



The Intergenerational Transmission of Risk Preferences: Evidence from Field Experiments in China and Korea

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Abstract

In this study, we conduct field experiments with 196 worker-parent pairs from two companies in China and South Korea and explore factors that affect the similarity of risk preferences between parents and their offspring. In the Chinese data, we show more similar risk preferences between parents and their offspring when there are higher levels of parental involvement and financial parenting. In contrast, in the Korean data, a more demanding parenting style contributes to intergenerational transmission. These effects are mainly captured by the intergenerational transmission from Chinese mothers to their offspring and from Korean fathers to their offspring. In addition, we find that in our study, same-gender transmission contributes highly to intergenerational transmission, and the risk preferences of Chinese workers and their parents are more similar than those of Korean workers and their parents. We also discuss potential differences in the intergenerational transmission of risk preferences between China and Korea and Western countries. Our study provides a better understanding of the formation of individuals' risk preferences.

Keywords Intergenerational transmission · Risk preferences · Field experiment · China · Korea

JEL Classification D10 · D81 · J13 · Z13

Introduction

Risk preference is one of the most important and distinct characteristics influencing consumption, investment, and savings choices. Economists and policymakers have explored how individuals' risk preferences are formed. A growing body of literature suggests that economic preferences, particularly risk preference, is transmitted from parents to offspring, or at least that risk preference is strongly correlated between parents and offspring (Alan et al., 2017; Dohmen et al., 2012; Gauly, 2017; Zumbuehl et al.,

2021). Research also illustrates that the transmission has a prolonged influence on offspring's economic outcomes, including their income or education (Blanden et al., 2007), their entrepreneurial intentions (Wyrwich, 2015), and their willingness to compete (Tungodden & Willén, 2023).¹

How does intergenerational transmission shape Chinese and Korean's risk preferences? To the best of our knowledge, this question has not been studied before. In this study, we try to fill this research gap. Previous studies provide supporting evidence that suggests that East Asian countries may have a unique pattern of intergenerational transmission. For example, parents in East Asian countries have a great influence on their offspring's decisions; that is, East Asian parents have a more far-reaching impact on their offspring's education, job, and even marriage choices (Ng et al., 2014) that may prompt social mobility and wealth

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¹ Admittedly, we cannot disentangle genetic impact on the formation of individuals' risk preferences (Linnér et al., 2019). However, while both genetic and environmental factors affect holding equities, the nurture has a stronger impact on financial risk-taking (Black et al., 2017) and most existing studies agree that intergenerational transmission is an inevitable source in the formation of economic preferences (Dohmen et al., 2012).

inequality. Moreover, due to their cultural background, East Asian offspring are accepting of abundant parental involvement (Pomerantz & Wang, 2009).

In this paper, our objective is to study whether previously identified determinants of similarity of risk preferences between offspring and their parents apply to our Chinese and Korean samples (in our case, participating workers and their parents from two companies), and investigate how these determinants affect the formation of individuals' risk preferences in China and Korea.

Recent studies have introduced a few determinants to help us understand the drivers of the intergenerational transmission of risk preferences. In this paper, we consider three potential determinants: parental involvement, financial parenting, and parental demandingness. Parental involvement is measured by the frequency and intensity of parental engagement in their offspring's childhood and adolescence (Zumbuehl et al., 2021), and it moderates the strength of effects in the intergenerational transmission of risk and time preferences (Alan et al., 2017; Brenøe & Epper, 2022; Zumbuehl et al., 2021). For example, Alan et al. (2017) utilize an incentivized elicitation task to examine mothers' and offspring's risk tolerance. They ask participants to divide their endowments between risky and riskless options and find that mothers can transmit risk preferences to their daughters and that the maternal involvement levels moderate the strength of the transmission. Similarly, using the German Socio-Economic Panel (SOEP) data, Zumbuehl et al. (2021) show that parents who have higher levels of parental involvement share more similar risk attitudes with their offspring. In a recent study, Brenøe and Epper (2022) find that parental involvement explains time preferences transmission only when parent and offspring have the same gender.

The second potential determinant is financial parenting. Financial parenting is a term established by Serido et al. (2010) based on family financial socialization theory (Gudmunson & Danes, 2011), which represents "(offspring's) perception of the financial socialization received from their parents" (Serido et al., 2010, p. 3). Researchers have noted that offspring's financial knowledge, attitudes, and behaviors are formed throughout childhood and adolescence and are significantly influenced by their financial parenting (Chowa & Despard, 2014). Related studies illustrate that financial parenting may be associated with offspring's risky behaviors in the other non-financial domains as well, such as alcohol use (Serido et al., 2014).

The third potential determinant, parental demandingness, was considered as one dimension of parenting style according to Baumrind (1967). Parenting style accounts for two dimensions, demandingness (or control) and responsiveness (or warmth), and it describes how parents interact with their offspring (Brenøe & Epper, 2022). Doepke and Zilibotti (2017) develop a theoretical model to study

the intergenerational transmission of risk aversion. They find that parenting style is dictated by parental preferences and socioeconomic environments, which in turn shapes offspring's risk attitudes in line with parents' hope of maximizing their offspring's utilities. Similar findings on the effects of parenting style (parental demandingness and responsiveness) on risk preference transmission appear in Doepke et al. (2019).

To answer our research question about how these above-mentioned determinants affect the intergenerational transmission of risk preferences, we conduct field experiments at two companies in China and Korea. We focus on blue-collar workers in small and medium-sized enterprises (SMEs), who are the subjects in this study.² Researchers have indicated that compared with employees in large firms, those in SMEs receive less education and have lower incomes (Cheng et al., 2019; Korea Small Business Institute Korea Small Business Institute [KOSI], 2021). These differences may result in employees at SMEs in China and Korea being more vulnerable when they are exposed to risks, such as the COVID-19 pandemic. Moreover, researchers have found that blue-collar workers' risk preferences affect their financial decision making. For example, Burks et al. (2009) shows that a greater willingness to take calculated risks is associated with higher cognitive skills and contributes to positive outcomes. Unfortunately, blue-collar workers at SMEs have not been the subject of many studies in China and Korea. The current work aims to provide a better understanding of the preferences and behaviors of these employees.

In our experiment, we ask the participating workers and their parents to answer online survey questions. We implement a set of well-validated risk preference elicitation measures for participants' risk preferences (Falk et al., 2022), which should help strengthen the external validity of the study (List, 2020). Also, previous studies have pointed out that measuring risk preference using self-reported questions without specific domain may result in bias because respondents usually report their occupation-related risk attitudes. For example, farmers would report their risk attitudes to agricultural matters. Then individuals' answers may fail to predict their behaviors (He, 2018). Our approach to measurement is preferable and convincing because the questions are specifically designed for the context of financial decision making. In our analysis, we examine the effects of the aforementioned three determinants on intergenerational transmission of risk preferences and find that in the Chinese

² According to the Organisation for Economic Co-operation and Development [OECD] (2020), 98.6% of Chinese enterprises are small and medium-sized enterprises (SMEs) with 300 or fewer employees; the proportion in Korea is 99.9% (Ministry of SMEs and Startups [MSS], 2018).

data, more parental involvement during childhood and more experiences related to financial activities between workers and their parents increase their risk preferences' similarities, such that a one-standard-deviation increase in the levels of parental involvement and financial parenting decreases intergenerational differences in risk preferences between Chinese workers and their parents by 25.5 and 29.1 percentage points, respectively. In contrast, a more demanding parenting style strengthens the transmission of risk preference from Korean parents to their offspring, such that a one-standard-deviation increase in the level of parental demandingness decreases the difference by 19.0 percentage points.

This paper provides valuable insights to the understanding of the formation of individuals' risk preferences in China and Korea based on data obtained from field experiments. Our findings explain that Chinese participants' transmission occurs through shared participation (either in school life or in specific financial activities), while Korean participants' transmission is through the emotional atmosphere created by parents. Moreover, we show that these effects on the similarities of worker-parent risk preference are mainly captured by the intergenerational transmission from Chinese mothers to their offspring and from Korean fathers to their offspring. In addition, consistent with the literature, we find that same-gender transmission contributes highly to intergenerational transmission in our study. Finally, comparing data from the two countries, we find that the risk preferences of Chinese workers and their parents are more similar than those of Korean workers and their parents.

We organize the rest of the paper as follows: We first introduce the experimental design and procedures. We next present the empirical results of our experiment. We then conclude and discuss the implications.

Experimental Design and Procedures

Description of the Study

We recruited participants from two small and medium-sized enterprises (SMEs) in Qingdao, China, and Seoul, Korea.³ The Chinese company specializes in trade and coal mining, and the Korean company is a construction equipment company that manages, operates, and repairs tower cranes

³ The reason we conducted a field experiment is that there is no longitudinal data set that elicits risk preference in the financial domain in China and Korea. While one of the reasons we recruited workers from SMEs rather than using student subjects is because workers are usually more experienced in financial activities, for example, they save money for housing and retirement, or invest in the stock market. Thus, their elicited risk preferences would be consistent with their real financial behaviors, rather than merely stated risk preferences.

at construction sites. The department of management sent an invitation letter to their workers via email and they were recruited on a voluntary basis. Participating workers were told they would answer a set of online survey questions, which would take them about 30 min to complete. These workers were also asked to invite one of their parents to participate in the study, and both of them (workers and parents) need to answer online surveys during the workers' working hours via computer or smartphone.⁴ Both experiments took place in China and Korea in December 2019.

Our data set consists of 196 worker-parent pairs (we invited one parent to participate, so there are 392 participants in total), who are adult, and their risk preferences are considered moderately stable (Schildberg-Hörisch, 2018). Of these, 90 pairs are from the Chinese company, and 106 pairs are from the Korean company.⁵ Of our participants, 66.33% of the workers are male (the percentage of male workers in Chinese and Korean data are 55.56% and 75.47%, respectively), with an average age of 32.07 years old (SD = 6.75; Chinese workers' mean: 30.64, SD = 5.03, and Korean workers' mean: 33.28, SD = 7.74). The mean age of the workers' parents is 58.69 years old (SD = 7.71; Chinese parents' mean: 54.70, SD = 5.76, and Korean parents' mean: 62.08, SD = 7.56), of whom 62.24% are male, i.e., the father of the participating worker (the percentage of male parents in Chinese and Korean data are 54.44% and 68.87%, respectively).

The survey consisted of seven parts in total. Questions asked participants (both workers and parents) about parental involvement during childhood, the experience of financial activities with parents during childhood, parental demandingness, risk attitude in financial decision making, risk attitude in the other domains, investment tasks for real compensation, financial literacy, and demographic information. Participants earned \$0.5 in China and \$2 in Korea for participation, and they had a chance to win a bonus from the investment tasks in the experiment, which ranged from \$1 to \$2 in China and from \$4 to \$8 in Korea.⁶

⁴ We set this requirement to minimize the possibility of workers "pretending" to be their parents in answering the survey. In addition, our online survey was based on Qualtrics software, which provided us with the location data of participants. We found no evidence that the responses of workers and parents came from the same place.

⁵ Response rates are similar between two companies. In the Chinese company, 90 out of 144 invited workers participated (response rate is 63%), while in the Korean company, 106 out of 171 invited workers participated (62%).

⁶ In our data set, the average salary of the Korean company is about four times that of the Chinese company. Our compensation is set close to half an hour's average salary for the workers.

Measurement of Key Determinants

Parental Involvement

We modified the parental involvement questions from Zumbuehl et al. (2021), which include nine related questions about how much parents were involved during their offspring's childhood. We focus on workers' answers in this part to measure perceived parental involvement (no matter how much their parents were actually involved).⁷ For example, one question asked workers about their parents' participation in their school life: "How frequently did your parents show their interests in your school performance?" Workers could choose an answer on a scale from 1 ("never") to 5 ("always"). There were binary questions as well. For example, one question asked, "Were your parents involved in many school activities (e.g., sports day, homecoming, or graduation ceremony)?" Workers had to choose between 1 ("yes") or 0 ("no").

We standardized the non-binary questions and then used principal components analysis to construct a single index of the nine questions (Cronbach's Alpha = 0.77). We selected the first principal component as our parental involvement index, which is the only component with an eigenvalue greater than one, and it explains approximately 37% of the total variances.

Financial Parenting

We developed a method of measuring financial parenting in workers and their parents, by incorporating four binary choice questions of financial activities: "Do you know your parents have invested in stocks?", "Have you ever visited financial institutions (e.g., banks) with your parents?", "Have you ever read and discussed books or newspapers about the financial market with your parents?", and "Have you ever talked about retirement savings plan with your parents?". We build a financial parenting index, which ranged from 0 to 4 (each "yes" response earned one point), to represent the levels of financial parenting in our data set.

⁷ We collected data from both parents and children. We found that parents' responses to parental involvement and financial parenting were significantly and highly correlated with their offspring's responses. However, there was no significant correlation between parents and offspring's answers about parenting styles. This may be because parental involvement and financial parenting measures are based on objective judgments, whereas parenting styles are based on subjective judgments (parents and children may have different standards of "demandingness"). In our analysis, we use offspring's answers to measure how their perceived parental influences shaped their economic preferences. Also, in this way, we can compare our findings with previous literature (Zumbuehl et al., 2021), in which authors used offspring-side data but conducted their study in the West.

Parental Demandingness

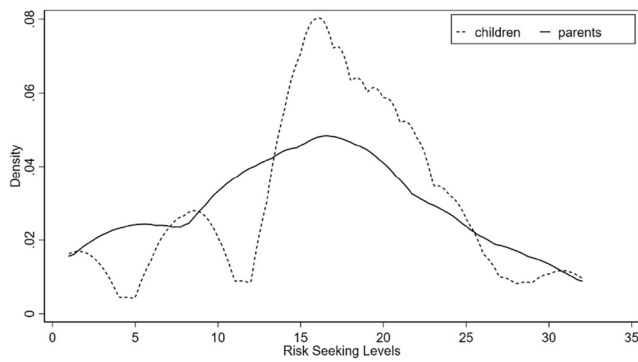
We follow the definition of parenting style in Maccoby and Martin (1983) and divide parenting styles into four categories: neglectful, permissive, authoritative, and authoritarian. Workers were asked to select their parents' parenting styles with respect to the given definitions. We built a score based on workers' answers, with scores ranging from 1 to 4. A higher score represented a "more demanding" parenting style.⁸ Parenting styles have two dimensions: demandingness and responsiveness. However, Zumbuehl et al. (2021) illustrate that measures of responsiveness are close to those of the parental involvement. Thus, we only consider demandingness so that the effects can be distinguished from those of responsiveness.

Elicitation of Risk Preference

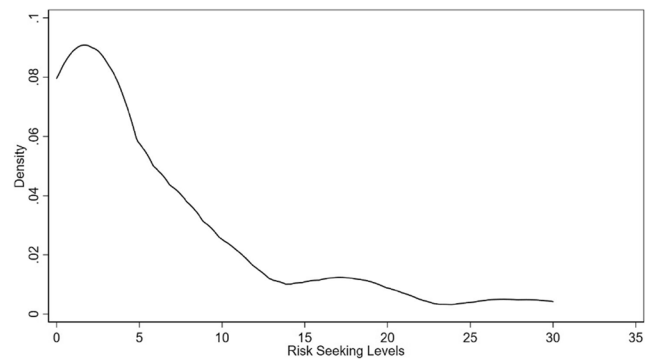
We used questions from Falk et al. (2022) to elicit risk preferences of workers and their parents. Participants answered "staircase" (or "unfolding brackets") questions regarding hypothetical binary choices. There were five interdependent binary choices between "a sure payment" and "a lottery," which had a 50% chance of winning or a 50% chance of losing, respectively. The "lottery" choices did not change, but the "sure payment" changed depending on individuals' choices. In other words, if a participant selected "lottery" in one question, then in the following question, he or she would be asked to choose between the same lottery amount as the previous question and a higher amount of the sure payment (vs. the previous question). Conversely, if this participant selected "a sure payment" in one question, then in the next question, he or she would be asked to choose between the same lottery amount as the previous question and a lower amount of the sure payment (vs. the previous question). The elicited level of risk seeking ranged from 1 to 32, such that the higher the level, the more risk seeking participants were. For an example of the staircase question, see Appendix Figure 2.

Figure 1 shows the overall levels of risk preferences of our Chinese and Korean participants, wherein subfigures (a) and (c), dashed curves and solid curves represent workers' and parents' elicited risk preference, respectively, and subfigures (b) and (d) represent the absolute difference of elicited risk preferences between workers and their parents. In this figure, the x-axes represent the levels of participants' risk preferences in subfigures (a) and (c), where a higher number denotes that a participant is more risk seeking, and

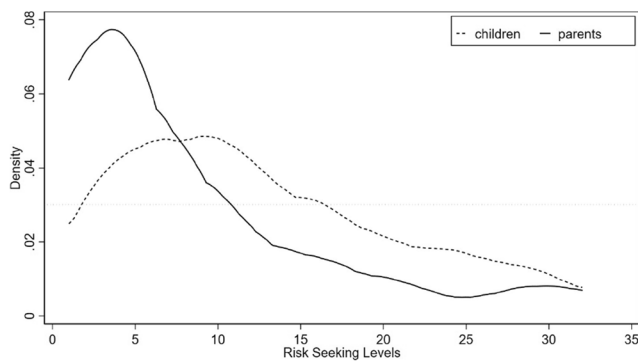
⁸ Gunnoe (2013) documents that the order of demandingness among four parenting styles is neglectful, permissive, authoritative, and authoritarian (from low to high).



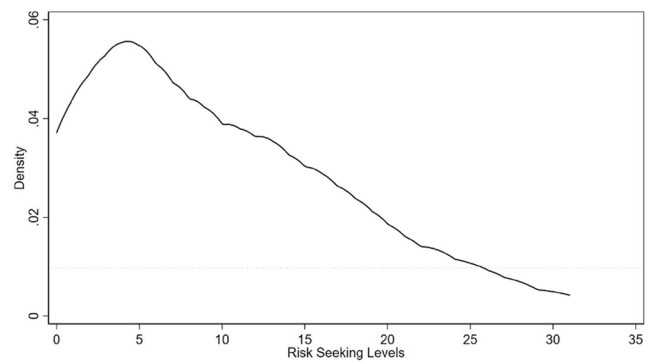
(a) Workers and Parents' Risk Seeking Levels (China)



(b) Absolute Difference of Elicited Risk Preferences (China)



(c) Workers and Parents' Risk Seeking Levels (Korea)



(d) Absolute Difference of Elicited Risk Preferences (Korea)

Fig. 1 Density of risk preference between workers and their parents. This figure includes four density plots of risk preference between workers and their parents. X-axes represent the levels of participants' risk preferences (higher numbers represent more risk seeking) in subfigures (a) and (c), and they represent the levels of difference of risk preferences between workers and their parents in subfigures (b) and

(d). Subfigures (a) and (b) are for Chinese workers and their parents, while subfigures (c) and (d) are for Korean workers and their parents. In subfigures (a) and (c), dashed curves and solid curves represent workers' and parents' elicited risk preferences, respectively. Curves in subfigures (b) and (d) represent the absolute difference of elicited risk preferences between workers and their parents

they represent the levels of difference of risk preferences between workers and their parents in subfigures (b) and (d). These plots show that, in general, Korean workers are more risk seeking than their parents (t-tests p -value = 0.138 for Chinese workers and parents, and p -value = 0.000 for Korean workers and parents).⁹ In addition, Chinese workers

and parents are more risk seeking than Korean workers and parents, respectively (t-tests p -value = 0.000 and 0.000, respectively).

Regarding the absolute differences of risk preference between workers and their parents (solid curves in subfigures (b) and (d) in Figure 1), we find that the mean and median of Chinese worker-parent risk preferences differences are 5.49 and 3 (SD = 6.90), respectively, while the mean and median of Korean worker-parent risk preference differences are 9.64 and 8 (SD = 7.68), respectively. Our observations indicate that the differences in risk preferences of Chinese

⁹ Chinese workers' mean: 16.70, SD=7.08; Chinese parents' mean: 15.32, SD=8.24; Korean workers' mean: 12.42, SD=8.44; Korean parents' mean: 7.96, SD=8.06. Simple linear regression results suggest that mothers' levels of risk seeking, but not fathers' levels of risk seeking, significantly increase their offspring's levels of risk seeking. This finding is consistent with previous literature (Alan et al., 2017; Zumbuehl et al., 2021). Even though the significant effect only exists between workers and their mothers, it does not impede us from investigating the determinants of similarities in risk preferences between workers and their parents.

worker-parent are smaller than those of Korean worker-parent (t-test p -value = 0.000).^{10,11}

We also implement investment tasks to evaluate whether our measurement of individuals' risk preferences is consistent with their behaviors in financial decision making tasks with real payment. The tasks are based on the experimental design in Charness and Gericot (2009). Each participant hypothetically received either \$1000 (China) or \$4000 (Korea) as an initial endowment.¹² The participant was then required to choose between a safe investment ("checking account") or a risky investment ("stock market") across three rounds of the tasks (making investment choices). More specifically, a safe investment did not produce an additional return on investment, while a risky investment could pay a participant two, three, and four times their investment amounts in the first, second, and third round if the investment was successful. However, if the investment was a failure, participants' investment principal would not be refunded. The possibilities of a successful investment and a failure were 50%, which was randomly assigned by the computer. At the end of the investment tasks, the payment (the safe investment payment plus the risky investment payment) in one of the three rounds of the tasks was randomly selected as the bonus payment to participants (we paid 0.05% of the stated earnings). We present the instructions of the investment tasks and their graphic results in Figures 5 and 6 in the Appendix.

We find that in both China and Korea, compared with the amount of investment in the stock market accounts, most participants mainly invested in checking accounts. Moreover, the distributions of the three rounds of investment were similar. This observation is consistent with our assumption that each round of the task was independent. We present the findings in Appendix Section A and Appendix Table 5. In addition to predictions in the financial domain, we also tested the accuracy of predictions in five other domains: driving, sports, leisure, career, and health. We observe a high correlation between elicited risk preferences and stated

risk preferences in the other domains (see Table 6 in the Appendix).

We summarize the descriptive statistics of the aforementioned key determinants in Appendix Table 7. Moreover, all of our three determinants pass the Shapiro-Wilk test for normality, and the density plots of them appear in Figure 7 in the Appendix. The density plots by participating parents' gender appear in Figure 8 in the Appendix.

Results

Determinants' Effects on Intergenerational Transmission

In this section, we statistically analyze the effects of the previously identified determinants: parental involvement, financial parenting, and parental demandingness on the similarity of risk preferences between workers and their parents using our Chinese and Korean samples. Our regression model that includes these three determinants is as follows:

$$y_i = \alpha_i + \gamma_1 \text{Parental involvement}_i + \gamma_2 \text{Financial parenting}_i + \gamma_3 \text{Parental demandingness}_i + \beta X_i + \epsilon_i,$$

Our approach follows the model in Zumbuehl et al. (2021), where y_i represents the absolute difference of risk preferences between workers and their parents (or $|\Delta \text{Risk preferences}|$); γ_1 , γ_2 , and γ_3 capture the effects of parental involvement, financial parenting, and parental demandingness, respectively, on the dependent variable; and X_i represents the other control variables in our model. We apply the inverse hyperbolic sine transformation (Burbidge et al., 1988) to deal with the skewness of our dependent variable and retain the zeros in the differences of risk preferences. Thus, the effects of three determinant variables on the dependent variable can be interpreted as the change in percentage points.

When it comes to the effects of determinants on the similarity of risk preference, we separate our data set by country and present the OLS regression results in Table 1,¹³ in which negative coefficients mean that more parental involvement, a higher level of financial parenting, or a more demanding parenting style would lead to a smaller difference in risk preferences between workers and their parents. Table 1 columns (1) and (2) show that Chinese parents transmit more of their financial risk preferences to their offspring through a higher level of

¹⁰ An alternative way of investigating the differences of risk preference between China and Korea is to use workers' elicited risk seeking levels minus that of their parents. Consistent with our observation in Fig. 1, risk preferences differences are smaller between Chinese workers and their parents than that between Korean workers and their parents. More specifically, only Korean workers and their parents' risk preferences differences are significantly different from zero (t-tests p -value=0.000 for Korean and 0.138 for Chinese, respectively).

¹¹ In Figures 3 and 4 in the Appendix, we separate the data by participating parents' gender (investigating the relationships between workers and their mothers and their fathers) and show that the graphical findings are similar to the consolidated data findings in Fig. 1.

¹² The endowments in China and Korea are designed to be close to the average monthly income in each country.

¹³ We do not separate parents' risk preferences by their gender in Table 1. In particular, parents' risk preferences represent either mothers' or fathers' risk preferences (only one of the worker's parents participated in the experiment). In our subsequent analysis, we discuss the effects of mothers' risk preferences and fathers' risk preferences.

Table 1 Determinants of risk preference in China and Korea

Dependent variable: ΔRisk preferences ¹	China		Korea	
	(1)	(2)	(3)	(4)
Parental involvement	−0.030 (0.082)	0.047 (0.078)	0.027 (0.062)	0.013 (0.060)
Financial parenting	−0.159 (0.128)	−0.212* (0.118)	−0.130 (0.086)	−0.129 (0.084)
Parental demandingness	0.073 (0.179)	0.102 (0.166)	−0.236 (0.161)	−0.284* (0.158)
Constant	1.789*** (0.523)	5.050*** (1.628)	3.453*** (0.499)	3.768*** (1.289)
Controls	No	Yes	No	Yes
Observations	90	90	106	106
R-square	0.025	0.239	0.041	0.138

The dependent variable is the difference in risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

financial parenting. In other words, a one-point increase of financial parenting (ranging from 0 to 4) reduces differences in risk preferences between workers and their parents by 20.8 percentage points when control variables are included (column 2). Unlike Chinese parents, Korean parents transmit risk preferences in a different way. Columns (3) and (4) indicate that Korean parents who are more demanding of their offspring share more similar risk preferences with their offspring. Column (4) denotes that a one-point increase of financial parenting (ranging from 1 to 4), differences in risk preferences decrease by 28.6 percentage points. These findings remain statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure (Clarke et al., 2020).¹⁴

Previous studies suggest that measurement error may exist in our estimate of the parental involvement variable. According to Zumbuehl et al. (2021), measurement error can come from two areas. First, workers' responses to questions about parental involvement in their childhood could be correlated across these questions. Second, our estimate of the first principal component may cause attenuation bias. Therefore, our measurement may underestimate the true effect of the parental involvement variable. Following Zumbuehl et al. (2021)'s methodology in dealing with measurement error, we adopt Lubotsky and Wittenberg (2006)'s (LW) procedure to establish a new index to measure parental involvement. The LW procedure minimizes attenuation bias by including all proxies in the model. It assumes that the proxies are neither correlated with their measurement errors nor with the error term in our

regression model. After creating the new parental involvement index, we standardize all three determinant variables for subsequent analysis. We use t -tests to compare these three variables between Chinese and Korean participants and find that Chinese parents are more involved during their offspring's childhood than Korean parents (p -value = 0.000). In terms of financial parenting experience and parental demandingness, there is no statistically significant difference between the two countries.

In Table 2, we rerun the preceding regression in Table 1, except that we reconstruct the measurement for parental involvement index with the Lubotsky and Wittenberg (2006)'s (LW) method. Different from the findings in Table 1, we now observe that Chinese parents who are more involved during their offspring's childhood have higher levels of intergenerational transmission, and the effects are statistically significant after adjusting for the multiple-hypotheses testing procedure. Similar to Table 1, we also find that Chinese parents who invest more in financial parenting have risk preferences that are more similar with their offspring (columns 1 and 2), while Korean parents with a more demanding parenting style share more similar risk preferences with their offspring (columns 3 and 4). More specifically, for the Chinese participants, a one-standard-deviation increase in parental involvement and financial parenting decreases the difference in risk preference by 25.5 and 29.1 percentage points (column 2); for the Korean participants, a one-standard-deviation increase in parental demandingness decreases the difference in their risk preferences by 19.0 percentage points (column 4). This suggests that the shared participation (either in school life or in specific financial activities) determines Chinese participants' transmission, while the emotional atmosphere created by parents determines transmission among Korean participants.

¹⁴ All standard errors of the parameters are obtained by bootstrap with 1000 draws.

Table 2 Determinants of risk preference in China and Korea

Dependent variable: ΔRisk preferences	China		Korea	
	(1)	(2)	(3)	(4)
Parental involvement (LW)	-0.336** (0.132)	-0.251* (0.130)	-0.177 (0.113)	-0.097 (0.132)
Financial parenting	-0.298** (0.144)	-0.293** (0.141)	-0.185 (0.111)	-0.178 (0.111)
Parental demandingness	0.049 (0.130)	0.073 (0.118)	-0.173* (0.102)	-0.190* (0.100)
Constant	1.814*** (0.139)	4.271*** (1.514)	2.488*** (0.108)	2.519** (1.085)
Controls	No	Yes	No	Yes
Observations	90	90	106	106
R-square	0.081	0.263	0.061	0.143

The dependent variable is the difference in risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 3 Determinants of risk preference in China and Korea, by parents

Dependent variable: ΔRisk preferences	China		Korea	
	Mother	Father	Mother	Father
	(1)	(2)	(3)	(4)
Parental involvement (LW)	-0.530* (0.279)	-0.071 (0.141)	0.193 (0.288)	-0.234 (0.147)
Financial parenting	-0.468* (0.264)	-0.116 (0.201)	0.059 (0.286)	-0.223* (0.130)
Parental demandingness	-0.007 (0.165)	0.289 (0.196)	0.104 (0.221)	-0.259** (0.110)
Constant	2.322 (2.730)	4.851** (2.113)	-0.105 (1.799)	3.941** (1.700)
Controls	Yes	Yes	Yes	Yes
Observations	41	49	33	73
R-square	0.255	0.416	0.111	0.224

The dependent variable is the difference in risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Next, we separate parents' risk preferences according to their gender and examine how three determinants affect mother-offspring risk preference similarity and father-offspring risk preference similarity. In Table 3, we base on the OLS regressions in Table 2 and present the results for the determinants' effect on mother-offspring transmission in columns 1 and 3 and on father-offspring transmission in columns 2 and 4. Our objective is to identify whether it is fathers or mothers or both have significant impacts on the risk preferences transmission. Comparing Tables 2 and 3,

we find that the effects of parental involvement and financial parenting are associated with Chinese mothers' intergenerational transmission of risk preferences to their offspring (columns 1 and 2), while the effects of being more demanding of their offspring are associated with Korean fathers' transmissions of risk preferences (columns 3 and 4). In contrast, we do not find supporting evidence that the determinants explain transmission from Chinese fathers or Korean mothers to their offspring. Thus, we infer that the effects of three determinants on participants' risk preference similarities, as

shown in Table 2, mainly reflect a decrease in differences between Chinese mothers and their offspring and between Korean fathers and their offspring.

In Appendix Tables 8 and 9, we run similar regressions as Tables 2 and 3 with the difference of using ordered logit regression to test the robustness of our findings. The results are presented as proportional odds ratios and we use the untransformed risk preferences difference between workers and their parents as dependent variables. Our findings are consistent with the results presented in Tables 2 and 3 regarding to the channels of transmission.

A few studies have illustrated that it is necessary to rule out the potential for reverse causality in intergenerational transmission (Dohmen et al., 2012; Gauly, 2017; Zumbuehl et al., 2021). In our case, this would suggest that parental involvement, financial parenting, or parental demandingness during their offspring's childhood might be different if parents observed that their offspring's risk attitude were similar to or different from them. To address this potential problem, we find indirect evidence against reverse causality, by using workers' and parents' answers to a risk preference question in a health-related domain: "Are you generally a person who is fully prepared to take risks, or do you try to avoid taking risks when it comes to health decisions?" Indeed, parents could hardly know workers' risk preferences in the health domain during workers' childhood, so workers' health-related risk attitudes were unlikely to change their parents' behaviors (i.e., parental involvement, financial parenting, and parental demandingness). Also, literature shows that workers' risk attitudes in health-related decisions are highly correlated with their risk attitudes in financial decision making (Yang et al., 2022). Thus, we could replace the dependent variable with workers' health-related risk attitudes and test if our three determinants affect the worker-parent risk preference difference in the health domain similar to that in the financial domain. Table 10 in the Appendix applies this change in the dependent variable, and has similar findings to that in Table 2, demonstrating that when there is clearly no possibility for reverse causality, our determinants' predictions do not change. This evidence supports our assumption of no reverse causality.

Heterogeneity

Our investigation of heterogeneity is inspired by Zumbuehl et al. (2021), who use nationwide household survey data in Australia and Germany and find that same-gender transmission can be the main source of intergenerational transmission of risk preferences. Table 4 describes the drivers of intergenerational transmission in a similar way to these studies. In this table, we regress the difference in risk preferences from the same-gender or different-gender participants on the three determinants, in which negative

Table 4 Gender difference in intergenerational transmission

Dependent variable: ΔRisk preferences	Same gender transmission		Different gender transmission	
	China	Korea	China	Korea
	(1)	(2)	(3)	(4)
Parental involvement (LW)	−0.207 (0.159)	−0.097 (0.144)	−0.143 (0.215)	−0.351 (0.232)
Financial parenting	−0.357** (0.178)	−0.357** (0.162)	−0.168 (0.251)	0.201 (0.152)
Parental demandingness	0.113 (0.195)	−0.357** (0.115)	−0.076 (0.184)	−0.115 (0.179)
Constant	3.729* (1.937)	3.554* (1.923)	4.665* (2.396)	0.117 (1.201)
Controls	Yes	Yes	Yes	Yes
Observations	53	55	37	51
R-square	0.350	0.285	0.202	0.176

The dependent variable is the difference in risk preference between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

coefficients representing more parental involvement, a higher level of financial parenting, or a more demanding parenting style would close the risk preference gap between the same-gender or different-gender participants. In columns (1) and (2), we investigate the transmission of risk preferences when workers and parents are of the same gender (father and son, mother and daughter), and in columns (3) and (4), we investigate the mechanism of transmission when participants are different genders (father and daughter, mother and son). We also apply inverse propensity score weighting for a doubly robust estimation (Wooldridge, 2007) in our analysis to address the possibility of a self-selection problem in which the participant ask his or her mother or father to participate in the survey.

Our results suggest that Chinese parents who engage more in financial parenting share more similar risk preferences with their offspring. However, these effects are only statistically significant when workers and their parents are of the same gender (columns 1 and 3). Yet the effects of parental involvement do not significantly explain same- or different-gender transmission. For Korean parents, additional financial parenting and a more demanding parental style matter in transmission when gender is the same (column 2). On the contrary, when gender is different, we

do not observe that any determinants significantly affect the Korean participants' intergenerational transmissions.¹⁵

Finally, we investigate whether there exists a systemic difference of between-country in our data set. We use inverse propensity score weighting for a doubly robust estimation (Wooldridge, 2007) to reduce the difference in demographic variables between the two countries' data sets. In Appendix Table 11, we add "China" as a country dummy variable and show that compared with the Korean participants, Chinese parents share more similar risk preferences with their offspring. This result is consistent with our graphical observations in Fig. 1. To summarize, we find noteworthy differences in the intergenerational transmission of risk preference between our two companies in China and Korea.

Discussion

Comparing our results to findings in Zumbuehl et al. (2021), we provide similar evidence showing that parental involvement affects intergenerational transmission. In contrast to the significant results that these author achieve with German data, in our data, parental involvement on transmission is only effective at reducing risk preference disparity between Chinese mothers and their offspring.¹⁶ One cultural element that may explain the results is that people in China and Korea are Confucian-influenced, an orientation and mind-set that influences social norms and individual decisions, contributes to economic growth (Liu et al., 2014), and teaches that parental involvement is an important way to share family culture and lifestyle. Because both workers and their parents already expect a relatively high level of parental involvement (Hill & Chao, 2009), an increasing level of parental involvement may not be as effective at increasing risk preference similarity as it is in the Western countries.

Our findings contribute to a discussion on the relationship between parents and offspring in China and Korea. On the one hand, Chinese and Korean share the same value of Confucianism, where "the relationship between parent and offspring is stern fathering and benevolent mothering" (Kim, 2008, p. 39). Confucian-influenced parents in East Asian countries, such as Chinese and Korean parents, exhibit a higher level of parental

involvement than Western parents, and the involvement of East Asian parents is usually associated with spreading family culture and lifestyle (Hill & Chao, 2009). In line with prior findings, we also observe that parental involvement matters, and it contributes to the strength of the intergenerational transmission of risk preferences. In addition, we show that a mother who engages in financial parenting effectively, i.e., more involvement in financial parenting, and a father who has a more demanding parenting style are more likely to transmit risk preference to their offspring.

On the other hand, the differences between China and Korea also play an important role in shaping individuals' economic preferences. Due to the strong tendency of collectivism (people have an interdependent view of themselves), people's behaviors are highly affected by localized collective norms (Wen et al., 2020), and these norms distinguish the risk preference between individuals in these two countries. For example, "*Zhong Yong*" denotes the value of avoiding extremes when there is conflict, which highly influences Chinese beliefs and decision-making. Also, "*can-do spirit and nunchi*" denotes the action-oriented values that shape Korean traits and behaviors (Park et al., 2015). These norms result in Chinese being risk averse than Korean. In addition, researchers find that differences in subjective norms cause the Chinese being more sensitive to risk than Korean (Zhong et al., 2021). In addition, as documented in a previous study, "each culture (Korea and China) has also been subject to a unique combination of influence from modernization, economic growth and globalization. Because of their different histories, China and Korea saw a divergence in their patterns of fathering, family relations, and even Confucianism" (Shwalb et al., 2004, p. 146). In our analysis, we provide evidence to show that there are different ways of intergenerational transmission in risk preferences between Chinese and Korean, and the difference in transmission channels may be related to the localized collective norms and the historical differences in people's values.

Some extant literature could help us understand our results. For example, Zou et al. (2019) use survey data and show that Chinese mothers are relatively more important than Chinese fathers during childhood because mothers are more involved and accessible than fathers. Their findings explain why parental involvement and financial parenting only affect Chinese mother-offspring similarities in risk preferences. In addition, Kim (2008) collected survey data from 196 worker-parent pairs of Korean parents and their offspring and found that fathers' parenting styles significantly affect and shape offspring's social competence. This result indirectly supports our finding that parenting style only affects similarities of risk preferences between Korean father and their offspring.

¹⁵ Due to a lack of data in some categories, we only investigate same-gender transmission and different-gender transmission rather than separating and examining mother-son, mother-daughter, father-son, and father-daughter combinations.

¹⁶ Although our study is limited by a small sample size and our participants (participating workers in two firms in China and Korea and their parents) may not be directly comparable to the subjects in Zumbuehl et al. (2021) (participating households in a large longitudinal survey), our findings provide possible different channels in intergenerational transmission for the East and the West. These insights could guide future studies with larger, more diverse samples to further investigate the mechanisms.

Conclusion

Recent studies have provided insight into the mechanisms of intergenerational transmission of risk preferences. They have found that parents' risk preferences can be transmitted to their offspring, that the effects are strengthened for same-gender transmission, and that transmission itself is domain specific (e.g., the financial domain) (Dohmen et al., 2012; Zumbuehl et al., 2021). In this paper, we study the drivers of intergenerational transmission of risk preferences with respect to financial decision making in China and Korea.

We conduct field experiments with 196 worker-parent pairs from two companies in China and Korea. Our findings suggest that Chinese parents who provide a higher level of parental involvement and financial parenting are more likely to transmit their risk preferences, while Korean parents who are more demanding of their offspring are more likely to transmit their risk preferences. These results are mainly captured by the closeness of the differences in risk preferences between Chinese mothers and their offspring and between Korean fathers and their offspring. We also observe a gender difference in transmission. The aforementioned effects of determinants on transmission remain statistically significant only if workers and their parents are of the same gender. Furthermore, compared with Korean participants, Chinese participants demonstrated more similar risk preferences between parents and workers.

Our paper provides some practical implications for policy. Due to the paucity of data and the weakness of surveillance systems, our approaches that identify the determinants in intergenerational transmission could help policymakers to know better about their people's risk preferences and prepare better to manage the risk. Policymakers can use our findings on the intergenerational transmission of risk preferences to guide financial institutions to establish more personalized financial education or products for people and their families. For example, Chase Bank has recently provided a novel financial product, the Chase First Banking Account, which includes a checking account owned and managed by parents, while offspring are able to use a debit card in their own names (CNBC, 2021). This product enables parents to teach their offspring how to spend, save, and earn money, and it will help parents transmit risk preferences in the financial domain to their offspring. Furthermore, our study provides policy implications related to the problems of inequality. In a recent study, Almenberg et al. (2021) conducted a debt attitude survey and find that intergenerational transmission of parents' attitudes toward debt (risk preferences) may deepen the intergenerational persistence of wealth inequality. Similarly, we explore the formation and transmission of individuals' risk preferences,

which provides a new perspective on designing policies that influence intergenerational social mobility.

Our study has several limitations. First, we cannot rule out the possibility that genetics, rather than parental involvement, financial parenting, or parenting styles, dominates the intergenerational transmission of risk preferences. Second, participants may have experienced recall bias or may have misremembered when answering questions, which could have led to inaccurate estimates of the determinants based on the answers of the offspring. Third, while we identified the channels of intergenerational transmission of risk preference between people in China and Korea, it remains unclear whether these results can be generalized to the national population due to the small sample size and the correlational nature of the findings. However, it is important to note that our study was intended as an exploratory investigation into the channels of intergenerational transmission of risk preference between people in East Asian countries. As such, we have demonstrated the possible existence of different channels of transmission, and we believe that further research with larger and more diverse samples is necessary.

Appendix

Using Risk Preference Measurement to Predict Individuals' Behaviors

We examine our risk preference measurement's predictive power by testing whether it can predict risk-taking behaviors in an investment task. In Table 5, we run regressions with the level of participants' elicited risk preferences as the independent variable and the amount they contribute to a risky investment (the "stock market") as the dependent variables. Table 5, Panel A, provides evidence that our risk preference measurement of our participating workers indeed predicts their true behaviors in financial decision-making. That is, individuals higher in risk seeking contribute more of their endowments to the "risky investment" than to the "safe investment" across three rounds of the investment tasks.¹⁷ In Table 5, Panel B, we arrive

¹⁷ Recall that we designed investment tasks with three independent rounds such that participants' compensation was not correlated across rounds. This design enables us to measure the pure effects of one's risk preference on the contribution to a risky investment, and it excludes the possible outcomes of investment results from earlier rounds on participants' investment behaviors in later rounds. Columns (2), (3), (5), and (6) in Table 5 take previous rounds' results into consideration, and they do not report that previous rounds' gains or losses could affect participants' behaviors in the later rounds. This finding is consistent with our experimental design and assumption.

at similar findings for the parent participants; that is, their risk preferences also predict their financial decision-making behaviors.

In addition, we observe the differences of participating workers between countries with respect to investing behaviors. Risk seeking preferences drive Chinese participants to increase their risky investments as the “successful” investment payments increase. However, Korean participants are not motivated by the potential to make more.

As discussed in the experimental design section, we also compare our risk preference measurement with participants’

stated risk preferences in the other domains. Table 6 in the Appendix indicates that participants who are more risk seeking in their financial decision-making also consider themselves more risk seeking in the other domains (driving behaviors, sports activities, employment selection, and health-related decisions)

See Figures 2, 3, 4, 5, 6, 7 and 8.

See Tables 5, 6, 7, 8, 9, 10, 11.

Fig. 2 Risk preference elicitation—staircase question (examples)

Question 1

What would you prefer: a 50 percent chance of winning *300 Dollar* when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of *160 Dollar* as a sure payment?

- Lottery
- Sure payment

If select “Lottery” in Question 1

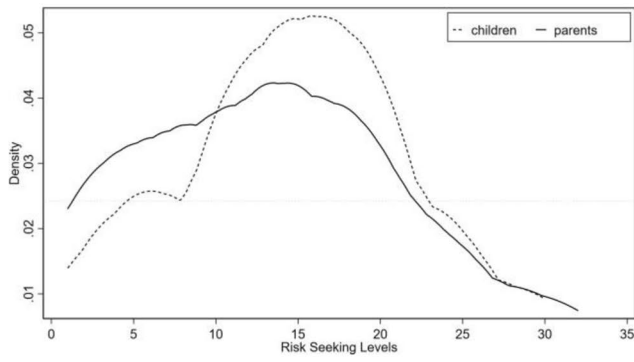
What would you prefer: a 50 percent chance of winning *300 Dollar* when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of *240 Dollar* as a sure payment?

- Lottery
- Sure payment

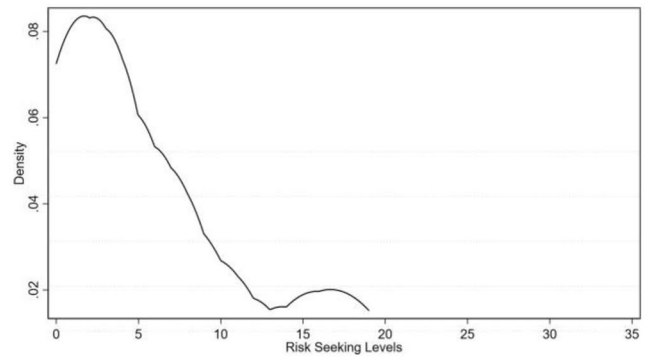
If select “Sure payment” in Question 1

What would you prefer: a 50 percent chance of winning *300 Dollar* when at the same time there is 50 percent chance of winning nothing, or would you rather have the amount of *80 Dollar* as a sure payment?

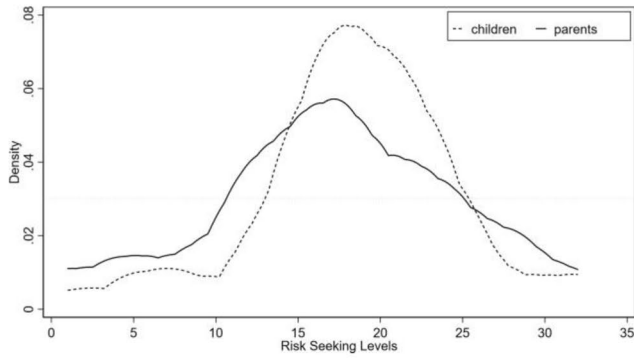
- Lottery
- Sure payment



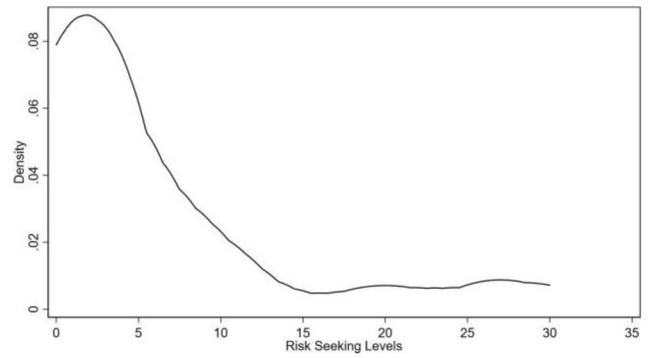
(a) Chinese Workers and Their Mothers' Risk Seeking Levels



(b) Absolute Difference of Elicited Risk Preferences between Chinese Workers and Their Mothers



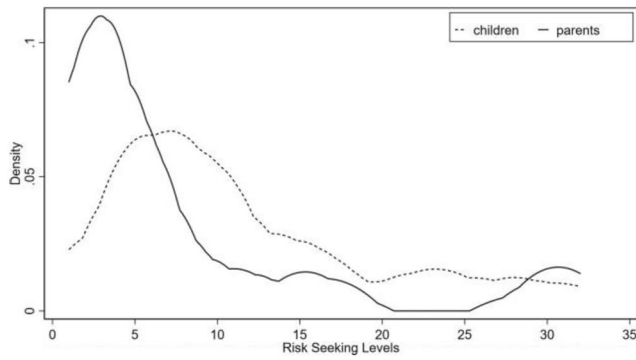
(c) Chinese Workers and Their Fathers' Risk Seeking Levels



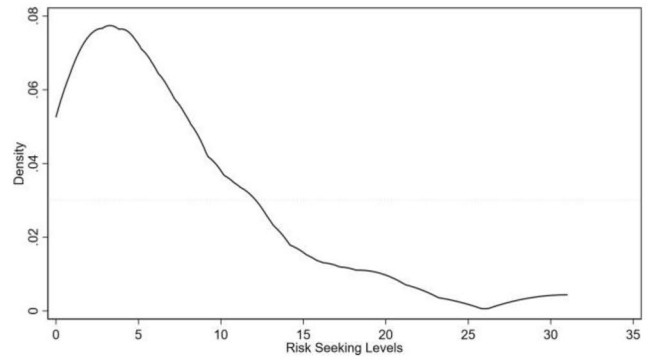
(d) Absolute Difference of Elicited Risk Preferences between Chinese Workers and Their Fathers

Fig. 3 Density of risk preference between Chinese workers and their parents, by participating parents' gender. This figure includes four density plots of risk preference between Chinese workers and their parents. X-axes represent the levels of participants' risk preferences (higher numbers represent more risk seeking) and the levels of difference of risk preferences between workers and their parents. Sub-

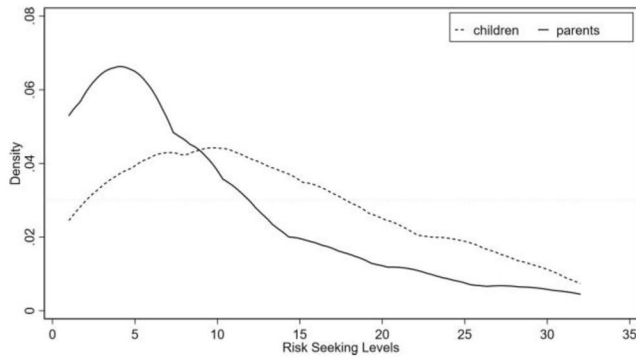
figures (a) and (b) are for workers whose mothers participated, while subfigures (c) and (d) are for workers whose fathers participated. In subfigures (a) and (c), dashed curves and solid curves represent workers' and parents' elicited risk preferences, respectively. Curves in subfigures (b) and (d) represent the absolute difference of elicited risk preferences between workers and their parents



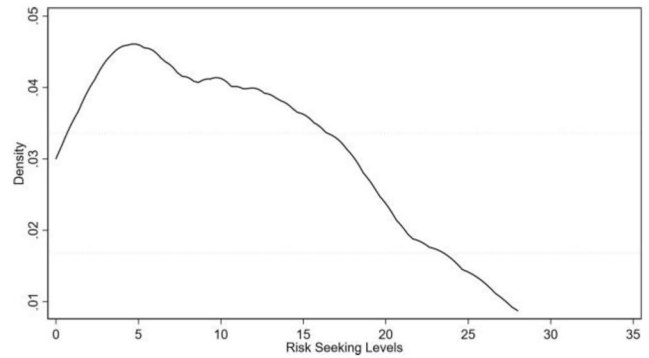
(a) Korean Workers and Their Mothers' Risk Seeking Levels



(b) Absolute Difference of Elicited Risk Preferences between Korean Workers and Their Mothers



(c) Korean Workers and Their Fathers' Risk Seeking Levels



(d) Absolute Difference of Elicited Risk Preferences between Korean Workers and Their Fathers

Fig. 4 Density of risk preference between Korean workers and their parents, by participating parents' gender. This figure includes four density plots of risk preference between Korean workers and their parents. X-axes represent the levels of participants' risk preferences (higher numbers represent more risk seeking) and the levels of difference of risk preferences between workers and their parents. Sub-

figures (a) and (b) are for workers whose mothers participated, while subfigures (c) and (d) are for workers whose fathers participated. In subfigures (a) and (c), dashed curves and solid curves represent workers' and parents' elicited risk preferences, respectively. Curves in subfigures (b) and (d) represent the absolute difference of elicited risk preferences between workers and their parents

Fig. 5 Risk preference prediction—investment tasks

Investment Decision: The asset returns may differ from those given in the previous example. Suppose that you have \$4,000 (South Korea) / \$1,000 (China) to invest. All money you will be paid is transformed by a multiplier of 0.05%:

Checking Account: Dollars invested are multiplied by 1.

Stock Market: Dollars invested are multiplied by 0 (50% chance) or by 2 (50% chance).

In other words, each dollar invested in **Checking Account** is transformed into \$1.00 and each dollar invested in **Stock Market** will either be transformed into \$0.00 or into \$2.00, depending on whether or not the investment is successful.

For Stock Market,

If you decide to invest some of the initial amounts in Stock Market, then the computer will flip a coin to determine whether this Risky investment is successful or not. The investment will be successful if the coin is Head. But, the investment will be unsuccessful if the coin is Tail. The chances of Head and Tail are equal.

You will be allowed to allocate your initial cash between the assets in any manner. (eg: investing all in one asset, all in the other, or investing some in each)

Funds Available for Allocation : \$4,000 (South Korea) / \$1,000 (China)

Amount Invested in Checking Account	\$ <input type="text" value="0"/>
Amount Invested in Stock Market	\$ <input type="text" value="0"/>
Total	\$ <input type="text" value="0"/>

Fig. 6 Density of “Stock Investment” between Countries. This figure includes two density plots of workers’ “stock investment” in the three rounds of investment tasks. X-axes represent the amount of stock investment in each round of the tasks. Subfigures (a) is for Chinese workers’ investment, while subfigures (b) is for Korean workers’ investment. In subfigures (a) and (b), dotted curves, dashed curves and solid curves represent Round 1’s, Round 2’s, and Round 3’s amount of investment, respectively

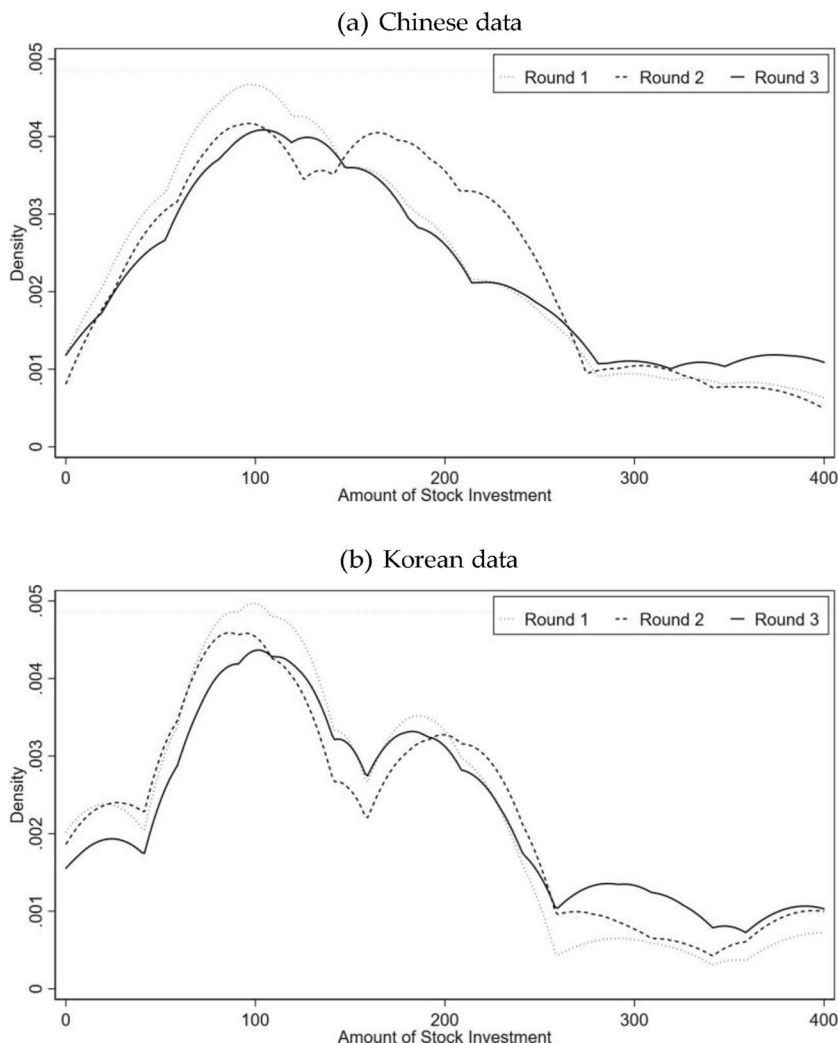


Fig. 7 Density plots of three determinant variables. The top figure is the density plot of parental involvement by participating parents' gender; the middle figure is the density plot of financial parenting by participating parents' gender; the bottom figure is the density plot of the demandingness of parenting style by participating parents' gender

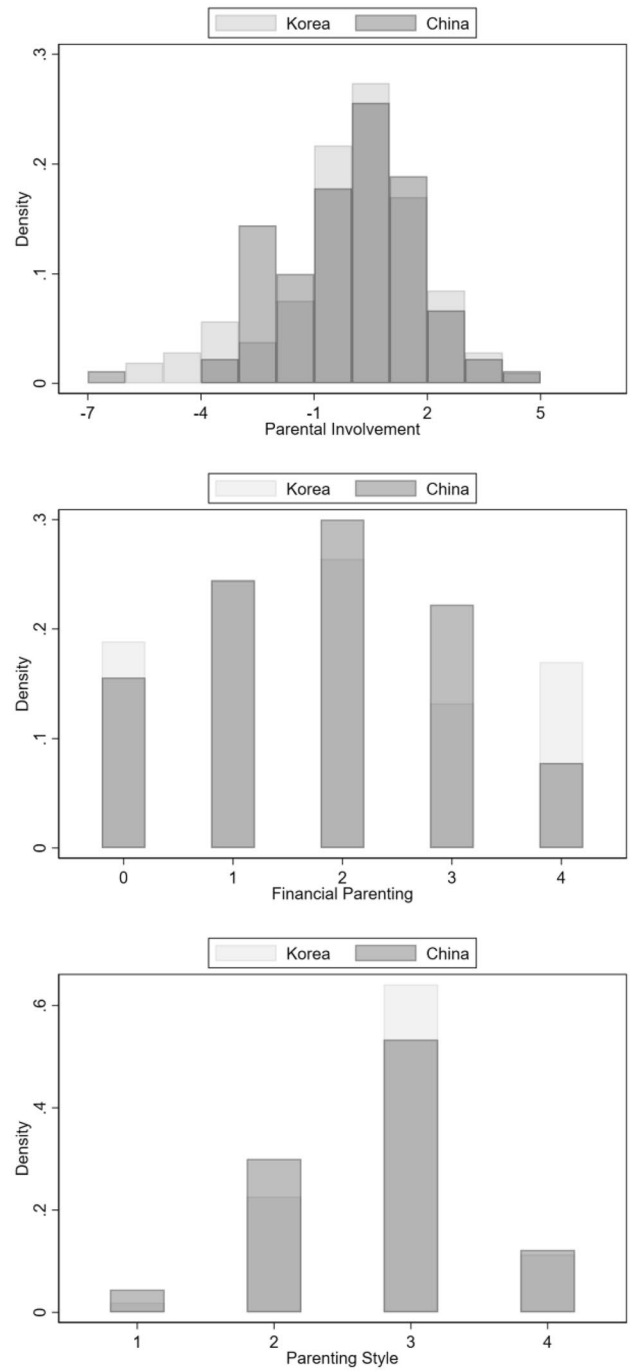


Fig. 8 Density plots of three determinant variables, by participating parents' gender. The top two figures are density plots of parental involvement by participating parents' gender; the middle two figures are density plots of financial parenting by participating parents' gender; the bottom two figures are density plots of the demandingness of parenting style by participating parents' gender

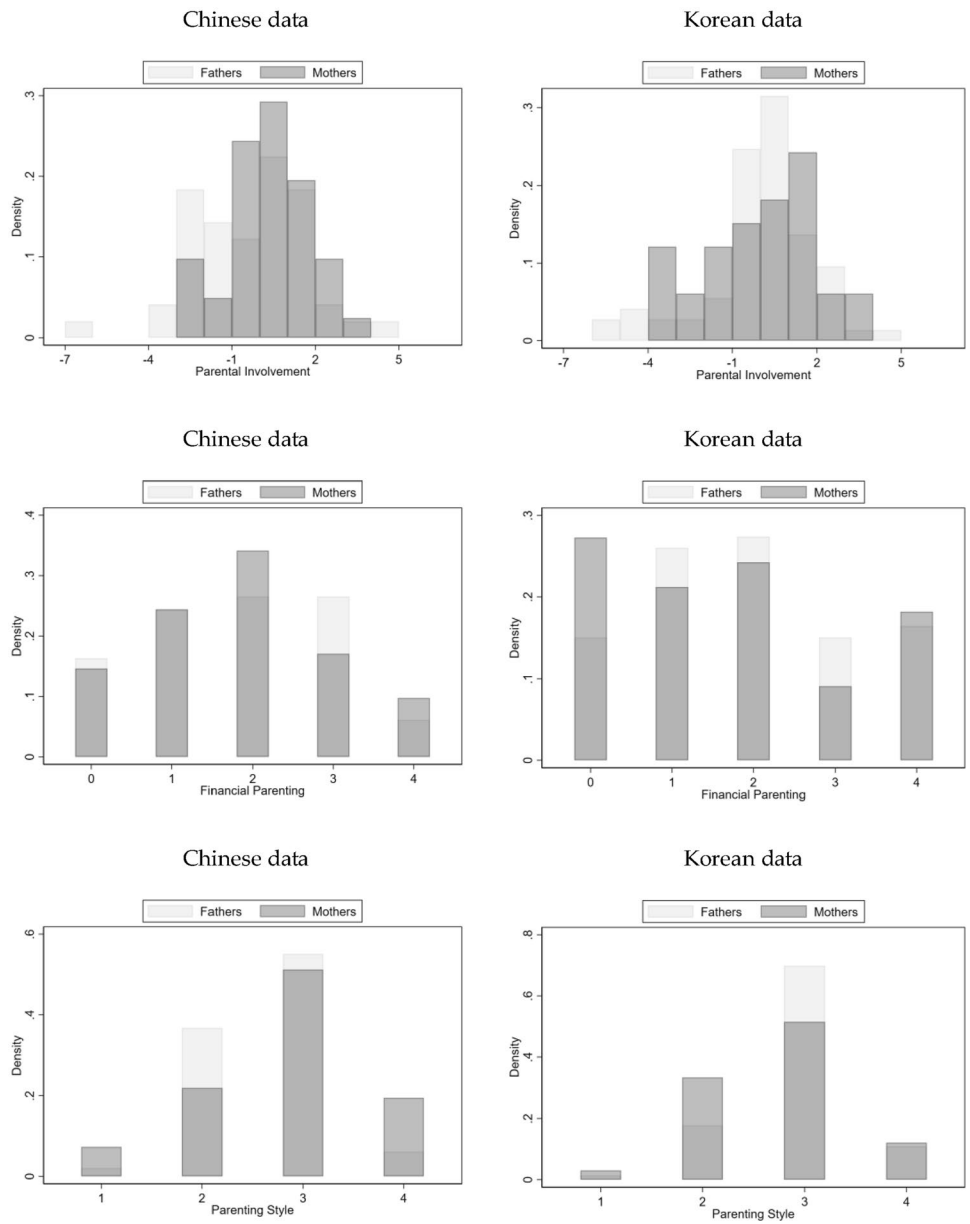


Table 5 Risk preferences predict investment behaviors

Panel A	China			Korea		
	Round 1	Round 2	Round 3	Round 1	Round 2	Round 3
Dependent variable: Workers' stock investment						
Risk preference	(1) 1.264 (1.579)	(2) 3.779*** (1.081)	(3) 4.037*** (1.243)	(4) 3.055*** (1.135)	(5) 2.345** (1.178)	(6) 2.286* (1.160)
Round 1 result	0.034 (0.075)	0.024 (0.089)	0.024 (0.089)	0.109 (0.077)	0.109 (0.077)	0.019 (0.073)
Round 2 result			0.005 (0.056)			0.100** (0.044)
Constant	192.385** (80.080)	119.673 (76.269)	166.140* (83.815)	-97.665** (46.701)	-91.018* (50.045)	-52.400 (62.372)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	90	90	106	106	106
R-square	0.052	0.159	0.179	0.199	0.222	0.195
Dependent variable: Parents' stock investment						
Risk preference	(1) 1.884** (1.130)	(2) 2.318** (1.007)	(3) 2.056* (1.292)	(4) 1.693* (1.246)	(5) 1.594 (1.308)	(6) 3.277** (1.596)
Round 1 result	0.004 (0.076)	0.004 (0.076)	0.066 (0.089)	0.155* (0.081)	0.155* (0.081)	0.079 (0.086)
Round 2 result			0.044 (0.050)			0.037 (0.049)
Constant	209.818*** (76.940)	168.551** (97.660)	206.716* (115.536)	182.054** (82.822)	119.389 (84.910)	107.868 (100.077)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90	90	90	106	106	106
R-square	0.105	0.142	0.188	0.047	0.099	0.078

Dependent variables are the three rounds of risky investment contributions. Independent variables are the staircase measurement of individuals' risk preferences. Other control variables in Panel A include the workers' age, gender, income level, marital status, and financial literacy; in Panel B, we include the parents' age, gender, and their income level

** $p < 0.05$; *** $p < 0.01$

Table 6 Pairwise correlation matrix between risk preferences and attitudes in five different domains

	strisk	grisk	drisk	lrisk	jrisk	hrisk
Panel A						
strisk	1					
grisk	0.280***	1				
drisk	0.208**	0.397***	1			
lrisk	0.200*	0.510***	0.598***	1		
jrisk	0.222**	0.485***	0.430***	0.482***	1	
hrisk	0.155	0.383***	0.264**	0.419***	0.620***	1
Panel B						
strisk	1					
grisk	0.295***	1				
drisk	0.318**	0.223**	1			
lrisk	0.330***	0.159	0.553***	1		
jrisk	0.214**	0.378***	0.441***	0.553***	1	
hrisk	0.192**	0.253***	0.440***	0.549***	0.557***	1

Panel A represents Chinese participants' risk preferences, and Panel B represents Korean participants' risk preferences. Variables strisk, grisk, drisk, lrisk, jrisk, and hrisk stand for individuals' willingness to take risk in general, or in the domains of car driving, sports, leisure, career, and health, respectively

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 7 Descriptive statistics of key determinants

	(1) Avg in Sample	(2) Avg by Countries		(2)-(3) T-test Dif- ference
		China	Korea	
Parental involvement				
sperformance (1–5)	3.888 (0.975)	4.011 (1.044)	3.783 (0.905)	0.228
report (1–5)	2.663 (1.090)	3.011 (1.117)	2.368 (0.979)	0.643***
sactivities (dummy)	0.536 (0.500)	0.367 (0.485)	0.679 (0.469)	–0.313***
fstudy (dummy)	0.434 (0.497)	0.456 (0.501)	0.415 (0.495)	0.040
mstudy (dummy)	0.709 (0.455)	0.744 (0.439)	0.679 (0.469)	0.065
factivities (1–5)	3.250 (0.979)	2.989 (0.989)	3.472 (0.918)	–0.483***
hobby (dummy)	0.827 (0.380)	0.822 (0.384)	0.830 (0.377)	–0.008
friends (1–5)	3.556 (0.805)	3.467 (0.851)	3.632 (0.760)	–0.165
fworried (1–5)	2.872 (1.022)	2.978 (0.994)	2.783 (1.042)	0.195
mworried (1–5)	3.551 (0.941)	3.633 (0.953)	3.481 (0.928)	0.152
ffmatter (1–5)	2.806 (1.092)	2.733 (0.992)	2.868 (1.172)	–0.135
mfmatter (1–5)	3.383 (1.043)	3.489 (0.986)	3.292 (1.086)	0.196
Financial Parenting				
pstock (dummy)	0.423 (0.495)	0.467 (0.502)	0.387 (0.489)	0.080
finstitution (dummy)	0.663 (0.474)	0.756 (0.432)	0.585 (0.495)	0.171**
fmarket (dummy)	0.337 (0.474)	0.256 (0.439)	0.406 (0.493)	–0.150**
rsaving (dummy)	0.413 (0.494)	0.344 (0.478)	0.472 (0.502)	–0.127*
Parental demandingness				
pstyle (1–4)	2.796 (0.679)	2.733 (0.731)	2.849 (0.629)	–0.116
N	196	90	106	

Table 8 Determinants of risk preference in China and Korea

Dependent variable: ΔRisk preferences	China		Korea	
	(1)	(2)	(3)	(4)
Parental involvement (LW)	0.639** (0.115)	0.646** (0.143)	0.736 (0.147)	0.887 (0.228)
Financial parenting	0.660* (0.143)	0.589** (0.140)	0.747 (0.149)	0.763 (0.156)
Parental demandingness	1.067 (0.189)	1.123 (0.210)	0.748 (0.132)	0.714* (0.124)
Controls	No	Yes	No	Yes
Observations	90	90	106	106
R-square	0.016	0.064	0.010	0.029

This table reports the ordered logit regression findings. Results are presented as proportional odds ratios. The dependent variable is the difference in the untransformed risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 9 Determinants of risk preference in China and Korea, by parents

Dependent variable: ΔRisk preferences	China		Korea	
	Mother	Father	Mother	Father
	(1)	(2)	(3)	(4)
Parental involvement (LW)	0.478* (0.215)	0.803 (0.209)	1.192 (0.867)	0.733 (0.223)
Financial parenting	0.370** (0.186)	0.825 (0.306)	2.049 (1.030)	0.716 (0.178)
Parental demandingness	0.942 (0.192)	1.608 (0.639)	1.012 (0.526)	0.611** (0.123)
Controls	Yes	Yes	Yes	Yes
Observations	41	49	33	73
R-square	0.077	0.112	0.072	0.039

This table reports the ordered logit regression findings. Results are presented as proportional odds ratios. The dependent variable is the difference in untransformed risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 10 Determinants' effects on health-related risk preference

Dependent variable: ΔRisk preferences	China (1)	Korea (2)
Parental involvement (LW)	-0.200** (0.090)	-0.086 (0.084)
Financial parenting	-0.189** (0.079)	-0.111 (0.079)
Parental demandingness	0.107 (0.079)	-0.118* (0.072)
Constant	0.799*** (0.092)	1.356*** (0.087)
Observations	90	106
R-square	0.085	0.035

The dependent variable is the difference of risk preferences in health-related decisions between workers and their parents. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 11 Matching Chinese and Korean data sets

Dependent variable: ΔRisk preferences	Pooled Data (1)	Pooled Data (2)
Parental involvement (LW)	-0.302*** (0.116)	-0.189** (0.092)
Financial parenting	-0.177* (0.106)	-0.137 (0.086)
Parental demandingness	0.091 (0.100)	0.011 (0.084)
China	-0.887*** (0.197)	-0.673*** (0.244)
Constant	1.572** (0.154)	2.692* (0.849)
Controls	No	Yes
Observations	196	196
R-square	0.255	0.362

The dependent variable is the difference in risk preferences between workers and their parents. Control variables include the workers' age, gender, income level, marital status, and financial literacy, as well as the parent's age, gender, and income level. Standard errors are clustered at the individual level, and robust standard errors are in parentheses. The bold numbers represent the variables that are still statistically significant after adjusting for multiple-hypotheses testing using the Romano-Wolf procedure

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Data Availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants involved in the study.

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