Economic Preferences across Generations and Family Clusters: A Large-Scale Experiment in a Developing Country

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Our large-scale experiment with 542 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 socioeconomic 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 prosocial members or relatively impatient, risk averse, and spiteful members. Classifications correlate with socioeconomic background variables. We find that our results differ from evidence for rich countries.

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I. 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; Golsteyn, Grönqvist, and Lindahl 2014; Castillo, Jordan, and Petrie 2018), labor market outcomes (Bandiera, Barankay, and Rasul 2005, 2010; Heckman, Stixrud, and Urzua 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 noncognitive skills and, in particular, how economic preferences are formed (Bisin and Verdier 2000; Heckman 2006; Borghans et al. 2008; Kimball, Sahm, and Shapiro 2009; Dohmen et al. 2012; Cigno, Komura, and Luporini 2017; Doepke and Zilibotti 2017; Kosse et al. 2020). Because economic preferences are often assumed to be largely shaped in childhood (Fehr, Bernhard, and Rockenbach 2008; Kosse et al. 2020) and remain fairly stable from middle to late adolescence onwards (Sutter, Zoller, and Glätzle-Rützler 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, Chytilova, and Pertold-Gebicka 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

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[1] A different strand of literature based on 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 app. B (apps. A–C are available online) how our paper relates to this literature.

most cases, parental economic preferences have not been elicited to explain children's preferences, but rather the focus has been on factors like parental socioeconomic status (for a recent example, see Falk et al. 2021). 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, Chytilova, and Pertold-Gebicka 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 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 (for risk preferences, see Kosse and Pfeiffer 2012; Alan et al. 2017; for time preferences, see Bettinger and Slonim 2007; for charitable giving, see Ben-Ner et al. 2017; for public goods provision, see Cipriani, Giuliano, and Jeanne 2013; Sutter and Untertrifaller 2020).

In this paper, we present results from an experiment with 542 families where we elicited economic preferences of 542 pairs of husbands and wives and of their 907 children, yielding a total of 1,991 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 sociodemographic background data. On the basis of 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, 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

[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, Picard, and Ziegelmeyer 2011; Carlsson et al. 2012, 2013).

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, Field, and Torero [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 nonarranged marriages (Dalmia and Lawrence 2001). On the other hand, we can check whether the economic preferences of mothers and fathers are related to the same degree to their children's preferences. Studies that have elicited only one parent's preferences cannot answer such a question. Given that in a country like Bangladesh most mothers are working at home and thus spend much more time with children, it is unclear ex ante whether children's preferences will be related to both parents' economic preferences to the same extent. Moreover, we can also answer the question of 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 socioeconomic 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, 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 no longer live together with their parents. In our case, all children are between ages 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 no longer live together with their parents, other persons (such as 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]

[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, 40–42).

[4] In 2016, when we ran the experiments, Bangladesh had a per capita gross domestic product at purchasing power parity of 3,581 international dollars, while the United States,

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 investigated only the intergenerational transmission of economic preferences in rather highly developed and relatively rich countries (for Germany, see Dohmen et al. 2012; Falk et al. 2021; for the Czech Republic, see Bauer, Chytilova, and Pertold-Gebicka 2014; for Norway, see Almas et al. 2016; for Denmark, see Brenoe and Epper 2018). A large fraction of the world population lives in low-income countries, however, 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.[5] This feature of our work—having data from a poor country—also allows comparing the data patterns that we find (e.g., how economic preferences are related to IQ, age, or education) with 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 socioeconomic status of parents. Recent work by Falk et al. (2021) has shown for a very rich country (Germany) that the socioeconomic status of parents is an excellent predictor of children's economic preferences. For other rich countries, such as Denmark or Norway, the correlations of parental socioeconomic 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 socioeconomic status to children's economic preferences in a poor developing country (with a population of about 165 millions). Since socioeconomic 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

e.g., had 57,467 international dollars (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 (http://www.globalissues.org/article/26/poverty-facts-and-stats).

parent's economic preferences relate to single types of children's economic preferences. This means that previous work has, for instance, asked how socioeconomic 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 (such as 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. 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° 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 socioeconomic status of parents. Here we observe two important findings. First, household income is not significantly related to either fathers' economic preferences or 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, socioeconomic 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 do we find a relation of socioeconomic status of parents to time preferences and prosociality of children (similar to what 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 nonspiteful. 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 nonspiteful family members. In a final step of our analysis, we find that the socioeconomic background of parents is significantly related to the cluster to which a family is assigned. 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 nonspiteful family members.

Our paper proceeds as follows. In section II, we introduce our sample of 542 families (with 1,991 members), some background information about Bangladesh, and our study design. In section III, 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 IV discusses plausible transmission mechanisms, including assortativity of parents or the influence of older siblings. Section V 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 VI provides a short discussion of how our results from a developing country differ from data patterns established in rich and highly developed countries. Section VII concludes the paper.

II. Data Collection and Experimental Procedures

A. *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 and contamination in groundwater in Bangladesh for labor supply, productivity, and well-being.[6] For the latter project, representative survey data and extensive information about cognitive and noncognitive 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, Krause-Pilatus, and Zimmermann 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. Because of 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 subsample 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 this paper, we are interested in only the subset of households that had at least one child aged 6–16 years (at the time of running the experiments). This subset contains 1,000 households,[7] of which we managed to survey

[6] See Chowdhury, Krause-Pilatus, and Zimmermann (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 (tables A.1–A.22 and B.1–B4 are available online), we compare these 1,000 households that have children (which 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 3,500 households in the data set of Chowdhury, Krause-Pilatus, and Zimmermann (2015). Both sets differ (in small absolute amounts) in the following variables yet in an expected way, since we focus here on the

both parents (i.e., mother plus father) and their children in 732 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 noncognitive skills. The combination of all three waves constitutes the basis for this paper, and it includes 542 families with complete data from all waves.

In table A.2, we first compare this final set of 542 families with the set of 190 families for which we do not have experimental measures (i.e., those who participated in wave 2 but not in wave 3) and find that both sets are very similar to each other (col. 7). Only with respect to parents' age and household income did we find a significant difference. With respect to other important variables (such as education of parents or household size), we do not observe any significant differences between both sets of households. Second, we compare our final set of 542 families with the set of 458 families who were intended to be included in wave 2 and had at least one child in the eligible age range. Table A.2 shows that in comparison to the latter set, our 542 families are statistically indistinguishable in background characteristics with respect to parents' age and education as well as household size (col. 8). Only for household income per capita, we note that our 542 families are poorer than the other 458 families that were intended for inclusion in wave 2 (but not in wave 3). 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 542 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 6–16 years. For the experiment, we started with the inclusion of children at age 6 because we were concerned that children younger than that age could have too many difficulties in understanding all experiments. In households with two or fewer children in the respective age bracket, all

1,000 households with children (a condition that not all other households satisfy): fathers in our 1,000 households are slightly older (1.2 years), parents are less educated (0.8 years less schooling, which fits the negative relation between age and schooling in Bangladesh), and households are larger (1.1 additional members) and have slightly lower per capita income (because of a larger household size).

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

[9] In table A.3, we take potential sampling attrition concerns into account by presenting our main results (which we present in sec. III) under a specification that applies inverse probability weighting. Our results are robust to such a specification, which should alleviate potential attrition concerns.

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 1,991 family members, including 907 children, 542 mothers, and 542 fathers. Of those 542 families, we have 177 with only one child included and 365 with two children.

All data collection took place at household premises. Trained enumerators (experimenters) from a professional survey firm visited each household and 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.

Table 1 presents summary statistics of our sample. It shows that we have an almost equal fraction of boys and girls (with 51.0% boys). On average, children are over 12 years old (at the time of the experiment) and have had 4 years of schooling already, with 93% 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 and 38 years, respectively, and about 3 years of schooling. The latter means that the parents are typically less educated than their children. In 15% of households, at least one grandparent lives with the family.

As indicators for parental socioeconomic status and family environment, we collected parents' occupation, household income, land ownership, and their education. About 51% of our sample is illiterate, which aligns well with a 2015 illiteracy rate of 38.5% in Bangladesh (World Factbook 2015; Central Intelligence Agency 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 reports the distribution of years of schooling for mothers and fathers. It seems that mothers are somewhat more educated than fathers; 48% 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%), while 95% of mothers work as housewife in their primary occupation (see table 1). In 2016, the average annual total household income in our sample amounted to 113,967 taka (about US$1,400), which was very similar to the 2010 rural national household average of

[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
SUMMARY STATISTICS OF PARTICIPANTS

	Mean	Standard Deviation
	A. Parents ($N = 542$ for Each Parent)	
Age of husband (years)	47.11	8.64
Age of wife (years)	38.47	6.89
Schooling husband (years)	3.07	4.04
Schooling wife (years)	3.17	3.48
Husband works as farmer (yes = 1, no = 0)	.52	.50
Wife works as housewife (yes = 1, no = 0)	.95	.21
	B. Children ($N = 907$)	
Gender (boys = 1, girls = 0)	.51	.50
Age (years)	12.21	2.89
Schooling (years)	3.97	2.73
Currently attending school (yes = 1, no = 0)	.93	.26
Number of elder brothers	.95	1.06
Number of elder sisters	.93	1.06
Number of younger brothers	.61	.76
Number of younger sisters	.57	.76
	C. Household Data ($N = 542$)	
Household size (number of individuals)	5.78	1.36
Grandparents living in household (yes = 1)	.15	.36
Average household income per capita per month in 2016 (taka)	1,640.00	1,810.00
Total village population	1,704.98	1,854.37

NOTE.—Data refer to 2016 (except village population for 2015).

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 in its periodical Household Income and Expenditure Survey.[11] The survey is a locally adapted version of the World Bank's Living Standard Measurement Survey (LSMS), which is regularly used in about 100 developing countries to measure national and regional poverty and is 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

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

[12] See, e.g., Chen and Ravallion (2001) or Besley and Burgess (2003). The poverty measure used in the United Nation's Millennium Development Goals applied the LSMS survey to calculate poverty across countries.

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 per month was 1,640 taka (about US$20).

B. *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 dealt with girls and mothers, and each participant made his or her choices in a separate room or area. The experiments elicited (1) time preferences, (2) risk preferences, and (3) 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 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 trade-off between a sooner (but smaller) reward and a later (but larger) reward (for similar approaches, see, e.g., Bauer, Chytilova, and Morduch 2012; Almas et al. 2016). The choice lists that we used were kept simple in order to make it easy for children to understand the choice options. Table 2 presents the six choices that children had to make and the 18 choices for parents. For both 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 paid

[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 nongovernmental organizations (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
TIME PREFERENCES

	Option 1	Option 2
	A. Children	
Choice set 1	2 stars tomorrow	3 stars in 3 weeks
	2 stars tomorrow	4 stars in 3 weeks
Choice set 2	2 stars tomorrow	3 stars in 3 months
	2 stars tomorrow	4 stars in 3 months
Choice set 3	2 stars in 1 month	3 stars in 4 months
	2 stars in 1 month	4 stars in 4 months
	B. Parents	
Choice set 1	100 taka tomorrow	105 taka in 3 months
	100 taka tomorrow	110 taka in 3 months
	100 taka tomorrow	120 taka in 3 months
	100 taka tomorrow	125 taka in 3 months
	100 taka tomorrow	150 taka in 3 months
	100 taka tomorrow	200 taka in 3 months
Choice set 2	100 taka in 1 month	105 taka in 4 months
	100 taka in 1 month	110 taka in 4 months
	100 taka in 1 month	120 taka in 4 months
	100 taka in 1 month	125 taka in 4 months
	100 taka in 1 month	150 taka in 4 months
	100 taka in 1 month	200 taka in 4 months
Choice set 3	100 taka in 1 year	105 taka in 1 year 3 months
	100 taka in 1 year	110 taka in 1 year 3 months
	100 taka in 1 year	120 taka in 1 year 3 months
	100 taka in 1 year	125 taka in 1 year 3 months
	100 taka in 1 year	150 taka in 1 year 3 months
	100 taka in 1 year	200 taka in 1 year 3 months

between 3 weeks and 1 year after the earlier payments. For both children and parents, we used two choice sets where the delay was 3 months. For children, we had a third set with a delay of only 3 weeks (to keep the waiting time shorter for them), and for parents, we had one set with a delay of 1 year. The order in 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]

[15] When looking at time preferences, we can, in principle, also define an indicator variable for time consistency. This variable has a value of 1 if a participant's choices are identical for the two choice sets with a 3-month delay (i.e., choice sets 2 and 3 for children, and choice sets 1 and 2 for parents; see table 2) and 0 otherwise. For succinctness, we relegate the analysis of time consistency to table A.6, where we show 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.

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, Chytilova, and Morduch 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. Table 3 shows the six gambles and the payoffs that were age contingent. Unfortunately, because of some miscommunication between the experiment administrators in the field and us, we have collected risk preferences for only half of the children (but still for all parents). In table A.7, 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 (except for a difference in the number of elder sisters). 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.

Social preferences.—Here we used the experimental protocol implemented in Bauer, Chytilova, and Pertold-Gebicka (2014), who had extended Fehr, Bernhard, and Rockenbach (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

TABLE 3
RISK PREFERENCES: PAYOFFS OFFERED TO DIFFERENT AGE GROUPS (taka)

	GAMBLE					
AGE AND OUTCOME	1	2	3	4	5	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

NOTE.—Participants had to pick one out of the six gambles.

TABLE 4
SOCIAL PREFERENCES

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

an anonymous recipient (of the same gender and roughly the 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 table 4. From the four choices in table 4, one can create four mutually exclusive social preference types (following Bauer, Chytilova, and Pertold-Gebicka 2014).[17] These types—and the according choice patterns—are shown in table 5. The types are defined as follows: (1) *altruistic* if subjects maximize the recipient's payoff in all four choices; (2) *egalitarian* if they always minimize the difference in payoffs for themselves and the recipient, which means to choose always the allocation (1, 1); (3) *spiteful* if they always minimize the recipient's payoffs; and (4) *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, Bernhard, and Rockenbach [2008] and Bauer, Chytilova, and Pertold-Gebicka [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 app. C). 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

[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.

TABLE 5
CLASSIFICATION OF SUBJECTS INTO FOUR SOCIAL PREFERENCE TYPES BASED ON GAMES PRESENTED IN TABLE 4

	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)

(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]

C. *Measurement of Cognitive and Noncognitive Skills as Control Variables*

We included the measurement of cognitive and noncognitive 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, ver. IV; Wechsler 2003) and the Wechsler Adult Intelligence Scale (WAIS) to measure cognitive skills.[19] 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.

Measures of noncognitive skills.—Here we measured personality traits and locus of control. We used a 10-item Big Five questionnaire for children aged 6–11. For children aged 12 and older and for mothers and fathers, we used a 15-item questionnaire, derived from John, Donahue, and Kentle (1991) and evaluated in Gerlitz and Schupp (2005). For the children

[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, e.g., 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.

[19] We worked with local academics with expertise in the adaptation and use of WISC version IV. In particular, Salim Hossain (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 indexes: verbal comprehension, perceptual reasoning, working memory, and processing speed. Each of the four indexes is significantly related at the 1% level to FSIQ (with correlation coefficients ranging from 0.75 to 0.91). Using the four separate indexes instead of FSIQ would not change any of our main results.

aged 6–11, 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 addition to personality traits, we also measured locus of control (Rotter 1966; Lefcourt 1991), which is an indicator of subjects' beliefs in 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 appendix C (see the notes to the experimental instructions) since this aspect is not central to our research question.

III. 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 6 shows the means and corresponding standard deviations for the different measures of time, risk, and social preferences. Panel A presents data for parents, first with husbands and wives combined and then separately. Panel B displays data for children, again first combined and then separately for daughters and sons. Note that table 6 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 1, as the four games allow for more choice patterns than are captured by the definition of altruistic, egalitarian, spiteful, or selfish types (Bauer, Chytilova, and Pertold-Gebicka 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 in only 4.5% of cases. This fraction is comparable to the magnitudes reported in Sutter et al. (2013) for 10–18 years old.

[21] Note that the inconsistency we are referring to here is different from time consistency, as discussed in n. 14 and table A.6.

TABLE 6
ECONOMIC PREFERENCES OF PARENTS AND CHILDREN: DESCRIPTIVE OVERVIEW

	Mean (1)	Standard Deviation (2)	Mean (3)	Standard Deviation (4)	Mean (5)	Standard Deviation (6)	Difference (p) (7)
	A. Parents						
	Total		Wives		Husbands		Husbands vs. Wives
Number of patient choices	7.25	7.03	7.79	6.99	6.70	7.04	.01
Gamble number picked	3.93	1.70	3.91	1.73	3.94	1.66	.76
Altruistic[a]	.08	.27	.06	.25	.10	.29	.06
Egalitarian[a]	.15	.36	.09	.29	.22	.41	.00
Spiteful[a]	.20	.40	.21	.41	.18	.39	.29
Selfish[a]	.32	.47	.37	.48	.28	.45	.00
Unclassified social preference	.24	.43	.27	.44	.22	.41	.08
Observations	1,084		542		542		
	B. Children: Boys vs. Girls						
	Total		Girls		Boys		Boys vs. Girls
Number of patient choices	2.79	2.18	2.87	2.19	2.71	2.17	.25
Gamble number picked	3.88	1.59	3.92	1.65	3.84	1.54	.62
Altruistic[a]	.07	.25	.06	.24	.08	.26	.45
Egalitarian[a]	.17	.37	.17	.37	.17	.38	.85
Spiteful[a]	.20	.40	.20	.40	.20	.40	.97
Selfish[a]	.31	.46	.27	.46	.31	.46	.84
Unclassified social preference	.25	.44	.27	.44	.24	.43	.43
Observations	907		445		462		

[a] 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).

A. *Correlations of Single Economic Preferences within Families*

Table 7 examines correlations of economic preferences within families from three perspectives. It presents correlations (1) among spouses (col. 1), (2) between siblings (col. 2), and (3) between parents and children. In the latter case, column 3 shows the correlations between mothers and children, and column 4 shows the correlations between fathers and children.

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

TABLE 7
CORRELATIONS OF ECONOMIC PREFERENCES

	Husbands and Wives (1)	Siblings (2)	Mothers and Children (3)	Fathers and Children (4)
Number of patient choices	.242***	.328***	.185***	.166***
Gamble number picked	.100**	.312***	.130***	.076
Spiteful	.595***	.515***	.578***	.455***
Egalitarian	.081*	.147***	.105***	.098***
Altruistic	.042	.034	.090***	.074**
Selfish	.135***	.304***	.220***	.169***

* $p < .10$.
** $p < .05$.
*** $p < .01$.

the bride's and the groom's families (Ambrus, Field, and Torero 2010). It is, therefore, not straightforward to expect similar preferences of husbands and wives, unless particular types of preferences are part of attributes sought in the marriages, whether or not the parents of the bride and the groom arrange the marriages. When comparing the correlations among spouses in column 1 with 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 and between fathers and children, respectively. 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.

B. Assortativity of Parents: Regression Analyses

In panel A of table 8, 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 8 basically confirms the results in column 1 of table 7, despite controlling for a large number of background variables, including socioeconomic 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 significant only for spitefulness but not for the other social preference types. The significant relationships between husband's and wife's preferences raise the question of whether they could have been

TABLE 8
ASSORTATIVITY OF PARENTAL PREFERENCES

	Number of Patient Choices (1)	Lottery Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
	A. Husbands' Preferences					
Wife's preference	.185***	.092**	.336***	.092	.034	.037
	(.045)	(.043)	(.063)	(.070)	(.050)	(.041)
Age of respondent	−.011	−.005	.002	−.001	.000	−.000
	(.049)	(.011)	(.002)	(.003)	(.002)	(.003)
Difference in spouses' age	−.009	−.008	−.007**	.004	.001	.001
	(.078)	(.019)	(.004)	(.005)	(.003)	(.005)
Years of schooling	−.176*	−.003	.007	.006	.002	.003
	(.105)	(.025)	(.005)	(.006)	(.004)	(.007)
Difference in spouses' schooling	−.024	−.003	−.001	.002	−.002	−.008
	(.122)	(.030)	(.006)	(.007)	(.005)	(.008)
Number of children	3.746***	−.418	.064	−.196**	−.034	.118
	(1.298)	(.281)	(.088)	(.095)	(.055)	(.140)
Household size	.510**	.062	−.022*	−.004	.001	.003
	(.241)	(.054)	(.012)	(.013)	(.008)	(.015)
Per capita income per month (1,000 taka)	.035	.036	−.005	.014	.014**	−.026*
	(.154)	(.050)	(.009)	(.009)	(.006)	(.014)
FSIQ measure	−.523	.132	.007	.027	−.021*	−.041
	(.388)	(.095)	(.017)	(.023)	(.013)	(.028)
Conscientiousness	−.071	−.008	.014	.026	.035**	−.037*
	(.366)	(.089)	(.018)	(.020)	(.014)	(.022)
Extraversion	−.241	−.070	−.022	.025	.004	.001
	(.345)	(.093)	(.017)	(.021)	(.013)	(.023)
Agreeableness	.285	−.037	−.047***	.021	.006	.018
	(.340)	(.085)	(.016)	(.021)	(.011)	(.023)
Openness	.024	.122*	−.006	−.013	−.018	.028
	(.306)	(.073)	(.015)	(.017)	(.011)	(.021)
Neuroticism	.186	−.033	−.004	.000	.002	.003
	(.322)	(.093)	(.017)	(.020)	(.013)	(.023)
Locus of control	−.317	−.125	.008	.025	−.015	−.027
	(.310)	(.084)	(.015)	(.018)	(.012)	(.022)
Observations	537	533	528	536	533	533
R^2/pseudo-R^2	.148	.094	.408	.092	.103	.117
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes
	B. Wives' Preferences					
Husband's preference	.154***	.094**	.355***	.033	.015	.064
	(.043)	(.048)	(.063)	(.033)	(.028)	(.049)
Age of respondent	−.106**	−.002	−.003	.001	−.002	.000
	(.047)	(.012)	(.003)	(.002)	(.001)	(.003)
Difference in spouses' age	.006	.001	−.002	.001	−.001	−.001
	(.056)	(.017)	(.003)	(.002)	(.002)	(.004)

TABLE 8 (*Continued*)

	Number of Patient Choices (1)	Lottery Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
Years of schooling	−.317**	−.066**	.002	−.001	.001	−.007
	(.125)	(.031)	(.007)	(.005)	(.004)	(.009)
Difference in spouses' schooling	.208*	−.018	.004	.007*	.003	.007
	(.120)	(.033)	(.007)	(.004)	(.003)	(.009)
Number of children	−2.419	.044	.041	−.097	.019	.179
	(1.995)	(.433)	(.065)	(.061)	(.048)	(.169)
Household size	−.092	−.010	.007	−.013	.005	−.009
	(.212)	(.055)	(.014)	(.008)	(.006)	(.016)
Per capita income per month (1,000 taka)	.036	.030	−.008	.002	−.001	.014
	(.167)	(.058)	(.010)	(.005)	(.005)	(.012)
FSIQ measure	−.015	.178*	.022	.011	−.010	−.035
	(.407)	(.102)	(.023)	(.014)	(.011)	(.029)
Conscientiousness	−.334	−.065	.007	.019	.020**	−.056**
	(.300)	(.077)	(.019)	(.012)	(.010)	(.023)
Extraversion	.899***	.130	−.033	−.006	.023***	−.010
	(.322)	(.083)	(.020)	(.012)	(.008)	(.025)
Agreeableness	.079	−.035	−.010	−.007	.005	.005
	(.272)	(.072)	(.018)	(.010)	(.008)	(.021)
Openness	−.004	.094	.014	.019	−.021**	−.011
	(.339)	(.093)	(.023)	(.014)	(.010)	(.025)
Neuroticism	−.287	−.089	−.027*	.010	.009	.023
	(.294)	(.070)	(.015)	(.011)	(.009)	(.022)
Locus of control	−.007	−.136	.017	.026*	.005	−.011
	(.325)	(.089)	(.020)	(.013)	(.008)	(.026)
Observations	538	534	531	529	531	530
R^2/pseudo-R^2	.187	.062	.467	.092	.148	.114
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes

NOTE.—In panel A (B), husband's (wife's) preference is regressed on wife's (husband's) preference. Additional covariates controlled for in all specifications (not reported in table) are number of younger and elder siblings, profession, and district fixed effects. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

caused by selection of similar partners (even in the case of arranged marriages) or are a result of postmarriage convergence. Unfortunately, we do not have data on the length of the marriage. Yet data from rural Bangladesh by Ambrus, Field, and Torero (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 8 suggests that postmarriage 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]

Looking at the other control variables in table 8, we highlight only 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 socioeconomic status plays only a minor role for husband's economic preferences when the latter are considered separately. The Big Five 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 907 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 VI, where we highlight differences in data patterns between our sample from a poor country and previous evidence from rich countries.

Panel B of table 8 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 7, 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 socioeconomic status—is related to time preference and risk aversion. Taking panels A and B of table 8 together, we see that socioeconomic status of parents has little relationship to their economic preferences when we investigate each preference domain separately.

[22] Please note, however, that given that all of our families have children who are at least 6 years old, spouses have been staying together for at least 7 years. This means that, in principle, convergence of preferences might have occurred already during these early years of a marriage, implying that we cannot identify in detail whether selection or postmarriage convergence makes parents' preferences similar. Results in Carlsson et al. (2012, 2013), however, fail to report any postmarriage convergence in their sample of Chinese couples and their risk and time preferences, which supports our interpretation that postmarriage convergence is an unlikely explanation.

C. *Relation between Children's and Parents' Preferences: Regression Analyses*

Table 9 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. Ordinary least squares (OLS) coefficients are reported for risk and time preferences in columns 1 and 2 and probit marginal effects for social preferences in columns 3–6.[23] 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 7. In table A.9, we show that the relation of parents' and children's preferences remains practically the same if we drop all control variables and regress only children's preferences on parents' preferences. In additional regressions not shown here, we also find that the mother's (father's) preferences remain significant if the other parent's preferences were excluded from the regressions shown in table 9. 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 9 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 in table 9),[24] and this relationship does not depend on the gender of the child, as we show in table A.10. 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 9, 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 FSIQ is related to economic preferences in several dimensions. Children with higher IQ are more egalitarian and less selfish but also less patient. Somewhat similarly, we had already seen a negative relationship between years of schooling and patience for parents. It seems that higher IQ or more schooling are not positively linked

[23] Using ordered probit estimates yields qualitatively the same results in the estimations for risk and time preferences.

[24] On the basis of the means and standard deviations of all six preferences (time, risk, and social preferences) and given the sample size (see table 6), our experimental data are able to detect a 0.1 standard deviation size effect with more than 0.8 power.

TABLE 9
CHILDREN'S PREFERENCES AND THEIR RELATION TO PARENTAL PREFERENCES

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
Parent's preference: father	.036***	.075	.074*	.070**	.056*	.088**
	(.011)	(.049)	(.045)	(.034)	(.035)	(.041)
Parent's preference: mother	.048***	.116**	.342***	.096**	.101***	.125***
	(.012)	(.052)	(.055)	(.051)	(.045)	(.037)
Gender (male = 1, female = 0)	−.334**	−.039	.017	.017	.005	.002
	(.143)	(.156)	(.025)	(.025)	(.016)	(.032)
Age of respondent	.042	−.107*	−.011	.007	.004	.007
	(.058)	(.058)	(.009)	(.009)	(.005)	(.012)
Years of schooling	−.108**	.084	.021**	−.008	−.004	.000
	(.053)	(.058)	(.010)	(.009)	(.005)	(.012)
Attending school (yes = 1, no = 0)	−.054	.134	.010	.051	.001	−.097
	(.270)	(.372)	(.053)	(.042)	(.028)	(.067)
Father's years of schooling	.014	−.031	−.006	−.005	.003	.004
	(.025)	(.024)	(.004)	(.004)	(.002)	(.005)
Mother's years of schooling	−.001	.022	.004	.005	−.002	.001
	(.030)	(.031)	(.005)	(.005)	(.003)	(.007)
Household size	−.026	.108	.000	−.026*	−.012*	.057***
	(.090)	(.098)	(.014)	(.014)	(.007)	(.017)
Per capita income per month (1,000 taka)	.061	−.071	.001	.006	.004	−.011
	(.041)	(.051)	(.007)	(.009)	(.003)	(.010)
FSIQ measure of child	−.412***	−.070	.023	.060***	−.013	−.086***
	(.111)	(.118)	(.020)	(.020)	(.011)	(.027)
Conscientiousness	−.032	.139*	.010	−.000	.009	.003
	(.080)	(.077)	(.015)	(.013)	(.009)	(.017)
Extraversion	−.208***	−.045	−.016	.016	.008	−.015
	(.075)	(.076)	(.013)	(.013)	(.008)	(.016)
Agreeableness	−.085	.010	−.029**	.034**	−.009	−.014
	(.077)	(.085)	(.014)	(.014)	(.008)	(.017)
Openness	.087	.007	.021	−.023*	.007	.017
	(.071)	(.082)	(.013)	(.012)	(.007)	(.017)
Neuroticism	.009	.092	.007	.004	−.006	.014
	(.070)	(.080)	(.012)	(.011)	(.008)	(.016)
Locus of control	.022	−.029	−.039**	.020	−.005	.026
	(.070)	(.078)	(.015)	(.013)	(.007)	(.018)
Observations	896	452	897	897	897	897
R^2/pseudo-R^2	.148	.076	.398	.081	.080	.154
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes
p (F-test): husband = wife	.527	.586	.001	.709	.459	.498

NOTE.—Additional covariates controlled for in all specifications (not reported in table) are number of younger and older siblings, age of father and mother, grandparents dummy, and village population. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

to patience, as one might expect from evidence gathered in developed countries. We discuss this finding in section VI in more detail.

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 they are 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 9 shows that socioeconomic 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 socioeconomic 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 9, income or schooling of parents turns significant for at least patience and selfishness, as we show in tables A.11–A.16. The latter results are consistent with Falk et al. (2021), showing that it makes a difference whether one can control for parental preferences to see whether and how socioeconomic status of parents is linked to single economic preferences of children.[27] In section IV, we examine why parents' and children's economic preferences might be related to each other. In other words, we look into possible transmission channels.

IV. 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

[25] While we do not look specifically at single children (who have no siblings), we note that Fehr, Bernhard, and Rockenbach (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 9). Interaction of parental preferences with parents' years of schooling is only once (out of 12 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, Romano, and Wolf 2020). 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, Romano, and Wolf 2020). As can be seen in table A.17, our reported p-values and Romano-Wolf p-values are very similar in all cases to those reported in table 9. In tables A.18–A.20, we also show that the ensuing analyses in tables 10–12 are robust to MHT.

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 app. 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 10 (that is based on table 9 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 10). While it seems that parenting styles are unimportant for the economic preferences of children, their inclusion in table 10 leaves the coefficients and their significance for parents' preferences (first two rows of table 10) largely unaffected.

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 1 standard deviation of the overall sample, and heterogeneous parents, if the absolute difference is greater than or equal to 1 standard deviation. As a first step, we predict each adult's preference on the basis of 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

[28] Parenting styles were surveyed after the experiments, and we obtained data for 459 out of our full sample of 542 households.

[29] Because of 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).

TABLE 10
CHILDREN'S PREFERENCES AND THEIR RELATION TO PARENTAL PREFERENCES: TAKING PARENTING STYLES INTO ACCOUNT

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
Parent's preference: father	.035***	.071	.092**	.087***	.102***	.123***
	(.012)	(.052)	(.046)	(.037)	(.050)	(.043)
Parent's preference: mother	.045***	.112**	.426***	.139***	.099***	.202***
	(.012)	(.057)	(.053)	(.060)	(.047)	(.041)
Negative parenting	−.082	−.030	.004	.002	.005	.002
	(.058)	(.060)	(.009)	(.009)	(.006)	(.013)
Positive parenting	−.014	.099	−.003	.002	.009	−.011
	(.076)	(.086)	(.013)	(.012)	(.007)	(.018)
Gender (male = 1, female = 0)	−.340**	.126	.013	.023	.004	.001
	(.154)	(.165)	(.026)	(.026)	(.018)	(.035)
Age of respondent	.088	−.095	−.006	−.003	.005	.012
	(.065)	(.059)	(.010)	(.010)	(.005)	(.013)
Years of schooling	−.144**	.076	.021**	.000	−.005	−.010
	(.059)	(.061)	(.010)	(.010)	(.006)	(.013)
Attending school (yes = 1, no = 0)	−.068	.104	.057	.045	.006	−.116*
	(.292)	(.392)	(.043)	(.046)	(.030)	(.072)
Father's years of schooling	.002	−.051*	−.008*	−.004	.002	.000
	(.026)	(.027)	(.004)	(.004)	(.003)	(.006)
Mother's years of schooling	.032	.021	.006	.003	−.002	.005
	(.031)	(.032)	(.005)	(.005)	(.003)	(.007)
Household size	−.007	.128	.005	−.033**	−.015*	.074***
	(.094)	(.102)	(.013)	(.015)	(.008)	(.020)
Per capita income per month (1,000 taka)	.065	−.071	.001	.005	.002	−.003
	(.043)	(.058)	(.007)	(.009)	(.004)	(.011)
FSIQ measure of child	−.385***	−.104	.021	.055**	−.022*	−.063**
	(.121)	(.135)	(.021)	(.022)	(.013)	(.031)
Conscientiousness	−.039	.119	.007	.006	.007	.004
	(.088)	(.078)	(.014)	(.014)	(.010)	(.019)
Extraversion	−.266***	−.048	−.023*	.020	.014	−.017
	(.078)	(.083)	(.013)	(.013)	(.008)	(.018)
Agreeableness	−.132	−.028	−.016	.024*	−.004	−.018
	(.084)	(.086)	(.014)	(.013)	(.009)	(.018)
Openness	.150*	.064	.024*	−.023*	.010	.016
	(.077)	(.087)	(.013)	(.012)	(.009)	(.019)
Neuroticism	.062	−.000	.015	−.010	−.003	.031*
	(.075)	(.080)	(.012)	(.012)	(.009)	(.018)
Locus of control	.041	.006	−.043***	.012	.001	.037*
	(.080)	(.085)	(.016)	(.014)	(.008)	(.020)
Observations	770	387	770	770	770	770
R^2/pseudo-R^2	.153	.084	.390	.083	.078	.123
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 10 (*Continued*)

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
p (F-test): father = mother	.595	.626	.000	.482	.962	.193
p (F-test): joint significance of parents' preferences	.000	.036	.000	.002	.000	.000
p (F-test): joint significance of parenting style	.352	.466	.905	.961	.350	.820

NOTE.—Additional covariates controlled for in all specifications (not reported in table) are number of younger and older siblings, age of father and mother, grandparents dummy, and village population. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

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 9 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 11, which contains—in comparison to table 9—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 (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 postestimation tests in table 11.

From table 11, 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. Thus, 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

TABLE 11
CHILDREN'S PREFERENCES AND THEIR RELATION TO PARENTAL PREFERENCES: ADDING HOMOGENEITY/HETEROGENEITY OF PARENTS

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (3)	Egalitarian (4)	Altruistic (5)	Selfish (6)
Father's preference	.045**	.034	−.001	.077**	.010	.108**
	(.018)	(.064)	(.057)	(.036)	(.034)	(.052)
Mother's preference	.053***	.093	.464***	.037	.125***	.136***
	(.020)	(.068)	(.095)	(.049)	(.066)	(.046)
Father's preference × parents' homogeneity	−.030	.082	.106	−.045	.112	−.024
	(.049)	(.155)	(.100)	(.066)	(.096)	(.076)
Mother's preference × parents' homogeneity	.012	.013	−.094*	.167	−.018	−.053
	(.049)	(.169)	(.038)	(.140)	(.035)	(.067)
Parents' homogeneity (1 = homogeneous)	.194	−.553	.044	.032	−.011	−.085*
	(.327)	(.564)	(.050)	(.040)	(.016)	(.047)
Observations	896	452	888	889	895	889
(Pseudo)-R^2	.138	.067	.394	.073	.077	.155
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes
p: father = mother	.676	.445	.000	.478	.117	.672
p (F-test): joint significance of parents' preferences	.013	.396	.000	.059	.026	.001
p (F-test): father's preference + father × parents homogeneous	.747	.425	.045	.821	.009	.202
p (F-test): mother's preference + mother × parents homogeneous	.149	.488	.000	.041	.113	.189

NOTE.—Additional covariates controlled for in all specifications (not reported in table) are gender, age, years of schooling, an indicator for currently attending school or not, FSIQ, Big Five 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, and village population. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

in all other cases. If we look at homogeneous families, where fathers' and mothers' preferences are fairly similar, we note from the postestimation tests in table 11 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. Thus, neither parenting styles nor the assortativity of parents seem to be particularly noteworthy factors for explaining the similarity of parents' and children's preferences.

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 9, 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 12 shows the results. We note that the variables for the father's preferences turn insignificant in almost 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.

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 II 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.

[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 nonagriculture. Both types of activities are done within the village, while the only remaining relevant occupations (nonagricultural worker [6%] and professional [6%]) require some travel outside the village. Thus, the large majority of parents work and stay within the village, and so do children (who usually attend the village's school).

TABLE 12
CHILDREN'S PREFERENCES AND THEIR RELATION TO PARENTAL PREFERENCES: ESTIMATING OLDER SIBLING'S INFLUENCE

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
Parent's preference: father	.018	.184	−.030	.044	.048	.116*
	(.017)	(.115)	(.055)	(.043)	(.058)	(.063)
Parent's preference: mother	.057***	.358***	.511***	.037	.125**	.125**
	(.017)	(.124)	(.108)	(.053)	(.084)	(.062)
Older siblings' preference residuals	.318***	.278**	.012	−.044	−.028	.060
	(.054)	(.135)	(.047)	(.197)	(.057)	(.045)
Gender (male = 1, female = 0)	−.136	.175	.003	.011	−.009	.025
	(.215)	(.393)	(.041)	(.027)	(.023)	(.053)
Age of respondent	.290***	−.139	−.028	−.008	.012	.013
	(.108)	(.171)	(.024)	(.014)	(.010)	(.026)
Years of schooling	−.312**	−.047	.036	.010	−.014	−.011
	(.124)	(.193)	(.024)	(.015)	(.014)	(.030)
Attending school (yes = 1, no = 0)	−.160	.757	NA	.016	.047	−.408***
	(.457)	(.763)		(.051)	(.022)	(.112)
Father's years of schooling	−.007	−.105*	−.011*	−.007	.000	.002
	(.036)	(.058)	(.007)	(.005)	(.004)	(.009)
Mother's years of schooling	−.015	.040	.006	.008	−.003	.008
	(.042)	(.070)	(.008)	(.006)	(.005)	(.011)
Household size	.198*	.163	−.006	−.031	−.007	.074**
	(.118)	(.169)	(.021)	(.017)	(.011)	(.029)
Per capita income per month (1,000 taka)	.030	−.185	.016	.003	.010**	−.020
	(.051)	(.175)	(.012)	(.009)	(.005)	(.014)
FSIQ measure of child	−.044	.493*	.044	.027	−.002	−.099**
	(.179)	(.275)	(.036)	(.024)	(.021)	(.047)
Conscientiousness	−.086	.353	−.012	−.000	−.000	.047
	(.128)	(.221)	(.019)	(.016)	(.013)	(.030)
Extraversion	−.195	.153	.004	.012	.002	.042
	(.122)	(.208)	(.019)	(.018)	(.012)	(.029)
Agreeableness	.023	−.149	−.005	.036**	−.024**	.003
	(.119)	(.231)	(.024)	(.015)	(.011)	(.028)
Openness	.051	.002	.025	.013	.011	.020
	(.123)	(.188)	(.017)	(.016)	(.011)	(.028)
Neuroticism	.082	.331*	.013	.015	−.000	.015
	(.117)	(.193)	(.019)	(.014)	(.012)	(.027)
Locus of control	.068	.123	−.043*	−.012	−.003	.046*
	(.111)	(.189)	(.024)	(.015)	(.011)	(.027)
Observations	359	90	336	357	357	357
R^2/pseudo-R^2	.228	.414	.460	.150	.131	.177
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 12 (*Continued*)

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
p (F-test): father = mother	.146	.289	.001	.906	.459	.908
p (F-test): joint significance of parents' preferences	.001	.008	.000	.321	.078	.016

NOTE.—Additional covariates controlled for in all specifications (not reported in table) are number of younger and older siblings, age of father and mother, household size, grandparents dummy, and village population. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. NA = not available, since all are in school. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

2012).[32] As expected, table 13 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 tables 13 and 9), while for fathers we see four significant relations.

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.

V. 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

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

TABLE 13
CHILDREN'S PREFERENCES AND THEIR RELATION TO PARENTAL PREFERENCES: TAKING INTO ACCOUNT PEERS IN ONE'S VILLAGE

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
Parent's preference: husband	.031***	.073	.048	.062*	.058**	.075*
	(.011)	(.049)	(.042)	(.034)	(.036)	(.040)
Parent's preference: wife	.043***	.112**	.242***	.090**	.104***	.112***
	(.011)	(.052)	(.053)	(.050)	(.050)	(.037)
Average village preference	.325***	−.029	.330***	.152*	.003	.171**
	(.070)	(.099)	(.066)	(.079)	(.068)	(.082)
Gender (male = 1, female = 0)	−.334**	−.036	.019	.017	.006	.001
	(.141)	(.156)	(.026)	(.024)	(.016)	(.032)
Age of respondent	.033	−.109*	−.012	.008	.004	.005
	(.056)	(.059)	(.009)	(.009)	(.005)	(.012)
Years of schooling	−.116**	.088	.023**	−.009	−.004	−.001
	(.052)	(.059)	(.010)	(.009)	(.005)	(.012)
Attending school (yes = 1, no = 0)	−.007	.126	−.408**	−.408	−.408	−.408
	(.269)	(.371)	(.112)	(.112)	(.112)	(.112)
Father's years of schooling	.018	−.029	−.005	−.004	.003	.004
	(.023)	(.024)	(.004)	(.004)	(.002)	(.005)
Mother's years of schooling	−.007	.020	.003	.005	−.002	.001
	(.029)	(.032)	(.005)	(.005)	(.003)	(.007)
Household size	−.013	.114	−.003	−.025*	−.012*	.055***
	(.084)	(.098)	(.013)	(.014)	(.007)	(.017)
Per capita income per month (1,000 taka)	.045	−.067	.001	.004	.004	−.012
	(.040)	(.051)	(.007)	(.009)	(.003)	(.010)
FSIQ measure of child	−.346***	−.065	.022	.058***	−.013	−.079***
	(.110)	(.119)	(.021)	(.020)	(.011)	(.027)
Conscientiousness	−.044	.121	.009	−.001	.009	.006
	(.081)	(.077)	(.015)	(.013)	(.010)	(.018)
Extraversion	−.204***	−.059	−.001	.014	.008	−.015
	(.073)	(.077)	(.013)	(.013)	(.008)	(.016)
Agreeableness	−.084	−.001	−.026*	.033**	−.009	−.014
	(.075)	(.086)	(.015)	(.013)	(.008)	(.017)
Openness	.086	.009	.026**	−.023*	.007	.016
	(.072)	(.083)	(.013)	(.012)	(.007)	(.017)
Neuroticism	−.003	.100	.006	.002	−.005	.017
	(.070)	(.080)	(.012)	(.011)	(.008)	(.016)
Locus of control	.002	−.027	−.018	.014	−.004	.018
	(.070)	(.078)	(.017)	(.013)	(.007)	(.018)
Observations	891	450	892	892	892	892
R^2/pseudo-R^2	.175	.073	.427	.086	.081	.158
District fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 13 (*Continued*)

	Number of Patient Choices (1)	Gamble Number Picked (2)	Spiteful (0/1) (3)	Egalitarian (0/1) (4)	Altruistic (0/1) (5)	Selfish (0/1) (6)
p (F-test): husband = wife	.507	.610	.013	.679	.470	.489
p (F-test): joint significance of parents' preferences	.000	.023	.000	.019	.002	.001

NOTE.—Additional covariates controlled for in all specifications (not reported in table) are number of younger and older siblings, age of father and mother, grandparents dummy, and village population. OLS coefficients are reported in cols. 1 and 2, and probit marginal effects are reported in cols. 3–6. R^2 refers to OLS, and pseudo-R^2 refers to probit regressions. Standard errors (in parentheses) are clustered at the household level.

* $p < .10$.

** $p < .05$.

*** $p < .01$.

has linked theoretically two (out of our three) different preference domains each (e.g., Halevy 2008; 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 socioeconomic and demographic determinants of the assignment to a particular cluster.

A. Correlations across Preference Domains

We start with table 14 and present the raw correlations of our six measures of economic preferences for husbands, wives, and children. All three panels show an interesting pattern of how the three types of economic preferences are related to each other within individuals. In particular, they reveal that more patient individuals are typically more risk tolerant (significant for wives and children) and that both risk and time preferences are also related to social preferences. 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 for risk aversion. 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 6)—is

TABLE 14
CORRELATIONS ACROSS PREFERENCES (Within Individuals)

	Number of Patient Choices	Gamble Number Picked	Spiteful	Egalitarian	Altruistic	Selfish
			A. Husband			
Gamble number picked	.018					
Spiteful	−.234***	−.133***				
Egalitarian	−.078*	−.047	−.252***			
Altruistic	.110**	.011	−.155***	−.173***		
Selfish	.130***	.147***	−.297***	−.331***	−.203***	
Unclassified	.078*	.004	−.252***	−.281***	−.173***	−.331***
			B. Wife			
Gamble number picked	.102**					
Spiteful	−.292***	−.103**				
Egalitarian	−.049	−.092**	−.163***			
Altruistic	.040	−.030	−.136***	−.083*		
Selfish	.169***	.169***	−.395***	−.241***	−.201***	
Unclassified	.094**	−.013	−.310***	−.190***	−.158***	−.460***
			C. Children			
Gamble number picked	.126***					
Spiteful	−.064*	−.046				
Egalitarian	−.209***	−.075	−.226***			
Altruistic	.005	.006	−.137***	−.123***		
Selfish	.194***	.040	−.334***	−.299***	−.182***	
Unclassified	.031	.063	−.293***	−.263***	−.159***	−.387***

* $p < .10$.
** $p < .05$.
*** $p < .01$.

rarely significantly related to risk and time preferences. The unclassified social preference types (table 14) are negatively correlated to the four defined social preference types (as one would expect by definition) but hardly ever related to risk preferences.

Overall, table 14 shows that within individuals, our measures for three different domains of economic preferences are related in a consistent manner for husbands, wives, and children. This pattern raises the question of 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.

B. 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 PCA 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 clustering algorithm (Kaufman and Rousseeuw 1987), also known as partitioning around medoids clustering, which is more robust to outliers and noise than the well-known *k*-means approach.[33] 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, that is, 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 nonmedoids 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 (Rousseeuw 1987) or the Calinski-Harabasz statistic (Calinski and Harabasz 1974) are minimized.[34] Both criteria yield two as the optimal number of clusters (see figs. A.1 and A.2 (figs. A.1–A.6 are available online)).[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

[33] The medoid is the representative point of a cluster and is a generalization of the median: it is an existing point of the data set (such as the median for an odd number of one-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 how well a data point fits to its own cluster compared with 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.

[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 criterion as model selection criteria.

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 with observations that have no missing values, the distance is quite big. In the data we use, this procedure corresponds to 5.27 standard deviations, where all the data are centered and standardized. For the analysis in tables 15 and 16, we use this approach, which is suitable also to deal with our missing values for half of the children with respect to risk preferences.[36] In table A.22, we show, however, that dropping all subjects with missing values yields practically the same types of clusters and insights.

Table 15 shows the results of the two-medoids cluster analysis. The columns labeled cluster 1 and cluster 2 contain the mean of the respective economic preference (of fathers, mothers, and children) in the respective cluster. Column 3 reports the difference between both clusters, and column 4 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. There are 431 families classified into cluster 1 and 111 families classified into cluster 2. Cluster 1 families are significantly more patient, more risk taking, less often spiteful, and more often altruistic or selfish (while for egalitarian social preference types, there is no significant difference). Cluster 2 families are more impatient, more risk averse, and, in particular, more often spiteful. Hence, the two clusters have almost diametrically opposed economic preferences, and so whole families are very different in the expression of their economic preferences. To visualize the two clusters in a two-dimensional space, we have run a PCA that has identified two significant factors. The key factor is the first one that loads strongly on the combination of spitefulness, risk, and time preferences (as they are shown to relate; see table 14). The second factor captures the rest and has a less clear interpretation. Figure 1 shows that the 542 families are cleanly divided into those belonging to cluster 1 (circles) and those assigned to cluster 2 (triangles). This raises the question of 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.

Table 16 presents a probit regression on whether a particular family has been assigned to cluster 2. Positive coefficients of the independent variables make it more likely to be assigned to cluster 2, whereas negative

[36] Note that if someone is not classified as spiteful, egalitarian, altruistic, or selfish, this does not constitute a missing value, but it represents a classification as none of these social preference types.

TABLE 15
Summary of Characteristics Represented in Two Clusters Resulting from Partitioning around Medoids (2-Medoids): Aggregating Offspring at Household Level

	Cluster 1 (1)	Cluster 2 (2)	Difference (3)	p (4)
Number of patient choices:				
Children	2.93	2.51	.42	.04
Father	7.82	2.36	5.46	.00
Mother	9.19	2.34	6.85	.00
Gamble number picked:				
Children	3.94	3.67	.26	.17
Father	4.12	3.25	.87	.00
Mother	4.00	3.58	.42	.02
Spiteful:				
Children	.08	.68	−.60	.00
Father	.03	.77	−.73	.00
Mother	.04	.87	−.83	.00
Egalitarian:				
Children	.19	.12	.07	.04
Father	.23	.16	.07	.10
Mother	.11	.02	.09	.00
Altruistic:				
Children	.08	.00	.08	.00
Father	.12	.01	.11	.00
Mother	.08	.01	.07	.01
Selfish:				
Children	.36	.11	.25	.00
Father	.34	.05	.30	.00
Mother	.45	.05	.41	.00
Unclassified social preference:				
Child	.26	.06	.19	.00
Father	.23	.02	.22	.00
Mother	.28	.04	.25	.00
Number of families	431	111		

TABLE 16
Determinants of Families Belonging to Cluster 2 (Impatient, Risk Averse, and Spiteful) Depending on Parents' Background Characteristics: Probit Regression

	Marginal Effects at Mean	Standard Error
Per capita income per month in 2016 $\times 10^{-4}$	−.026**	.012
Household size	−.028**	.014
Age of father (years)	.005	.003
Age of mother (years)	−.000	.004
Schooling father (years)	.004	.006
Schooling mother (years)	.016**	.007
FSIQ father (standardized)	.008	.024
FSIQ mother (standardized)	.034	.024
Observations	538	
Pseudo-R^2	.067	
Log-likelihood	−255.57	

** $p < .05$.

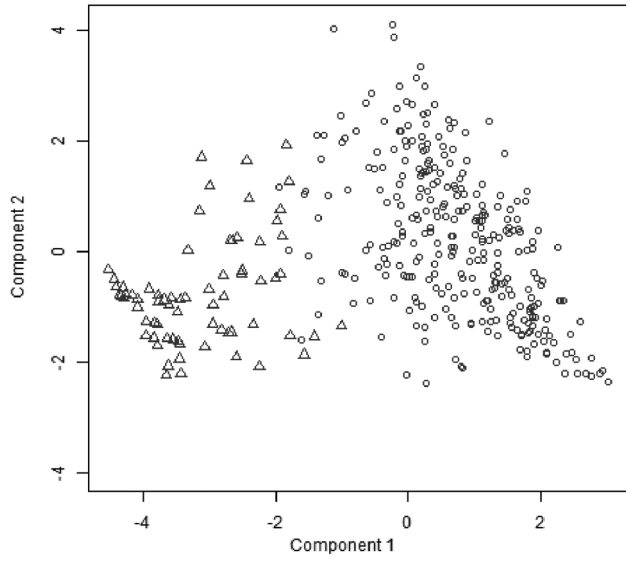

FIG. 1.—Family clusters 1 and 2 dependent on two factors from PCA of economic preferences. Circles = cluster 1; triangles = cluster 2. Component 1 on the horizontal axis can be interpreted as a factor capturing spitefulness, risk, and time preferences. Negative values represent more spiteful, risk averse, and impatient families, and positive values represent less spiteful, more risk tolerant, and more patient families. Component 2 (the other factor with a loading larger than 1) has no straightforward interpretation. A color version of this figure is available online.

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 in addition to the household size (i.e., number of subjects living in the household) and the per capita monthly household income. Recall that the latter had no significant relation to single economic preferences of children when controlling for parents' preferences, but income turned partly significant when excluding parents' economic preferences, and it was also significant for fathers' altruism and selfishness. When dealing with family clusters with respect to economic preferences, table 16 shows that income is significant such that richer households are more likely to be classified in cluster 1 (with more patient, more risk tolerant, and less spiteful members).

In addition, we note that larger households are more likely to belong to cluster 1, while families with older fathers (not statistically significant) 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 FSIQ 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 (such as Germany; e.g., 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. Section VI 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.

VI. Discussion of Key Differences of Our Data in Comparison to Evidence from Rich, Developed Countries

Recall from tables 8 and 9 that we had found a negative correlation between IQ or schooling 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 or schooling and patience are related to each other in developing countries, which leaves open whether the patterns found in high-income countries apply also to low-income countries. In fact, focusing here on IQ, 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. 2011; Golsteyn, Grönqvist, and Lindahl 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 be only worse options available in the future. A higher IQ might make it all the clearer that this strategy (of

[37] This is consistent with our finding in app. 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.

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 finding 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 8 and 9 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 figures A.3 and A.4, we present 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.

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 again use the World 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 Human Development Report 2020, 343–46; https://hdr.undp.org/content/human-development-report-2020). 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 of a negative influence of

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

[39] See https://datahelpdesk.worldbank.org/knowledgebase/articles/906519.

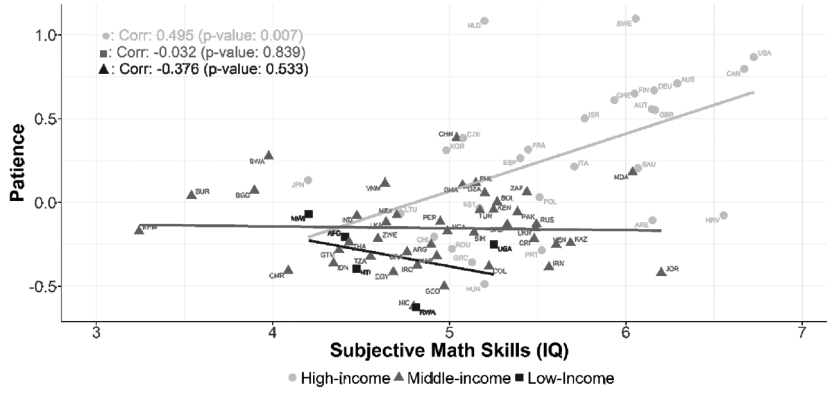

FIG. 2.—Relationship between IQ and patience, conditional on income level of country. We show on the vertical axis the average level of patience in a particular country and on the horizontal axis the average level of math skills as a proxy for IQ (both taken from the Global Preference Survey; Falk et al. 2018). The income classification is taken from the World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519). A color version of this figure is available online.

(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 even a negative correlation ($r = -0.021$; $p = .19$) between years of schooling and patience if we look at the individual country level.

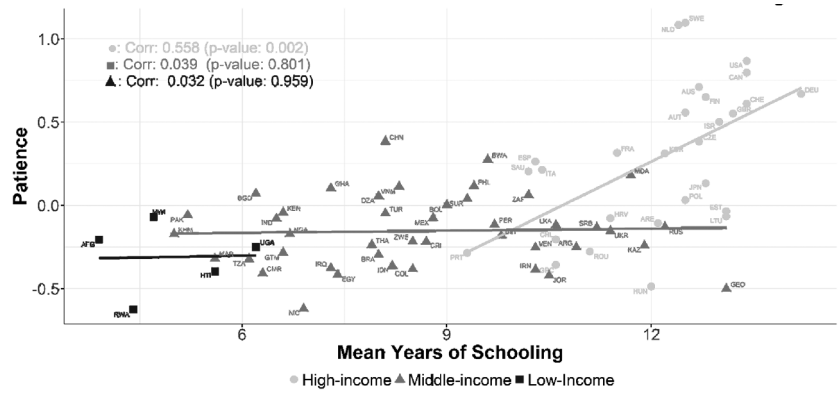

FIG. 3.—Relationship between years of schooling and patience, conditional on income level of country. We show on the vertical axis the average level of patience in a particular country (from the Global Preference Survey; Falk et al. 2018) and on the horizontal axis the mean years of schooling (from the Human Development Report 2020, 343–46; https://hdr.undp.org/content/human-development-report-2020). The income classification is taken from the World Bank (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519). A color version of this figure is available online.

More generally, evidence by Morisset 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, we present the analogous data to those in figure 3 but 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. Thus, overall figures 3, A.5, and A.6 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, Bernhard, and Rockenbach (2008) and Fehr, Glätzle-Rützler, and Sutter (2013) from Switzerland and Austria shows a clearly declining fraction of spiteful subjects with increasing age (from age 3 to early adulthood). In our sample, the relation between spitefulness and age of children tends to be positive (for children up to age 10, 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, Zoller, and Glätzle-Rützler 2019). In Bangladesh, this is not the case, and this might be driven by the developing country context discussed at the beginning of this 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 with evidence from rich developed countries. The main takeaway 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 (e.g., between IQ and patience) are really universal or perhaps just confined to WEIRD (western, educated, industrialized, rich, and

[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).

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.

VII. 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, Chytilova, and Pertold-Gebicka 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—such as 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 542 Bangladeshi families with a total of 1,991 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, wives, and their children while controlling for a large set of background variables, including socioeconomic 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 also 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. As far as we can tell, no previous paper has made an attempt to provide such a 360° 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 (e.g., Kosse and Pfeiffer 2012; Alan et al. 2017) have been unable to speak to the relative influence of both parents because they have had access to the experimental choices of only 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, socioeconomic 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 socioeconomic 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 socioeconomic 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 socioeconomic 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 nonspiteful economic preferences of all family members. The other cluster, applying to about one in five families, has members who are fairly impatient and 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 socioeconomic status of parents has not

been indicative of a particular configuration of that particular preference, the importance of the socioeconomic 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. Thus, 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 socioeconomic 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 (e.g., Almas et al. 2016; Brenoe and Epper 2018).

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 schooling) 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 section VI, we have provided evidence that these relationships—while unusual for high-income countries—are not at all uncommon in low-income countries (such as 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 sociodemographic 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 nonconducive 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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