p-value for F-test: joint significance of parents preferences	0.000	0.051	0.000	0.001	0.000	0.000

p-value for F-test: joint significance of parenting style	0.422	0.404	0.920	0.962	0.292	0.826

Additional covariates controlled for in all specifications, but not reported in the table, are: 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 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	0.042**	0.022	-0.066	0.076**	0.008	0.100*
	(0.018)	(0.064)	(0.044)	(0.036)	(0.033)	(0.051)
Mother‘s preference	0.052***	0.066	0.517***	0.061	0.072	0.133***
	(0.020)	(0.068)	(0.089)	(0.052)	(0.058)	(0.045)
Father’s preference ×	-0.027	0.061	0.262**	-0.046	0.112	-0.001
parents homogeneity	(0.048)	(0.156)	(0.119)	(0.068)	(0.093)	(0.079)
Mother’s preference ×	0.013	0.075	-0.114***	0.104	0.060	-0.044
parents homogeneity	(0.048)	(0.169)	(0.031)	(0.127)	(0.081)	(0.068)
Parents homogeneity	0.173	-0.692	0.008	0.019	-0.016	-0.097**
(1=homogeneous)	(0.325)	(0.554)	(0.049)	(0.038)	(0.016)	(0.047)
Observations	906	456	895	896	902	896
(Pseudo) R-squared	0.136	0.060	0.392	0.071	0.082	0.155
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes
p-value: Father=Mother	0.613	0.557	0.000	0.785	0.331	0.621
p-value (F-test): joint significance of parents preferences	0.016	0.626	0.000	0.046	0.241	0.001
p-value (F-test): father’s preference + father × parents homogeneous	0.735	0.574	0.007	0.822	0.006	0.127
p-value (F-test): mother’s preference + mother × parents homogeneous	0.144	0.355	0.000	0.0782	0.003	0.162

Additional covariates controlled for in all specifications, but not reported above, are: gender, age, years of schooling, an indicator for currently attending school or not, Full-scale IQ, Big-5 personality traits, locus of control, number of younger and older siblings, age and education of father and mother, household size, per capita income, 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 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	0.000	0.924	0.289	0.885
p-value for F-test: joint significance of parents' preferences	0.001	0.009	0.000	0.341	0.011	0.018

Additional covariates controlled for in all specifications, but not reported above, are: 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	0.088	0.085	0.159
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes
p-value for F-test: Husband=Wife	0.567	0.650	0.009	0.560	0.322	0.453
p-value for F-test: joint significance of parents' preferences	0.000	0.031	0.000	0.014	0.001	0.001

Additional covariates controlled for in all specifications, but not reported here, are: 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: 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 13: Summary of characteristics represented in two clusters resulting from partitioning around medoids (2-Medoids) - Aggregating offspring at the household level

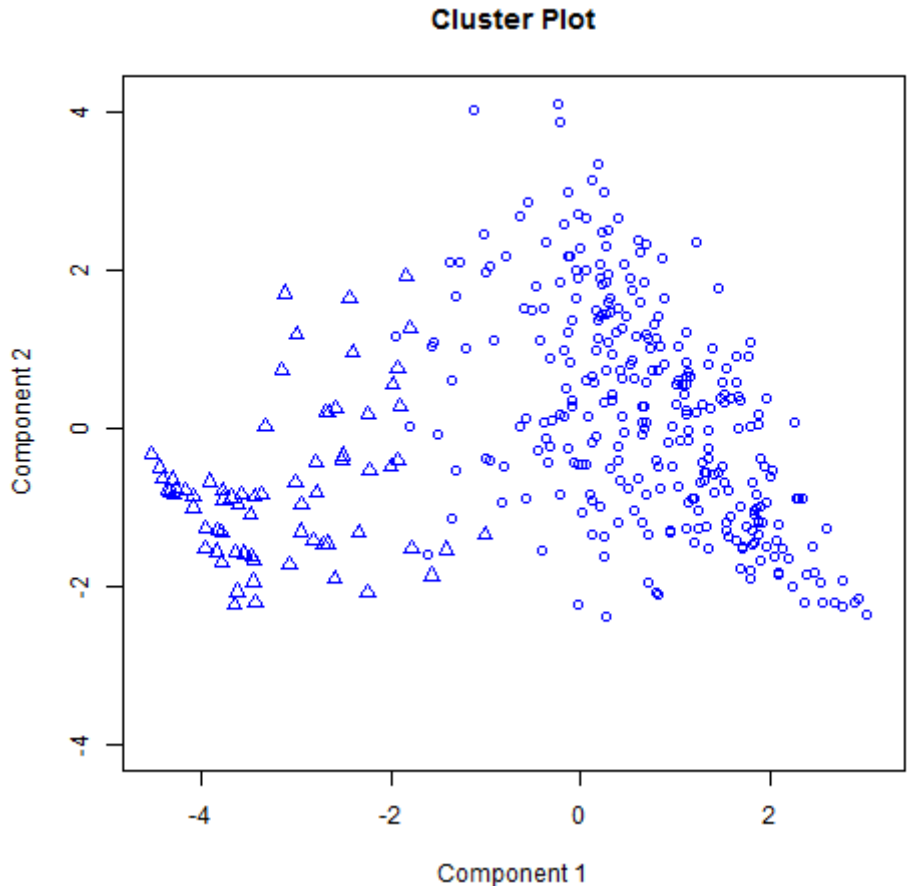
	Cluster 1	Cluster 2	Difference	*p*-value
Number of patient choices children	2.92	2.47	0.45	0.03
Number of patient choices father	7.75	2.41	5.35	0.00
Number of patient choices mother	9.21	2.36	6.85	0.00
Gamble number picked children	3.94	3.64	0.30	0.12
Gamble number picked father	4.12	3.31	0.81	0.00
Gamble 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 14: 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	

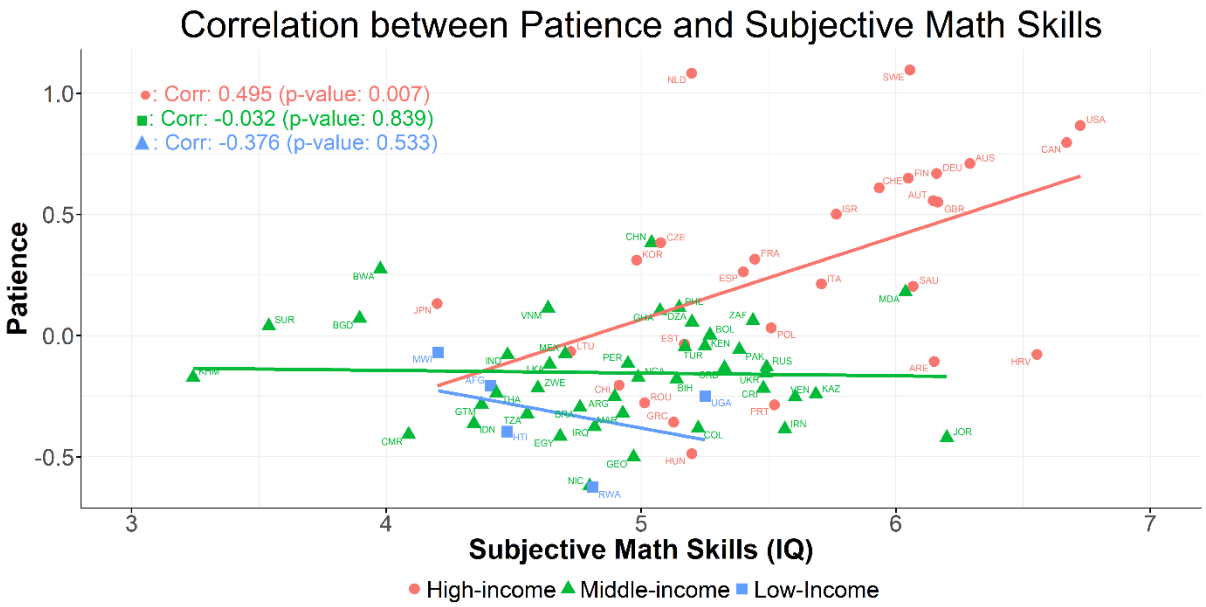
Pseudo $R^2 = 0.065$
Log likelihood = -263.59
*** p<0.01, ** p<0.05, * p<0.1

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



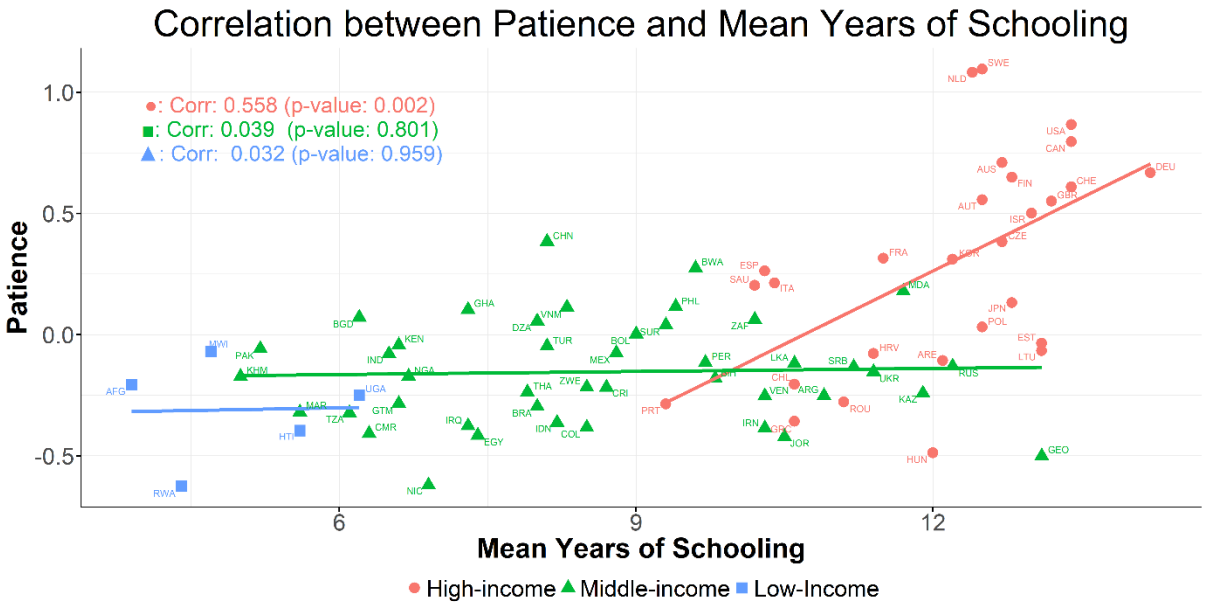
Circles indicate families that are assigned to Cluster 1, triangles represent families assigned to Cluster 2. Component 1 on the horizontal axis can be interpreted as a factor capturing spitefulness, risk and time preferences. Negative values represent more spiteful, risk averse and impatient families, 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.

Figure 2: Relationship between IQ and patience, conditional on income level of country



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 (both taken from the Global Preference Survey; Falk et al., 2018). The income classification is taken from the World Bank (see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

Figure 3: Relationship between years of schooling and patience, conditional on income level of country



We show on the vertical axis the average level of patience in a particular country (from the Global Preference Survey; Falk et al., 2018) and on the horizontal axis the mean years of schooling (from the United Nations Development Program; http://hdr.undp.org/en/indicators/103006). The income classification is taken from the World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

Appendix to

Economic preferences across generations and family clusters: A large-scale experiment in a developing country

Shyamal Chowdhury, Matthias Sutter and Klaus F. Zimmermann

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

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	3.607	3.154	3.426	3.007	0.453	0.600**	0.147	0.418
father	[0.246]	[0.299]	[0.190]	[0.173]				
Schooling	3.359	3.120	3.257	3.132	0.239	0.227	-0.013	0.125
mother	[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	0.147	0.130	0.140	0.149	0.017	-0.002	-0.019	-0.009
in household	[0.022]	[0.024]	[0.016]	[0.015]				
Per capita	2511.7	1661.2	2154.4	1638.5	850.5***	873.2***	22.7	515.9***
Income/month	[187.1]	[139.3]	[124.2]	[95.6]				
Village	1662.9	1764.7	1705.6	1752.6	-101.7	-89.7	12.0	-47.0
population	[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/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	0.045
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 C 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

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	0.004	0.519	0.702	0.719
p-value for F-test: joint significance of parents preferences.	0.000	0.232	0	0.006	0.203	0.010

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	0.000	0.000	0.000	0.000	0.000	0.000

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	0.021	0.01	0.013	0.013	0.019	0.008

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 preferences.	0.000	0.000	0.000	0.000	0.000	0.000

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	0.081	0.075	0.022	0.06	0.068	0.033
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 preferences.	0.005	0.006	0.003	0.003	0.005	0.005

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	0.084	0.062	0.026	0.038	0.046	0.039
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 preferences.	0.000	0.001	0.001	0.001	0.001	0.001

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	0.057	0.081	0.102	0.084
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 preferences.	0.000	0.000	0.000	0.000	0.000	0.000

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 preferences.	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 table shows the standard errors in parentheses and then the p-values displayed in Table 7 and the Romano-Wolf p-values that account for multiple hypothesis testing. As one can see, these p-values are very similar to the ones shown in Table 7.

Table A.18: Multiple hypothesis testing (Romano-Wolf) – Using the specification of Table 8

	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***	0.071	0.069	0.091**	0.104**	0.119***
	(0.012)	(0.052)	(0.044)	(0.037)	(0.050)	(0.043)
Usual p-value	0.002	0.143	0.101	0.006	0.006	0.002
Romano-Wolf p-value	0.002	0.182	0.104	0.012	0.004	0.008
Parent‘s preference – mother	0.044***	0.102*	0.427***	0.153**	0.106**	0.206***
	(0.012)	(0.056)	(0.053)	(0.060)	(0.048)	(0.041)
Usual p-value	0.000	0.043	0.000	0.002	0.007	0.000
Romano-Wolf p-value	0.001	0.075	0.000	0.004	0.004	0.000
Observations	779	390	776	776	776	776
R^2/ Pseudo-R^2	0.153	0.084	0.383	0.0842	0.0777	0.124
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes
p-value for F-test: Father=Mother	0.591	0.701	0.000	0.395	0.987	0.155
p-value for F-test: joint significance of parents preferences.	0.000	0.051	0.000	0.001	0.000	0.000
p-value for F-test: joint significance of parenting style	0.422	0.404	0.920	0.962	0.292	0.826

The table only shows the estimated coefficients for father’s and mother’s preference, but hides all other independent variables included in Table 8 in the main paper. Below the estimated coefficients, the table shows the standard errors in parentheses and then the p-values displayed in Table 8 and the Romano-Wolf p-values that account for multiple hypothesis testing. As one can see, these p-values are very similar to the ones shown in Table 8.

Table A.19: Multiple hypothesis testing (Romano-Wolf) – Using the specification of Table 9

	Number of patient choices	Gamble number picked	Spiteful (0/1)	Egalitarian (0/1)	Altruistic (0/1)	Selfish (0/1)
Parent‘s preference - father	0.044**	0.029	-0.066	0.081**	0.009	0.104**
	(0.018)	(0.064)	(0.044)	(0.037)	(0.034)	(0.051)
Usual p-value	0.000	0.135	0.154	0.019	0.035	0.018
Romano-Wolf p-value	0.001	0.163	0.155	0.023	0.053	0.031
Parent‘s preference – mother	0.050**	0.072	0.515***	0.060	0.072	0.133***
	(0.020)	(0.068)	(0.088)	(0.052)	(0.058)	(0.045)
Usual p-value	0.000	0.019	0.000	0.018	0.003	0.000
Romano-Wolf p-value	0.000	0.032	0.000	0.025	0.001	0.001
Father’s preference x parents homogeneity	-0.028	0.069	0.267**	-0.048	0.109	0.000
	(0.048)	(0.154)	(0.120)	(0.066)	(0.092)	(0.078)
Mother’s preference x parents homogeneity	0.012	0.059	-0.113***	0.114	0.062	-0.051
	(0.048)	(0.169)	(0.031)	(0.129)	(0.081)	(0.067)
Parents homogeneity (1 if homogeneous, 0 otherwise)	0.159	-0.666	0.006	0.018	-0.016	-0.091*
	(0.324)	(0.561)	(0.048)	(0.038)	(0.016)	(0.047)
Observations	906	456	895	896	902	896
R^2/ Pseudo-R^2	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 for F-test: Father=Mother	0.716	0.580	0.000	0.707	0.338	0.651
p-value for F-test: joint significance of parents prefs	0.016	0.569	0.000	0.035	0.241	0.001
p-value for F-test: father’s pref + father with homo pref	0.722	0.502	0.006	0.792	0.00624	0.108
p-value for F-test: mother’s pref + mother with homo pref	0.155	0.394	0.000	0.067	0.003	0.200

The table only shows the estimated coefficients for father’s and mother’s preference, but hides all other independent variables included in Table 9 in the main paper. Below the estimated coefficients, the table shows the standard errors in parentheses and then the p-values displayed in Table 9 and the Romano-Wolf p-values that account for multiple hypothesis testing. As one can see, these p-values are very similar to the ones shown in Table 9.

Table A.20: Multiple hypothesis testing (Romano-Wolf) – Using the specification of Table 10

	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)
Usual p-value	0.267	0.116	0.171	0.022	0.052	0.018
Romano-Wolf p-value	0.845	0.130	0.175	0.027	0.065	0.032
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)
Usual p-value	0.002	0.005	0.000	0.013	0.004	0.000
Romano-Wolf p-value	0.000	0.037	0.000	0.023	0.003	0.001
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)
Observations	363	90	338	359	359	359
R^2/ Pseudo-R^2	0.229	0.414	0.45	0.14	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	0.000	0.924	0.289	0.885
p-value for F-test: joint significance of parents' preferences	0.001	0.009	0.000	0.341	0.0107	0.018

The table only shows the estimated coefficients for father's and mother's preference, but hides all other independent variables included in Table 10 in the main paper. Below the estimated coefficients, the table shows the standard errors in parentheses and then the p-values displayed in Table 10 and the Romano-Wolf p-values that account for multiple hypothesis testing. As one can see, these p-values are very similar to the ones shown in Table 10.

Table A.21: Relation of parenting styles to parents' preferences

VARIABLES	Negative Parenting (PCA)	Positive Parenting (PCA)	Negative Parenting (PCA)	Positive Parenting (PCA)
Patient Choices - Father	-0.001	-0.015*	-0.002	-0.014*
	(0.011)	(0.008)	(0.011)	(0.008)
Patient Choices - Mother	0.016	-0.017*	0.013	-0.017**
	(0.011)	(0.009)	(0.011)	(0.009)
Risk preference - Father	-0.041	0.012	-0.054	0.003
	(0.041)	(0.033)	(0.040)	(0.034)
Risk preference - Mother	0.023	-0.004	0.026	-0.005
	(0.041)	(0.031)	(0.040)	(0.031)
Spiteful - Father	-0.214	-0.258	-0.213	-0.317
	(0.267)	(0.196)	(0.270)	(0.201)
Spiteful - Mother	-0.200	0.041	-0.213	-0.006
	(0.281)	(0.194)	(0.278)	(0.190)
Egalitarian - Father	0.113	0.072	0.078	-0.008
	(0.234)	(0.165)	(0.231)	(0.168)
Egalitarian - Mother	-0.157	-0.322	-0.166	-0.355*
	(0.298)	(0.198)	(0.299)	(0.202)
Altruistic - Father	-0.378	-0.308	-0.495*	-0.373
	(0.266)	(0.234)	(0.280)	(0.236)
Altruistic - Mother	-0.211	-0.126	-0.260	-0.139
	(0.262)	(0.218)	(0.259)	(0.209)
Selfish - Father	0.060	-0.163	0.042	-0.176
	(0.202)	(0.144)	(0.200)	(0.146)
Selfish - Mother	-0.109	-0.009	-0.081	-0.022
	(0.169)	(0.143)	(0.169)	(0.144)
Father‘s age in years			-0.004	-0.014
			(0.018)	(0.010)
Mother‘s age in years			-0.024	0.006
			(0.024)	(0.014)
Years of Schooling - Father			0.022	0.008
			(0.021)	(0.017)
Years of Schooling - Mother			-0.027	0.020
			(0.026)	(0.020)
Household size			0.154***	-0.032
			(0.054)	(0.039)
Per capita income per month in 2016 in thousands			0.053	0.041
			(0.033)	(0.028)
Grand parents are present			0.053	0.025
			(0.218)	(0.161)
Observations	783	783	783	783
R-squared	0.029	0.039	0.064	0.064
District Fixed Effects are included?	Yes	Yes	Yes	Yes
p-value for F-test: joint significance of parents preferences.	0.302	0.180	0.290	0.224

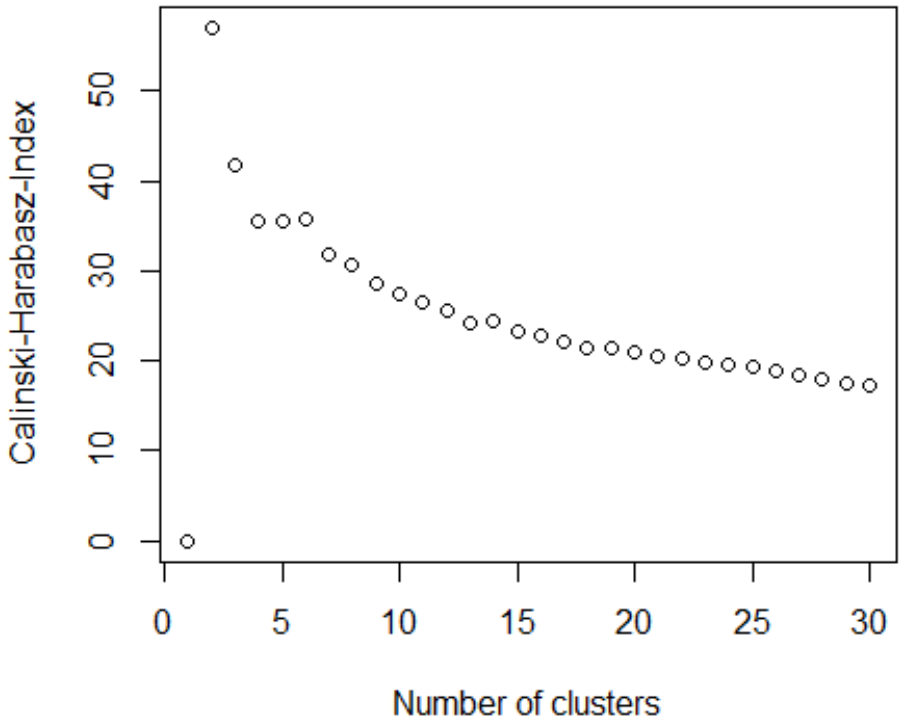
Standard errors in parentheses are clustered at household level. *** p<0.01, ** p<0.05, * p<0.1

Table A.22: Cluster characteristics when dropping all subjects with missing data from 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		

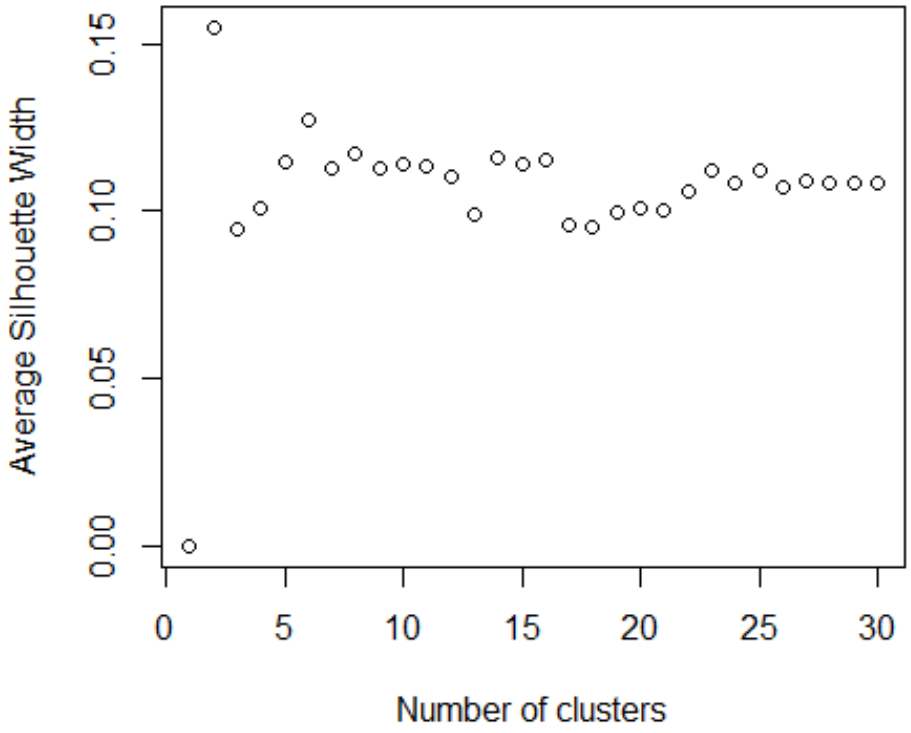
In this table we account for the fact that we elicited risk preferences for only half of the children. Note that it happened that in households with two children one child was asked about risk preferences, but the other not. In such cases we simply drop the other child (that had no risk elicitation) 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: The Calinski-Harabasz-Index for Different Numbers of Clusters, Aggregating Offspring at the Household Level



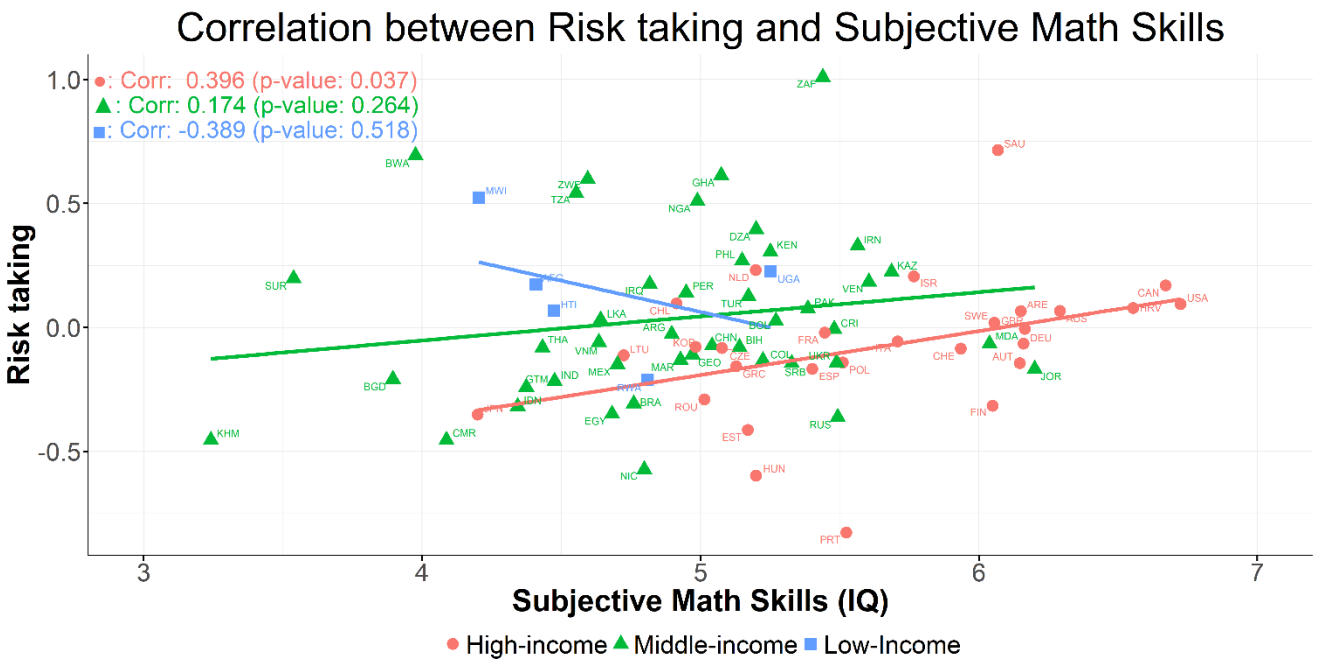
The optimal number of clusters is two according to this index.

Figure A.2: The Average Silhouette Width for Different Numbers of Clusters, Aggregating Offspring at the Household Level



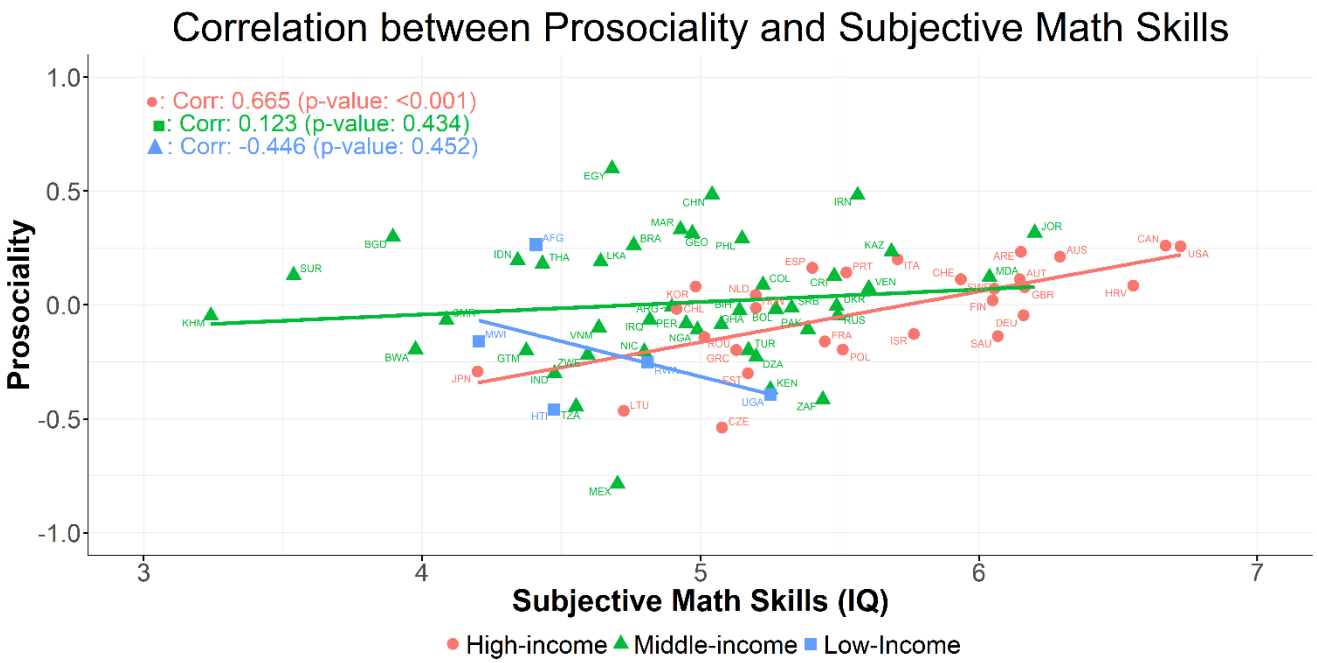
The optimal number of clusters is two according to the average silhouette width.

FigureA.3: Relationship between IQ and risk preferences, conditional on income level of country



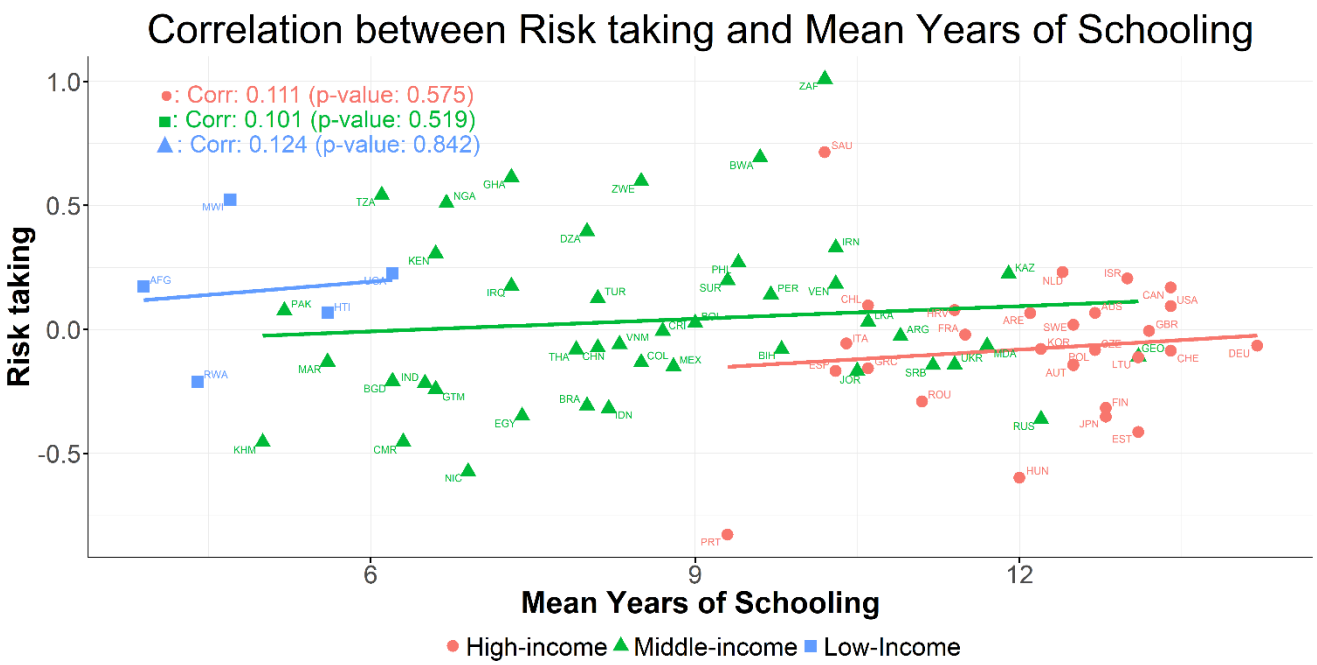
We show on the vertical axis the average level of risk preferences in a particular country and on the horizontal axis the average level of math skills as a proxy for IQ (both taken from the Global Preference Survey; Falk et al., 2018). The income classification is taken from the World Bank (see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

FigureA.4: Relationship between IQ and social preferences, conditional on income level of country



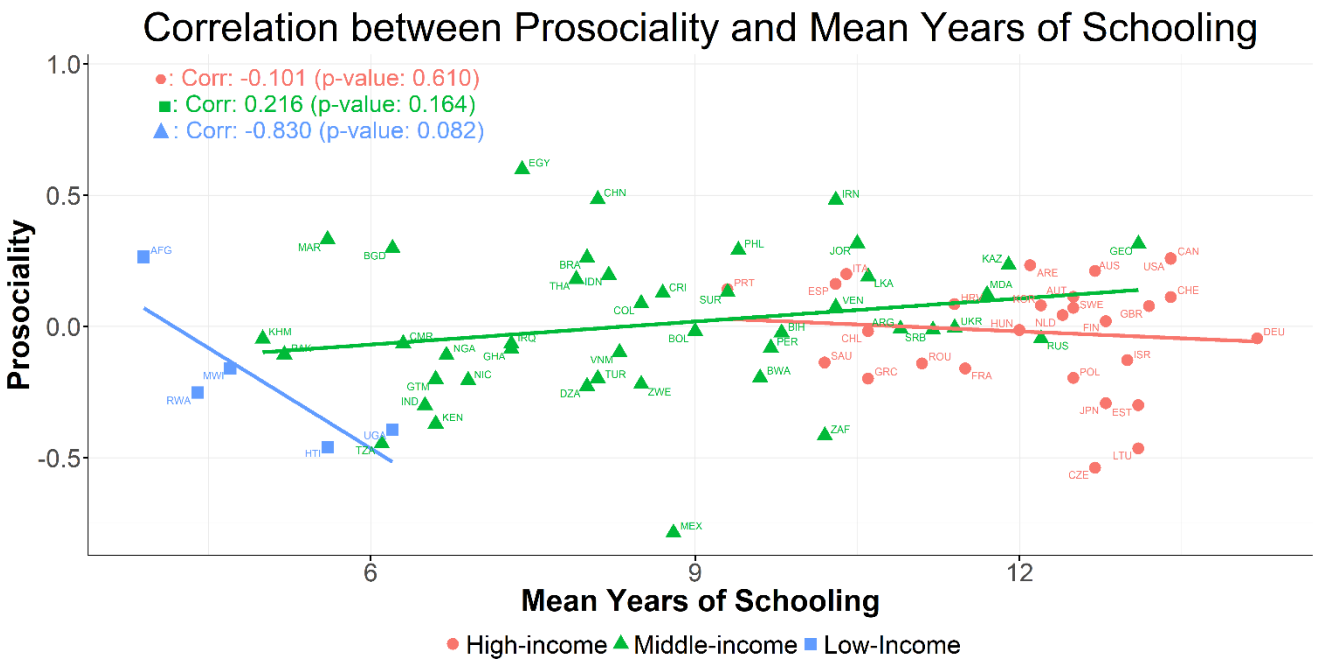
We show on the vertical axis the average level of social preferences in a particular country and on the horizontal axis the average level of math skills as a proxy for IQ (both taken from the Global Preference Survey; Falk et al., 2018). The income classification is taken from the World Bank (see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

FigureA.5: Relationship between years of education (as mean years of schooling within a country) and risk preferences, conditional on income level of country



We show on the vertical axis the average level of risk preferences in a particular country (from the Global Preference Survey; Falk et al., 2018) and on the horizontal axis the mean years of schooling (from the United Nations Development Program; http://hdr.undp.org/en/indicators/103006). The income classification is taken from the World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

FigureA.6: Relationship between years of education (as mean years of schooling within a country) and social preferences, conditional on income level of country



We show on the vertical axis the average level of social preferences in a particular country (from the Global Preference Survey; Falk et al., 2018) and on the horizontal axis the mean years of schooling (from the United Nations Development Program; http://hdr.undp.org/en/indicators/103006). The income classification is taken from the World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519).

B. Relation of our data to the literature on genetics transmission

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 the main paper 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[1] 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.[2] However, while heritability as measured in twin studies (comparing dizygotic to monozygotic twins) provides a yardstick as potential, it does not imply that the traits are necessarily inherited. Correlations between siblings and those based on parent-offspring data (like in our study) have to be smaller. This has to be taken into account when we search in this section of the appendix for a yardstick to put our preference transmission parameters in perspective.

Insights on the size of potential genetic inheritance of economic preferences are provided by specific studies using monozygotic and dizygotic twins, typically from developed countries, to disentangle the influences of genetic and environmental factors. This literature employs a variance component analysis (ACE or ACDE modelling) to estimate a heritability coefficient that measures the degree to which genetics contributes to the total variation of the studied phenotype (see, for instance, Bouchard and McGue, 2003; Javaras et al., 2010; Lazzeroni and Ray, 2013; Chen et al., 2019; Jöreskog, 2021; with this literature going back to Fisher, 1919). The decomposition separates the additive genetic component (A) from the dominance component (D), the shared environment (C), and unique

[1] 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". And Bouchard and McGue (2003, p. 4) "conclude that there is now strong evidence that virtually all individual psychological differences, when reliably measured, are moderately to substantially heritable." Sibly and Curnow (2011, p. 167) argue that "altruism and selfishness are 30–50% heritable in man in both Western and non-Western populations." Their article shows that "selfishness and altruism can coexist when help is subject to diminishing returns" (p. 167). For conflicting views and findings see footnote 33.

[2] Linnér et al. (2019) discuss for instance the identification challenges behind the genetic factors correlating with general risk taking behavior and the various risk domains. Lazzeroni and Ray (2013, p. 85) review the "missing heritability" findings in comparison to prior heritability estimates and the potential sources. They also raise the issue of "misestimated heritability" in twin studies due to unreliable methods leading to biased estimations and computational problems. Their suggested generalization of models deals with those issues. While twin studies suggest heritability in some degree (see the survey further below in this section of the appendix), Harrati (2014) – who studies risk aversion among older Americans using over 2 million genetic markers per individual – cannot trace single relevant determinants, thus concluding (p. 185): "These results suggest that risk aversion is a complex trait that is highly polygenic." Genetic factors were found negligible for trust (Van Lange et al., 2014).

environmental factors (E). A is the linear addition of independent genes, D captures the nonadditive factors dealing with interactions involving alleles within or between gene loci or dominance, E typically includes also the overall random error term. These components are considered as independent, and hence add to the total variance for phenotype P: var P = var A + var C + var D + var E, with a heritability coefficient H = var A / var P.

We have no twins data, but only information on parents and siblings, so that we can only identify the sum of A, C, and D versus E. In particular we acknowledge that the data do not allow us finding anything new, or specific to the sample, on the decomposition between A and C; the data are not targeted for this type of question. This leaves us to focus on the decomposition between genetic factors on one side, and environment on the other, where we proxy the former as G through parental preferences and the latter as X capturing all kinds of controls shown in Table 7. This implies var P = var G + var X, and H = var G / var P. We seek to measure heritability H for our phenotypes in the analysis below.

Note that the variance component model has an exact mathematical analogue in the standard regression model: $P_i = g_0 + g_G G_i + g_X X_i + e_i$, with var G = g_G^2 var G_i, and var X = g_X^2 var X_i + var e_i. This means that within the limits of our data, we can make our research findings comparable to what has been found in the genetics literature.[3] Our regressions in Table 7 capture G, and X contains direct environmental measures like parental education, household size, income, and region (district) effects, but also other genetic and individual variables of the child (age, schooling, gender and other phenotypes) as controls.

In the following, we first survey relevant research from the relatively small twins literature on economic preferences before we set our research findings into context. While most of the research with twins suggests a strong genetic component, there is a large heterogeneity across studies and for the considered preference type with respect to the phenotype's variance explained by genetic effects.

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) and in Le et al. (2010; 20%; Australia). 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-

[3] There is a flourishing subfield in the twins literature based on DeFries-Fulker regressions (DeFries and Fulker, 1985, Cherny et al., 1992a, 1992b), applied and further developed in studies like Rodgers and Kohler (2005), Le et al. (2010), Lazzeroni and Ray (2013), or O'Keefe and Rodgers (2020). The simplest DeFries-Fulker regression for the ACE approach ignoring the dominant factor D is $K_1 = v_0 + v_1 K_2 + v_2 Tw + v_3 Tw K_2 + u$. K_1 is phenotype K for twin 1 and K_2 for twin 2; Tw is the known genetic relatedness of the twin pair, e.g., 1 for monozygotic and 0.5 for dizygotic twins; and u is a simplified version of environment. v_1 captures common non-genetic twin resemblance and reflects common environmental effects C, while the other coefficients reflect genetics. As has been shown in the above literature, v_3 is a direct and simple estimate of heritability. The economics literature, originating in the direct analysis of preferences, has used other variables to deal with specific context, see for instance Hartog et al. (2002), Bonin et al. (2009) and Le et al. (2010). The recent behavioral genetics literature shows openness to include other factors in the modeling structure depending on genomic relatedness and other data relations, but admits that "the additional identified variance components in modern molecular designs are almost entirely unexplored." (Hunter et al., 2021, p. 7).

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% and 51% at age 12 and 14; USA) studied delay discounting and found that the role of genetics was increasing with age in their 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 that rise with age. Wallace et al. (2007; Sweden; larger than 40%) studied fairness preferences revealing strong genetic effects. Cesarini et al. (2008) 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. Van Lange et al. (2014) found only 5% for trust-in-others for data from the Netherlands Twin Register. 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 large heterogeneity in estimates. Unweighted averages of the reported numbers from the literature result in heritability values of around 36% for risk preferences, 22% for time preferences, 25% for social preferences and 29% for all together as orientation points. Of course, one limitation is that these findings are from a handful developed countries, excluding all other, including developing countries.

We have established in the main paper that the transmission of preferences in our sample from Bangladesh is strong and stable. Given the relevance of genetics as revealed from our literature review here, it is quite natural to ask how our findings compare to this literature. We address this through an econometric exercise where we impose a specific amount of intergenerational transmission 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 an upper benchmark, but they can 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 in the twins literature varies in the interval from 0% to 80%, with a reasonable range of 25% to 50% explained total variance. This implies for the (positive) genetic child-parent preference correlation coefficient a range from 0.5 to 0.707. A correlation of 0.5 with heritability 25% would be roughly in line with the overall results reported above.

Note that a genetic prior or heritability coefficient only reveals something about the potential in the genetic context and with respect to the chosen phenotype. The genetics literature on cognitive abilities using twin data suggests an intergenerational correlation of 50% (see for instance, Bouchard and McGue, 2003, p. 12, and the rich literature cited there). However, intergenerational correlations of cognitive abilities are observed to be larger than correlations of economic preferences. We can also see this in our data. We find for husbands and wives a raw correlation of 0.538, for siblings 0.475, for mothers and children 0.233, and for fathers and children 0.244. When compared with Table 5 in the main text, these parent-child correlations for cognitive abilities are much larger than for economic preferences, with the exception of spitefulness. Further, the observed correlation between twins is typically larger than in siblings or parent-offspring relationships (Bouchard and McGue, 1981, Figure 1). Our data is based on the latter, and hence the reported heritability measures should be considered as upper bounds or yardsticks.

Let the "true" genetic Pearson product-moment correlation coefficient between child preferences (P) and parental preference capital (MF) be r.[4] Observe that r is just the relationship between the Z-scores of P and MF ($r = Z_P/Z_{MF}$), and define S_P and S_{MF} the standard deviations for P 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),[5] we have

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

with the random error term u. Following the rationale outlined above, we impose r = 0.5 in our analysis below, implying a heritability potential of 25%. A bulk of reliable estimates from twins studies for all

[4] Note that r^2 is just the coefficient of determination of an OLS regression of MF on P.

[5] 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 in the main text) that the effects of both parents preferences on those of the children are largely the same which is consistent with this simplification. Moreover, standard genetics suggests that parents transfer 50% of their DNA to offspring (David et al., 2019; Gyllensten et al., 1985).

economic preferences have been around this size. This is instructive to better evaluate our findings on the intergenerational transmission of economic preferences.

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

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

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 $0.25\ S_P/S_{MF}$, and the slope coefficients of X are zero. Table B.1 shows the estimation results. It is basically a replication of Table 7 in the main text, now using OLS in all cases for easy comparable testing; OLS delivers the exact same findings as the previous probit estimates. Most importantly, Table B.1 contains at the bottom the coefficients of father's and mother's preferences as they should appear if the assumed heritability (r=0.5) would take place (see row "Genetic prior preference coefficient equals $0.25*S_C/S_{MF}$").

However, these prior coefficients are typically very different from the estimated coefficients as shown in the first two rows of Table B.1. We then show in a series of F-tests how the estimated parental preferences (from the top two rows of Table B.1) differ (i) from each other and (ii) from the assumed genetic priors ($0.25*S_C/S_{MF}$"). 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 = $0.25*S_P/S_{MF}$"), 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 significant 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 (which is completely in line with the literature). Only risk preferences and altruism come close, because here we cannot reject 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 B.1: Child-parent preference relationships: Robustness checks for Table 7 in the main paper 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
Owen Shapley %	27.46	24.76	46.43	23.36	35.95	23.47
Heredity %	4.06	1.91	19.59	1.73	1.47	4.04
District Fixed Effects are included?	Yes	Yes	Yes	Yes	Yes	Yes
Genetic prior preference coefficient equals $0.25*S_P/S_{MF}$	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=$0.25*S_P/S_{MF}$	0.000	0.001	0.000	0.000	0.000	0.001
p-value (F-test): Mother=$0.25*S_P/S_{MF}$	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
Father: $r_F = 2*a_F*S_{MF}/S_P$	0.233	0.158	0.170	0.140	0.131	0.198
Mother: $r_M = 2*a_M*S_{MF}/S_P$	0.305	0.233	0.684	0.212	0.215	0.286

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

Notes: Table B.1 repeats the regressions from Table 7 in the main paper 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 $0.25*S_P/S_{MF}$ 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 (with the exception of risk preferences) rejecting pure genetics. The last two rows present the implied correlations from the estimated preference transmission parameters shown in the first two rows. Owen-Shapley % is the R-squared contribution of parental preferences. Heredity is the Owen-Shapley value times the respective R-squared.

To explore this further and to execute some robustness tests about preference formation, we have replicated the estimates of Table B.1 by subtracting the pure genetic priors from the observed preferences of the children: $P - 0.25\ S_P/S_{MF}\ (M + F)$:

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

Under pure prior genetics, none of the regressors representing equation (1'') should be significant. Table B.2 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 B.1) remain unaffected and yield the same coefficients and significance levels as in Table B.1, for which reason we do not show them in Table B.2. 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 B.2 indicate the overall strength of these departures from pure genetics. It is lowest for risk preference ($R^2 = 0.066$) and altruism ($R^2 = 0.079$) and largest for spitefulness ($R^2 = 0.161$) 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 B.1 where we included the control variables that are not shown in Table B.2) and for "altruism" the parental preferences of both parents.

Table B.2: Child preferences corrected for heritability 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 (materialized heritability), none of the regressors representing equation (1’’) in this section should be significant. Table B.2 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 $0.25*S_P/SMF$ for each trait for both parents and non-significance of all other regressors X. Child preferences are corrected for genetic priors according to ($P - 0.25\ S_P/SMF\ (M + F)$). The estimated coefficients are then difference tests between the estimated preference coefficients (from Table B.1) and the genetic priors. All other explanatory variables (that we used in Table B.1) remain unaffected and yield the same coefficients and significance levels as in Table B.1, for which reason we do not show them in Table B.2. 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 B.2 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 spitefulness. 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 transmission between parent and child that we observe is smaller than what the genetic prior would predict. Since our data set contains only young children, the findings 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.[6] Here the estimated coefficient of mother's preference is even significantly larger than the genetic prior.[7]

What do we learn from this exercise? Our data clearly show that there is a strong intergenerational association of economic preferences. Since we have no twin data, we cannot examine better to what extent this is driven by genetics. While strong, the observed association typically results in a much smaller than the explored heritability of 25% explained variance (and r=0.5), which we use as a yardstick. This is not surprising, but it is of interest to what extent our findings are lower for the different phenotypes. It does not imply that genetics has no role; to the contrary, all associations we observe can be the result of genetic factors if we have managed to sufficiently control the other relevant factors. The survey of the twins literature in this section has shown that empirical findings originate typically from developed countries, mostly for Sweden. There is also a large variety of estimates of the genetically explained variance in the literature within and between preferences. Therefore, there is no reason to expect that Bangladesh has to reveal one unique level of genetic transmission similar to a developed country.

Under the assumption that we have controlled for other relevant factors beyond genetics, we can however argue that the estimated transmission parameters of preferences fully reflect genetics. On this assumption, we can calculate the r's for both parents (r_M, r_F) for each preference category from $a_M = 0.5*r_M*S_P/S_{MF}$ and $a_F = 0.5*r_F*S_P/S_{MF}$, with $r_M = 2*a_M*S_{MF}/S_P$ and $r_F = 2*a_F*S_{MF}/S_P$. The respective r numbers are contained in the last two rows of Table B.1, separately for both parents and all preferences. Most values are around r = 0.2, with father's r's smaller than mother's. $r_M = 0.684$ for spitefulness is by far the largest coefficient. These numbers are as expected smaller than those from the twins literature for developed countries since they are based on parent-offspring relationships.

This comparative finding is also affected by the convention in the twins literature to add the error term to the factor environment (E). Using the Owen-Shapley decomposition of R-squared of the regressions in Table B.1, following Hüttner and Sunder (2012), we find that parental preferences reflect a substantial share of the total *explained* variance: 27.46% for patience, 24.76% for gambling, 46.43% for spiteful, 23.36% for egalitarian, 35.95% for altruistic and 23.47% for selfish. Parental preferences indeed contribute a great deal to the explained variance in our regressions. The product of the regression

[6] A more educated child is more spiteful. This resembles our observation in the family cluster analysis of section 5.2 in the main text that mother's education has a positive effect on the likelihood of belonging to Cluster 2-families whose members are more impatient, more risk averse and in particular more often spiteful.

[7] 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 B.3 at the end of Appendix B. We further explored whether the parent-child-transmission 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 B.4 at the end of Appendix B, indicating that time-dependence of preferences is not an issue in our data set.

R-squared and the Owen-Shapley values lead to the effective heredity transmission values captured by our preference data, namely 4.06% for patience, 1.91% for gambling, 19.59% for spiteful, 1.73% for egalitarian, 1.47% for altruistic and 4.04% for selfish. Only spitefulness comes close to the upper prior from twin data. The differences in the contribution to the total variances may also result from the ability to control erratic factors better with twin studies than with parent-offspring data.

Table B.3: 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 B.4: 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 child	-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 preferences. 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

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C. Experimental instructions and procedures

C.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

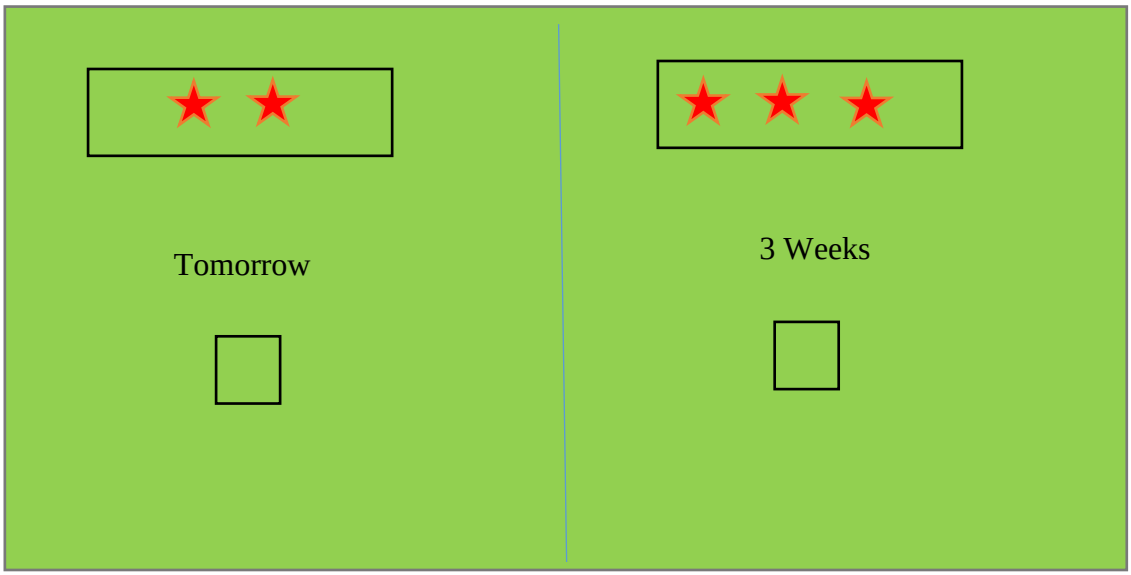
As I mentioned at the beginning, it is important to note that at the end only one of the games will be paid and that you will have to draw a number to determine it. If this game is paid, only one of the six decisions counts. That means you will receive the stars for one of the six parts only. The decisions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

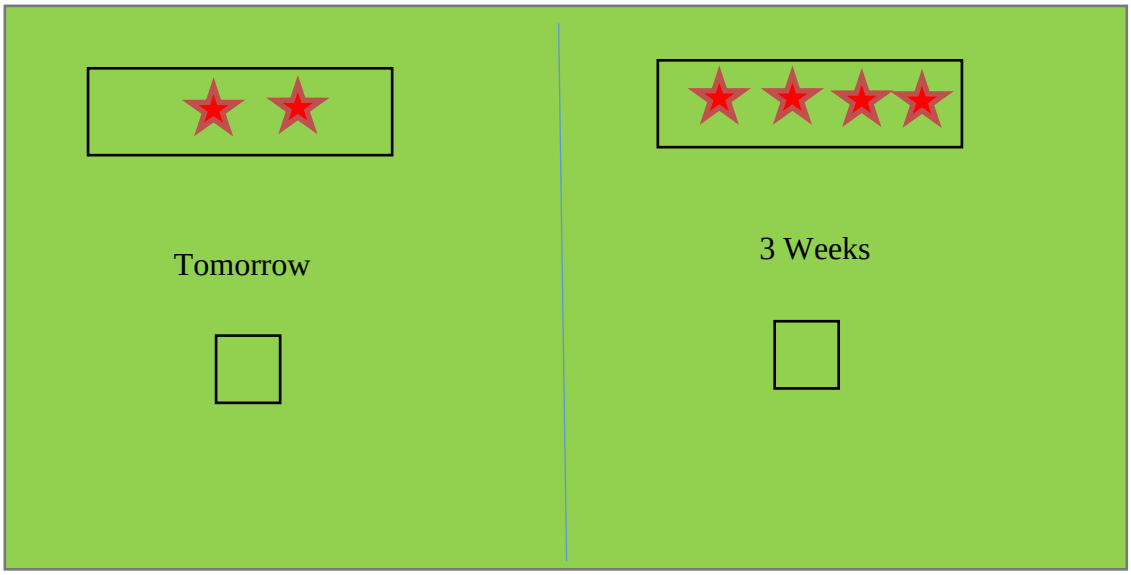
1= first explanation, 2= second explanation, 3= third explanation, 4= did not understand

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.

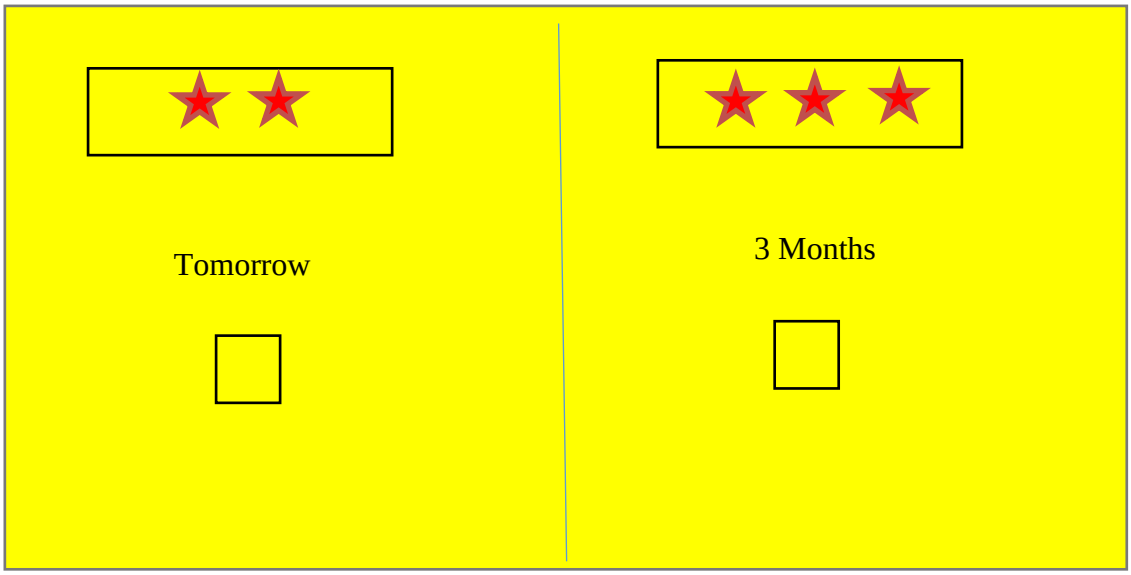
Decision sheet-1



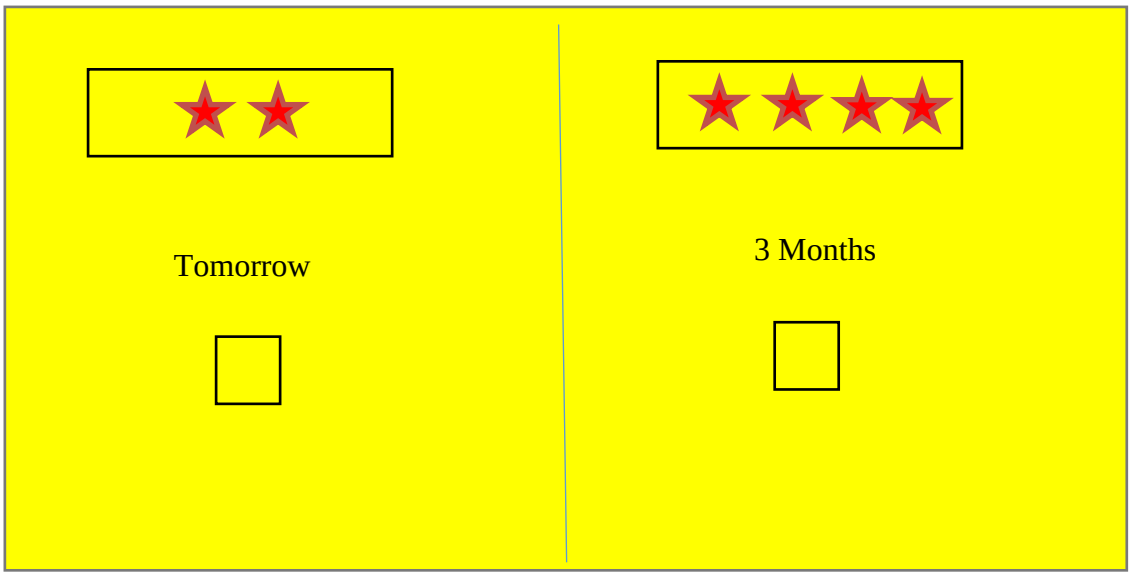
Decision sheet-2



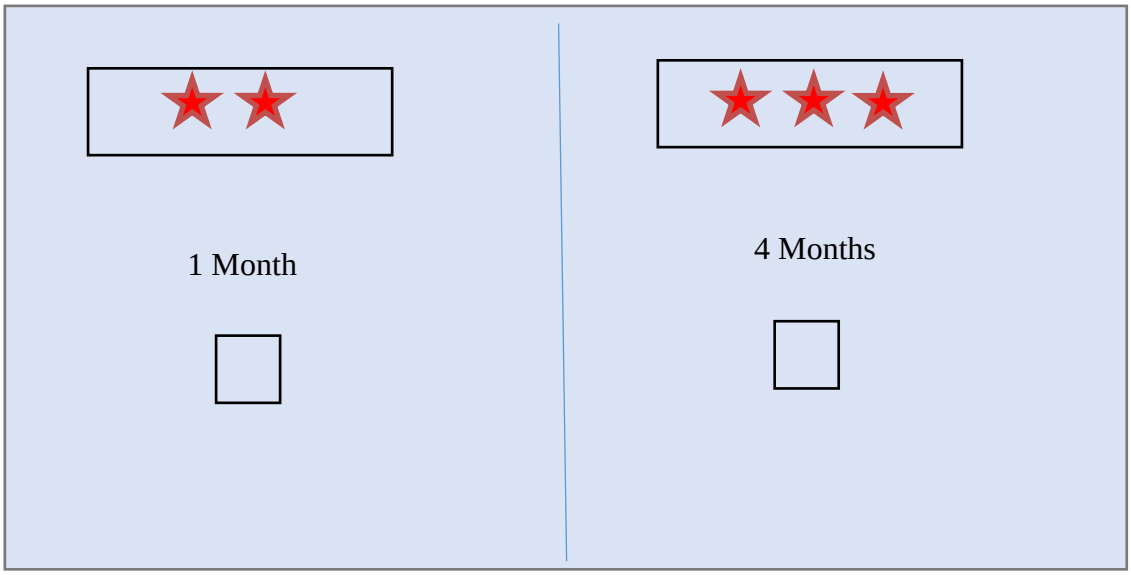
Decision sheet-3



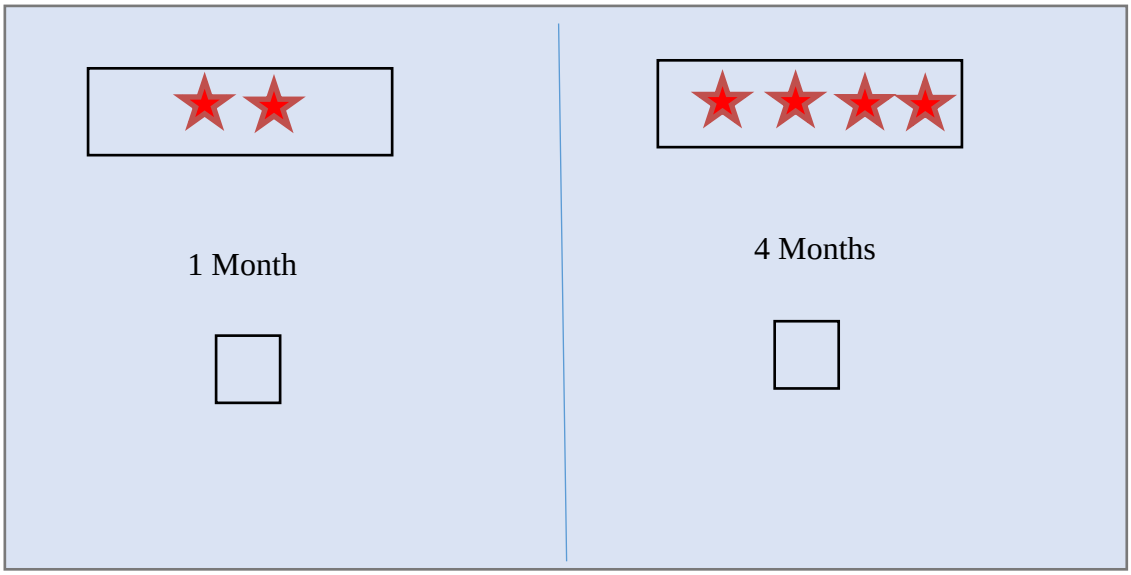
Decision sheet-4



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.

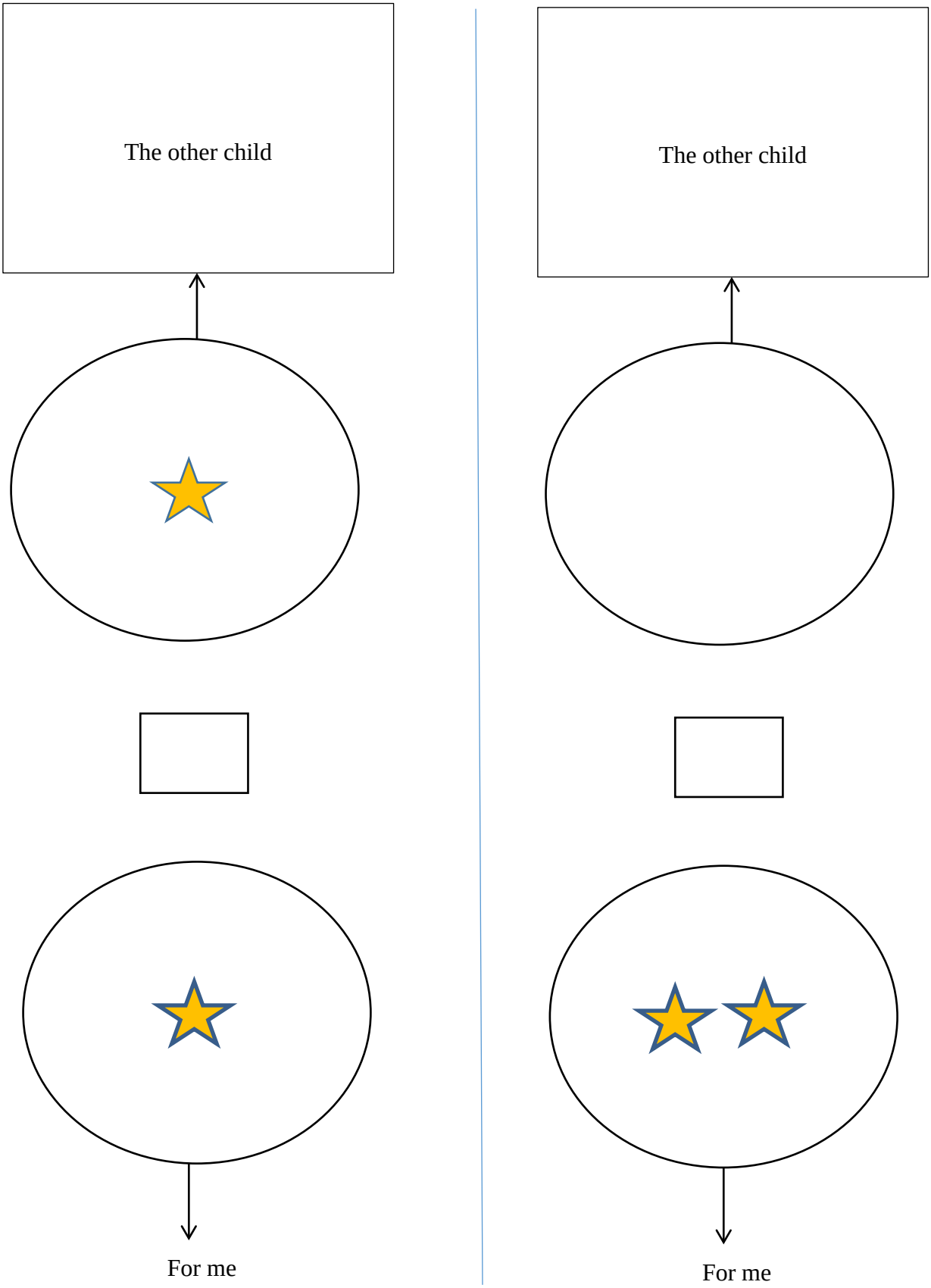
1. Child understood the game after: |__|

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

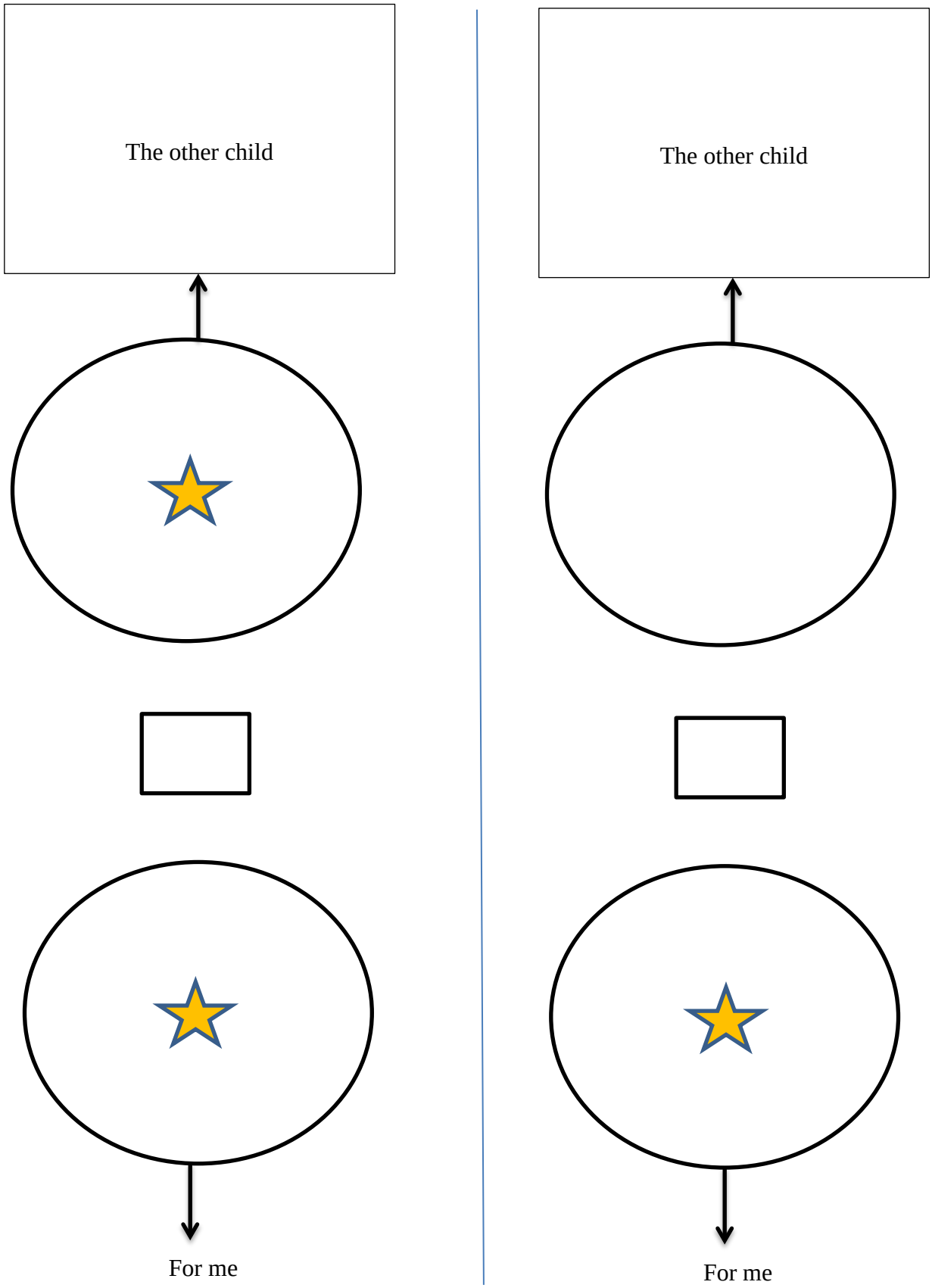
Are you ok so far? Leave time for questions and answer them privately.

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.

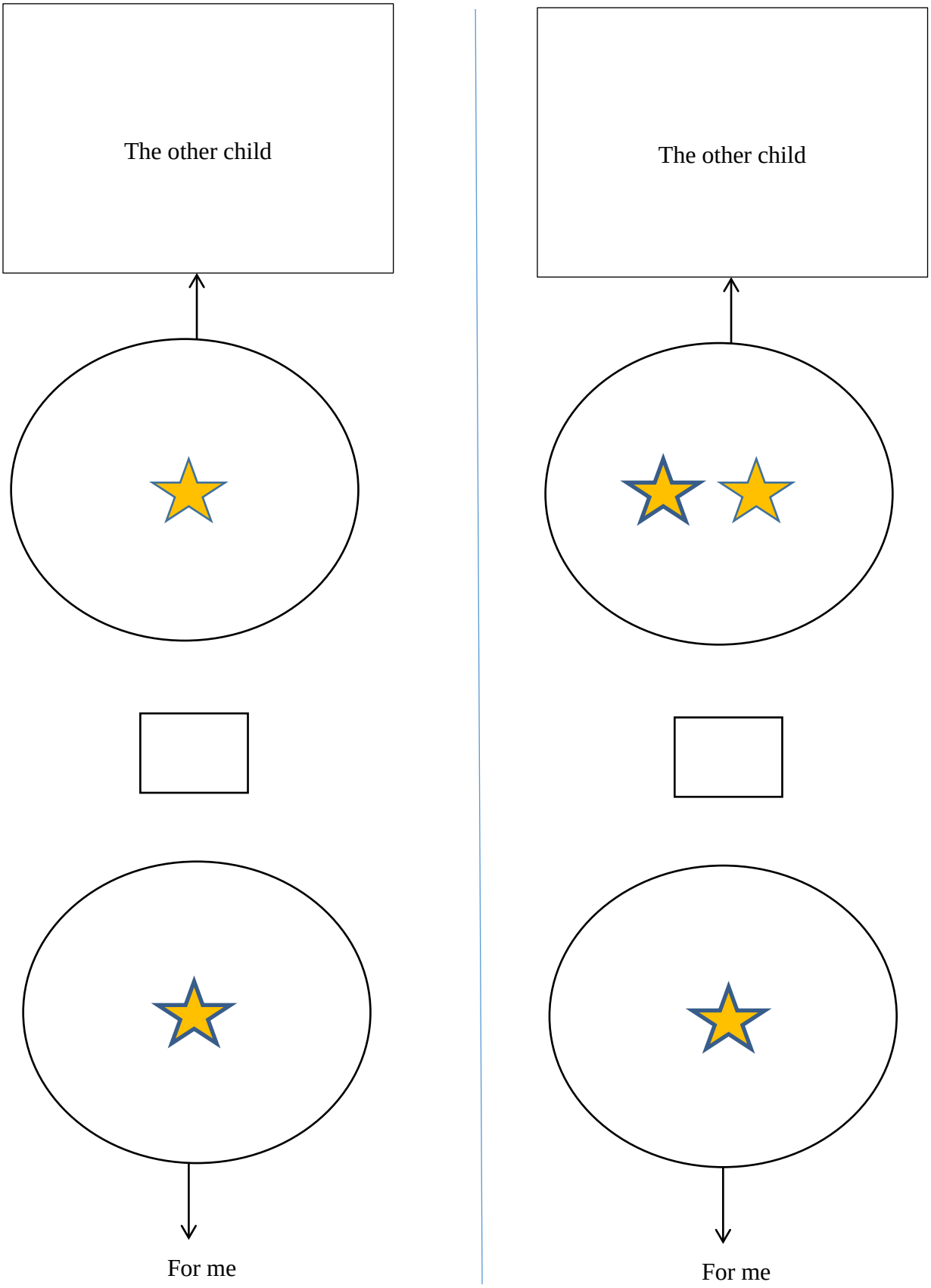
Decision sheet 1



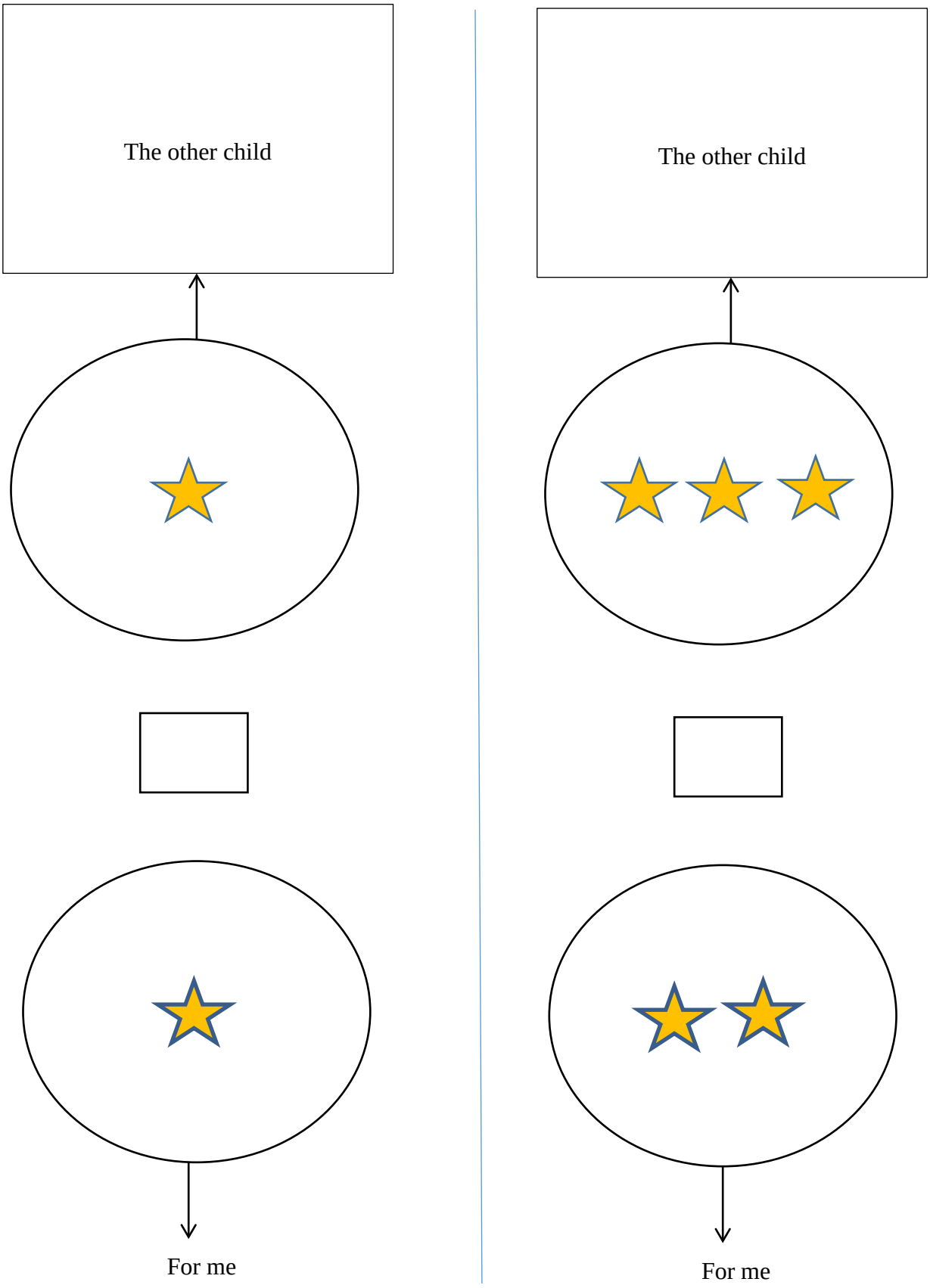
Decision sheet 2



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

I see myself as someone who...

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

Locus of control (from Kosse et al., 2020)

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)

C.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.

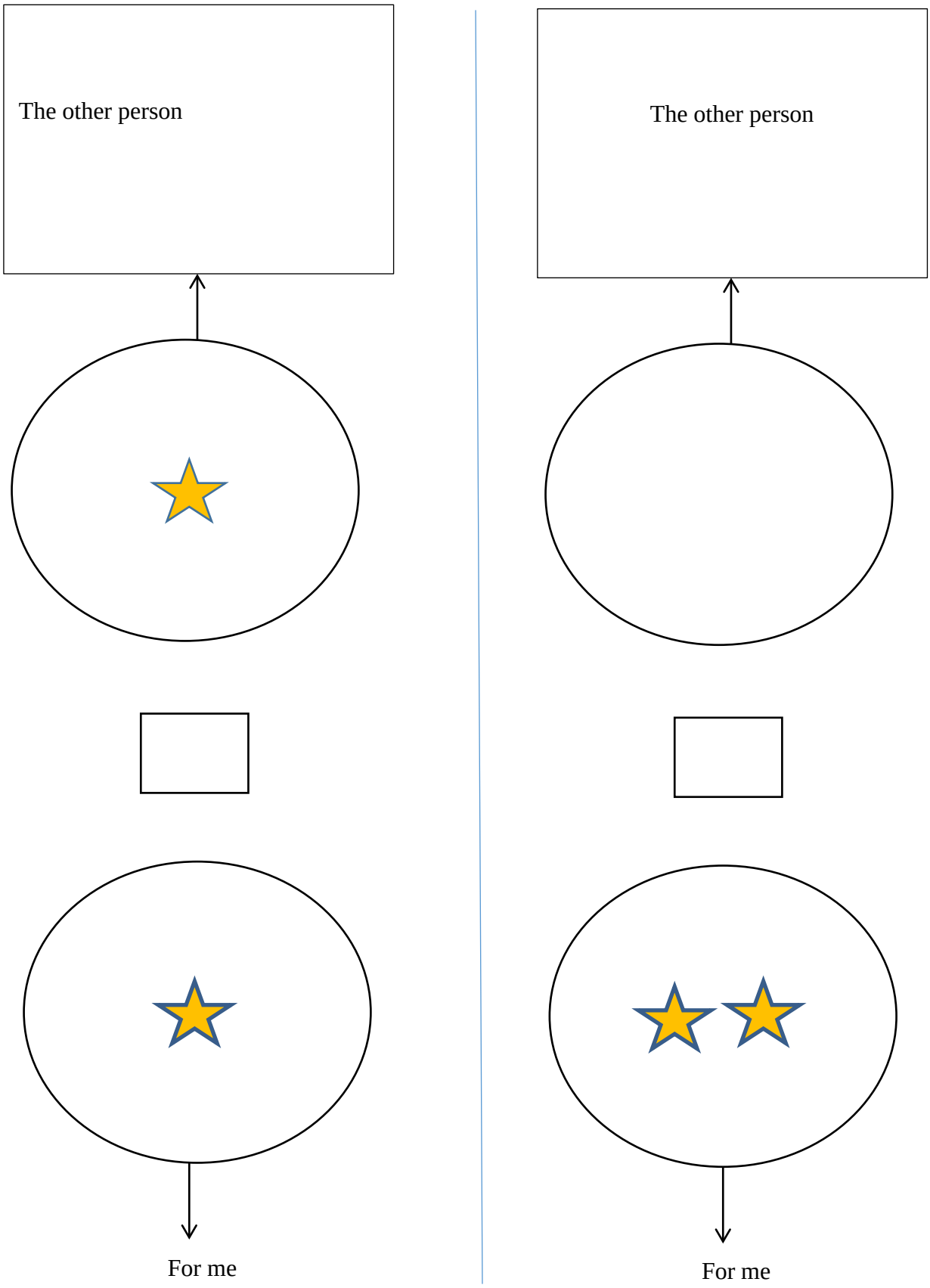
1. Respondent understood the game after: |__|

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

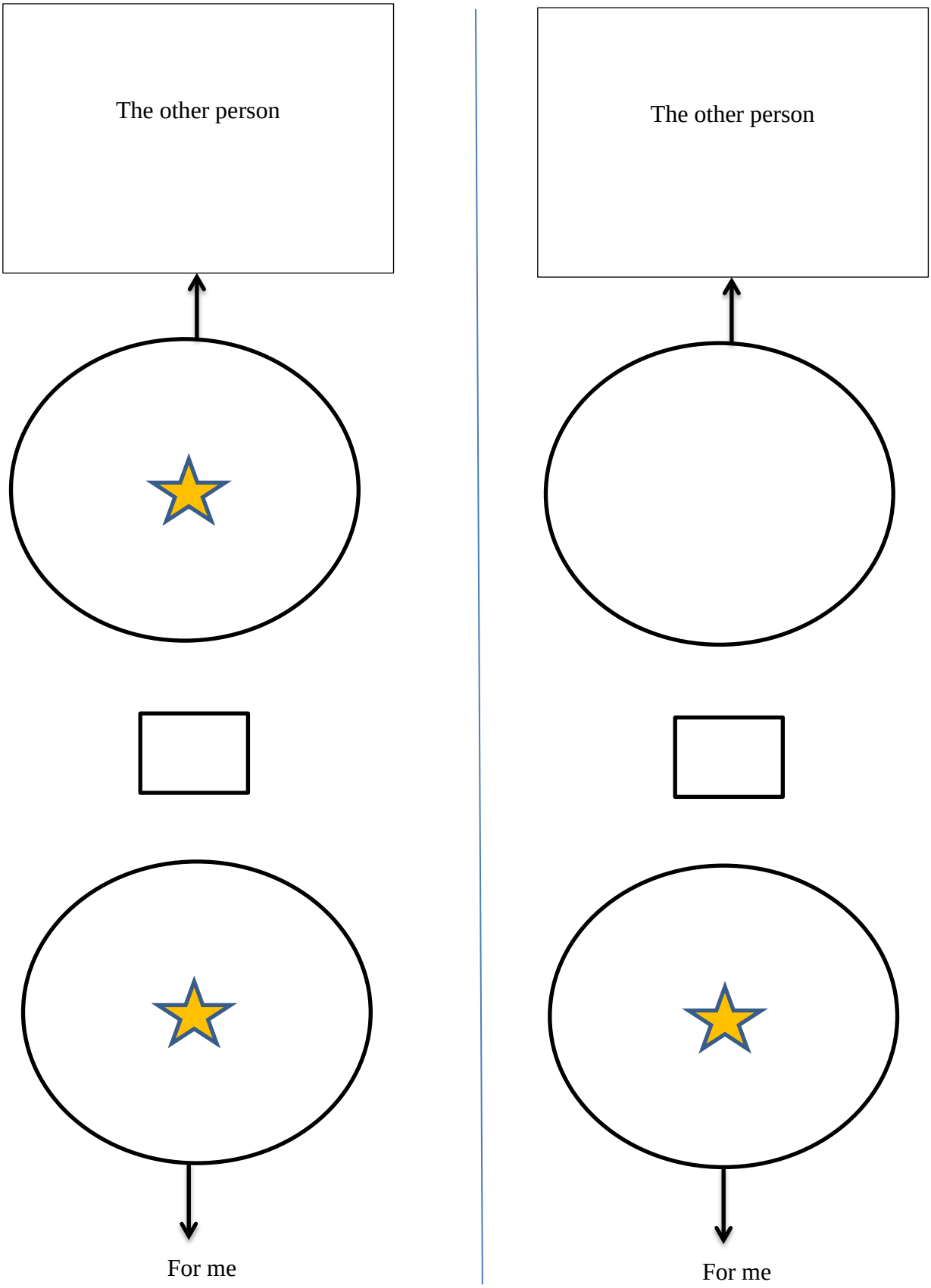
Are you ok so far? Leave time for questions and answer them privately.

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.

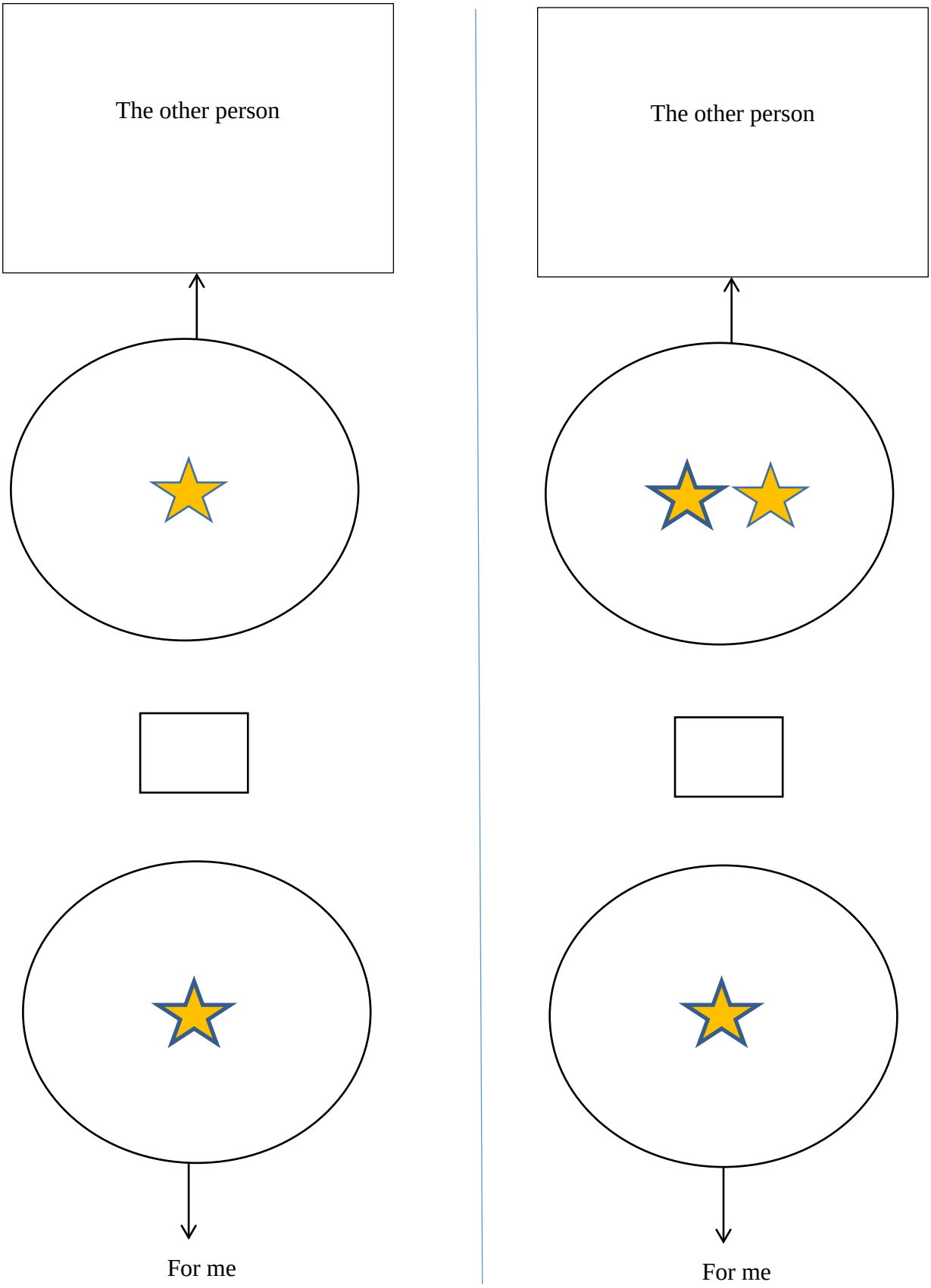
Decision sheet 1



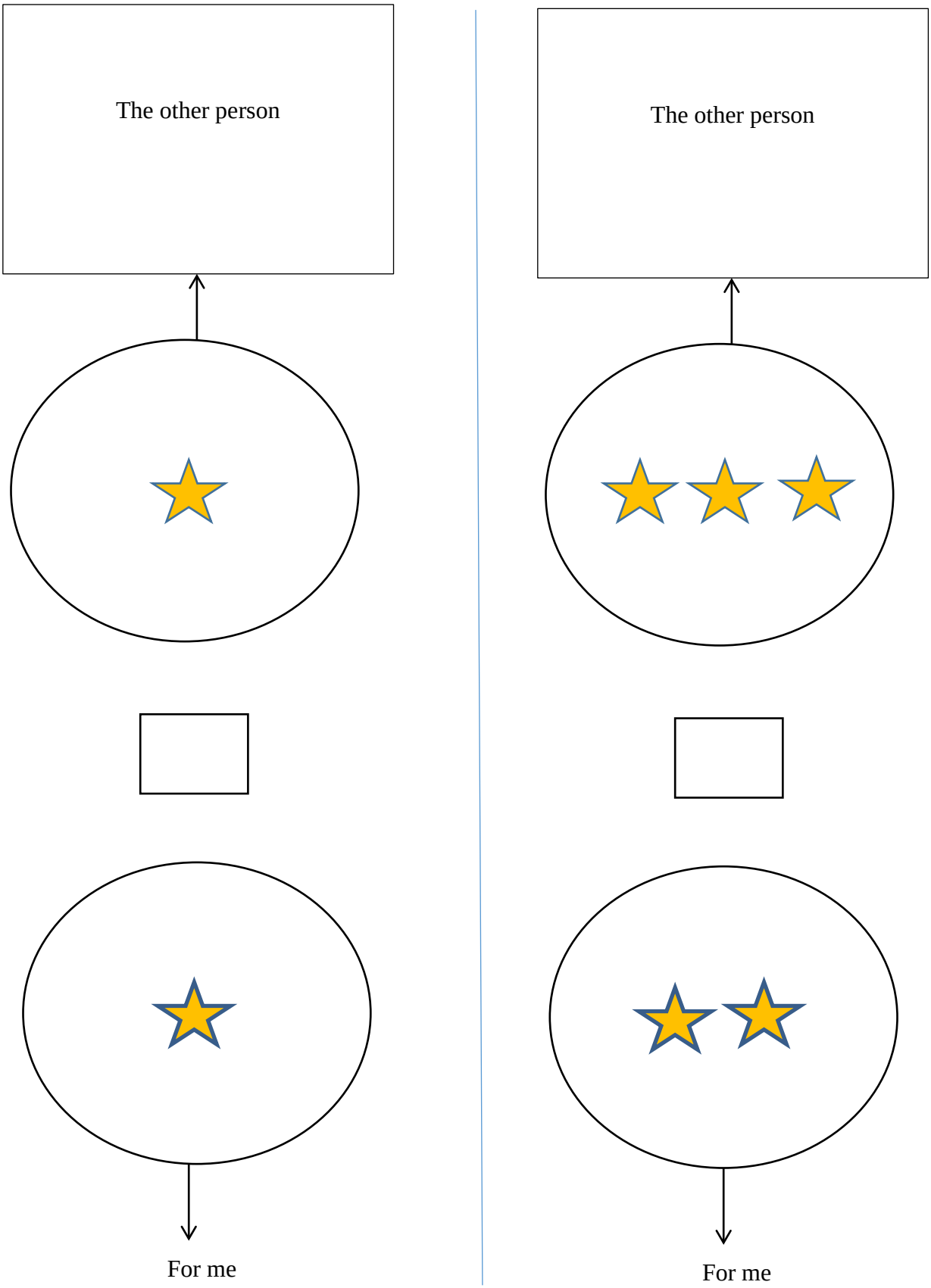
Decision sheet 2



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.[8]

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.

[8] 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