The Intergenerational Transmission of Risk and Trust Attitudes

THOMAS DOHMEN
ARMIN FALK
DAVID HUFFMAN
UWE SUNDE

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Abstract

Recent theoretical contributions depart from the usual practice of treating individual attitude endowments as a black box, by assuming that these are shaped by the attitudes of parents and other role models. Attitudes include fundamental preferences such as risk preference, and crucial beliefs about the world, such as trust. This paper provides evidence on the three main mechanisms for attitude transmission highlighted in the theoretical literature: (1) transmission of attitudes from parents to children; (2) positive assortative mating of parents, which tends to reinforce the impact of parents on the child; (3) an impact of prevailing attitudes in the local environment. Investigating these mechanisms is important because they are crucial assumptions underlying a large literature. It also sheds light on the basic question of where individual attitude endowments come from, and the factors that determine these drivers of economic behavior. The findings are supportive of attitude transmission models, and indicate that all three mechanisms play a role in shaping economically relevant attitudes.

JEL Code: D1, D8, J12, J13, J62, Z13.

Keywords: risk preferences, trust, intergenerational transmission, cultural economics, family economics, assortative mating, social interactions, SOEP.

Thomas Dohmen
Research Centre for Education and the Labour Market (ROA)
Maastricht University
P.O. Box 616
The Netherlands - 6200 MD Maastricht
t.dohmen@roa.unimaas.nl

Armin Falk
University of Bonn
Department of Economics
Adenauerallee 24 – 42
53113 Bonn
Germany
armin.falk@uni-bonn.de

David Huffman
Swarthmore College
500 College Avenue
USA – Swarthmore, PA 19081
dhuffma1@swarthmore.edu

Uwe Sunde
University of St. Gallen
Varnbüelstr. 14
Switzerland – 9000 St. Gallen
uwe.sunde@unisg.ch

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1 Introduction

The usual practice in economics is to treat individual attitude endowments as a black box. Recent theoretical contributions endogenize these endowments by assuming that individuals' attitudes are influenced by the attitudes of their parents or other role models. Attitudes transmitted from parents to children may include fundamental preferences, such as risk or time preference, and also crucial beliefs about the world, for example priors about the trustworthiness of others. Models sharing the feature of attitude transmission have been used to shed new light on diverse phenomena including: the persistence of ethnic differences in the U.S. (Bisin and Verdier, 2000); increasing female labor force participation in the U.S., due to the intergenerational transmission of a change in attitudes towards women and work first triggered by World War II (Fernández et al., 2004); the ascension of the middle class during the British industrial revolution, due to middle-class parents passing on the value of patience to their children (Doepke and Zilibotti, 2005 and 2008); the persistence of different fertility and work practices across cultures (Fernández and Fogli, 2005; Guiso et al., 2006; Fernández, 2007b); the impact of policy changes (regarding corruption), and historical circumstances decades in the past, such as despotic governments, on current levels of trust and social capital (Hauk and Saez-Marti, 2002; Tabellini, 2005 and 2007).[1] These models provide powerful new explanations for important patterns in economic behaviors and outcomes. The key underlying mechanism of attitude transmission, however, is not directly observed and has not been investigated systematically in empirical work.

This paper provides evidence on the underlying process of attitude transmission, testing for the existence of three distinct channels for attitude transmission highlighted in the literature. We test for transmission of attitudes from parents to children using direct measures of attitudes for individuals as well as for their parents. In addition we test for positive assortative mating of parents, on the basis of attitudes to be transmitted to the child. This reinforces the impact of parents on the child, because a child who has one parent with a given attitude is likely to have a second one with that attitude as well. Assuming that both mothers and fathers matter for child attitudes, positive assortative mating is an implication of models that assume parents have a preference for

[1] See also Ichino and Maggi (2000); Bisin and Verdier (2001); Bisin et al. (2004); Fernández (2007a).

children with similar attitudes to their own; in this case parents have an incentive to find similar partners, in order to avoid distortions in child attitudes. We also investigate a third mechanism, in which prevailing attitudes in the local environment influence child attitudes, in addition to the attitudes of parents. This channel would tend to reinforce regional or ethnic differences. Some models, such as Bisin and Verdier (2000) and Bisin et al. (2004), incorporate all three mechanisms explicitly, and other models in the literature typically incorporate one or more.[2]

Our analysis focuses on validated survey measures of two particularly important attitudes: willingness to take risks, and willingness to trust other people. The former captures an important dimension of individual preferences, while the latter is more related to beliefs, in the context of trustworthiness of others. Transmission of risk attitudes is important for child behavior because almost every important economic decision involves uncertainty. Indeed, risk attitudes have been shown empirically to have a large impact on a wide range of important behaviors and outcomes, including investment in stocks, educational attainment, wealth, home ownership, and patterns of occupational choice.[3] Trust is similarly important, but in the realm of social interactions, determining the way that an individual approaches other people (Glaeser et al., 2000; Fehr et al., 2003; Kosfeld et al., 2005). Many interactions in life involve vulnerability to defection by others, and trust determines whether an individual cooperates in these situations, or enters them at all. The level of trust has also been shown to be heterogeneous across countries and regions, and to explain differences in aggregate outcomes such as economic growth, volume of trade, and institutions.[4] By perpetuating trust differences over time, intergenerational transmission of trust has important ramifications at the aggregate level as well.

Our data are drawn from the 2003 and 2004 waves of the German Socio-Economic Panel (SOEP), which included new questions on trust and risk, respectively. Each wave of the SOEP is representative of the German adult population, and includes approximately 22,000 individuals. We end up with data on 3,751 children for whom we observe the

[2] Others have also hypothesized that the intergenerational transmission of attitudes, personality, or other personal traits explains patterns of behavior and outcomes across generations. See, e.g., Bowles and Gintis (2002a); Osborne (2005); Heckman and Rubinstein (2001); Heckman et al. (2006).

[3] E.g., Barsky et al. (1997); Guiso and Paiella, (2001); Dohmen et al. (2005); Guiso and Paiella, (2005); Guiso et al. (2006).

[4] E.g., Putnam et al. (1993); La Porta et al. (1997); Knack and Keefer (1997); Goldin and Katz (1999); Glaeser et al. (2002); Zak and Knack (2001); Fershtman and Gneezy (2001); Alesina and La Ferrara (2002); Bornhorst et al. (2004); Gaechter et al. (2004); Guiso et al. (2005); Falk and Zehnder (2007).

attitudes of both parents. Thus we also have 3,751 parental couples for studying assortative mating of parents. For all individuals in the data we know the region of residence, and can match individuals to an average risk or trust attitude in the region. Notably, the particular survey measures that we use have been validated previously in large scale field experiments with representative subject pools. These validation studies show that our measure of risk attitudes predicted behavior in an incentivized lottery experiment measuring risk preference, and that the trust measures predict trusting behavior in a paid trust game. These findings underline the behavioral validity of our measures, addressing an important concern that arises when using survey questions (see, e.g., Glaeser et al., 2000; Camerer and Hogarth, 1999).

Our results are supportive of the attitude transmission approach, and indicate that all three mechanisms play a role in shaping risk attitudes and trust. The first main result is that risk and trust attitudes are strongly positively correlated between parents and children. In other words, parents who are more willing to take risks, or who are more trusting, raise children with similar traits, consistent with a process of intergenerational transmission. Notably, both mothers' and fathers' attitudes matter for child attitudes, although for trust the mother is especially important. Interestingly, birth order matters, with first born children being more similar to the parents than later born siblings. These correlations are essentially unchanged when one controls for similarity across generations in personal or environmental characteristics. Additional robustness checks show that the intergenerational correlation is not explained by collaboration on survey answers, similar scale use, reverse causality from children to parents, or by parents and children living in the same geographic region. The second main finding is a strong positive correlation of attitudes within married couples, for both risk attitudes and trust, consistent with positive assortative mating. We find a similarly large correlation among newly married individuals, indicating that married partners are similar at the outset rather than becoming gradually more similar over time. In combination with the finding that both mothers and fathers matter for child attitudes, this evidence of positive assortative mating is consistent with the predictions of attitude transmission models. A third finding is that child attitudes are significantly related to the prevailing attitude in the region, controlling for parental attitudes. This is true for both risk attitudes and trust attitudes, and robustness checks show that the result is not driven by children sorting into regions where attitudes are

similar to their own. These findings provide evidence that attitudes in the region play a part in shaping child attitudes, in addition to the parents.

In summary, this paper provides a systematic empirical investigation of the transmission of economically relevant attitudes, in a way that complements the recent theoretical shift towards endogenizing attitude endowments. We explicitly consider all three mechanisms for attitude transmission that are relevant for the theoretical literature, and use a battery of attitude measures that are behaviorally valid, and span the important domains of risk and trust. We perform an extensive series of robustness checks, and control for detailed personal and background characteristics of both individuals and their parents. Considering all three of the mechanisms for attitude transmission in the same data set, using similar empirical strategies, allows disentangling the effects and potential interactions of different mechanisms. For example, the results show that regional attitudes matter even after controlling for parental attitudes, and vice versa. Also, we find positive assortative mating in conjunction with evidence that both mothers and fathers matter for child attitudes, which provides support for a specific prediction of attitude transmission models. The main contributions of our findings are providing an empirical basis for the assumptions regarding attitude transmission mechanisms in the literature, and shedding light on the basic question of where economically relevant attitudes come from. In particular, both the parents and the local environment influence individuals, through the channel of shaping economically relevant attitudes.

The remainder of the paper is organized as follows. Section 2 describes the data. Section 3 presents results on the intergenerational correlation, Section 4 investigates assortative mating, and Section 5 explores the influence of regional attitudes. Section 6 discusses implications and directions for future research.

2 Data Description

The data come from the German Socio-Economic Panel (SOEP), a representative panel survey of the resident adult population in Germany (for a detailed description, see Wagner et al., 1993, and Schupp and Wagner, 2002). The initial wave of the survey was conducted in 1984.[5] For this study we focus mainly on the 2003 and 2004 waves, because these

[5] The panel was extended to include East Germany in 1990, after reunification. For more details on the SOEP, see `www.diw.de/gsoep/`.

include key questions used in our analysis. Each wave includes roughly 22,000 individuals, from about 12,000 households.

The SOEP conducts a separate in-person interview with each member of a household over the age of 17, in the family's home. A substantial fraction of the interviews, about one quarter, are computer-assisted personal interviews (CAPI), but in general the survey is filled in on paper forms during an oral interview. Importantly, given that we are interested in the correlation or lack of correlation in the responses of family members, interviewers are specifically instructed to administer the survey individually, and to take every precaution to ensure that different household members answer independently and are not influenced by each other's responses. If for some reason one household member wants to fill in the paper survey at the same time that the interviewer conducts a personal interview with another household member, the interviewer has to ensure that these two survey respondents are in different rooms. Although the majority of interviews (roughly 80 percent in both 2003 and 2004) were completed while the interviewer was present in the household, a small fraction of respondents returned the questionnaire by surface mail, due to severe difficulties in scheduling an appointment with the interviewer. In our analysis, we verify that the results are robust to excluding these mail-in interviews. As a more conservative robustness check, we also verify that the results are sustained regardless of whether children live in the same or separate household from their parents.

The 2004 wave of the SOEP contains a novel battery of questions about the risk attitudes of individuals. One question asks respondents to indicate their willingness to take risks on an 11-point scale. The wording of the general risk question, translated from German, is as follows: "How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Please tick a box on the scale, where the value 0 means: 'completely unwilling to take risks' and the value 10 means: 'completely willing to take risks'."[6] The survey also includes five questions that use the same wording and 11-point scale as the general risk question, but ask about willingness to take risks in specific contexts: car driving, financial matters, sports and leisure, career, and health. A final risk measure is provided by a question that poses respondents with a hypothetical lottery, in which they can choose how much of 100,000 Euros to invest, and either double or get back only half of their investment, with equal probability. This

[6] German versions of all risk questions are available online, at `www.diw.de`.

question differs from the previous risk measures in that it uses a different scale, and includes a different context.

In the 2003 wave, the SOEP survey includes three questions about individuals' trust attitudes. These are similar to the standard measures of trust used in other surveys, for example the General Social Survey. Subjects were asked to indicate on a four-point scale to what extent they agree or disagree with the following statements: 1) In general, one can trust people. 2) These days you cannot rely on anybody else. 3) When dealing with strangers it is better to be careful before you trust them. The four answer categories were labelled: strongly agree, agree somewhat, disagree somewhat, strongly disagree.

Transmission of risk and trust attitudes is important if these attitudes affect behavior, as is typically assumed in economic theory. The behavioral relevance of the particular measures of risk attitudes that we use has been shown empirically, in a field experiment with a representative subject pool. Dohmen et al. (2005) conduct a field experiment with 450 individuals, sampled from all regions of Germany to be representative of the adult population (sampling was done with the same method used to construct the full SOEP sample; see Fowler, 1988). All subjects in the experiment first completed a detailed questionnaire, which included the exact same general risk question asked in the 2004 wave of the SOEP. Subjects then participated in a lottery experiment involving substantial monetary stakes.[7] The authors find that the questionnaire responses to the general risk question are reliable predictors of actual risk taking behavior in the lottery experiment.

Additional evidence for the importance of risk attitudes comes from using responses to the risk measures in the 2004 wave of the SOEP to explain risk-taking behavior in various contexts of life. The impact of risk attitudes is large and economically significant. For example, a one standard deviation increase in willingness to take risks measured by the question about risk attitudes in financial matters is associated with a 35 percent increase in the probability of holding stocks, relative to the baseline probability in the population. Similarly, a one standard deviation increase in willingness to take risks according to the general risk question is associated with a 30 percent increase in the probability of being

[7] In the experiment, subjects had to decide between a lottery, in which they could either win 300 Euros with probability 1/2 or receive nothing with probability 1/2, and a series of different safe payment alternatives. The lottery option remained the same across choices, but the alternative safe payment option was increased in steps of 10 Euros up to a maximum of 190 Euros. Subjects were informed in advance that one of their choices would be randomly selected for payment, and that one out of seven participants would actually be paid according to the selected choice.

self-employed.[8] Responses to the general risk question have also been shown to explain sorting into occupations based on earnings variance (Bonin et al., 2007), and to have a large impact on the probability of moving residence between geographical regions (Jaeger et al., 2007). Thus, risk attitudes captured by the survey measure have important implications for behavior.

Fehr et al. (2003) validate the behavioral relevance of the trust measures we use, in a field experiment with a representative sample of 429 subjects, sampled using the same procedure as the risk experiment described above. Subjects first completed a detailed questionnaire that contained the same three measures on trust attitudes that were asked in the 2003 wave of the SOEP. Subjects then played a modified version of the trust game developed by Berg et al. (1995), a standard tool for eliciting willingness to trust.[9] Fehr et al. (2003) summarize an individual's responses to the three survey questions about trust using factor analysis, and then show that this combined measure is a significant predictor of the amount that a first-mover actually sends to the other player, in the inventive compatible trust game. As discussed in the introduction, similar trust measures to ours have also been shown in previous studies to play an important role in explaining aggregate outcomes such as growth, functioning of institutions, and volume of trade.

Since we want to investigate whether and to what extent trust and risk attitudes are correlated between parents and children, we focus our analysis on respondents whose parents also answered the same survey questions. In total, we have complete information on either trust or risk attitudes for 3,751 children and both their parents, i.e., for 11,253 individuals.[10] We refer to a 3-person group consisting of two parents and their child as a parents-child pair in the remainder of the paper.

A noteworthy feature of the data is that they allow the study of children at a wide

[8] Detailed results available upon request.

[9] In the design, two players, both endowed with 10 Euros, were randomly matched. Player A could then send any amount between 1 and 10 Euros to player B. The amount that A sent was doubled by the experimenter so that B received twice the amount that A had sent. B could then send money back to A, but this was not enforceable. The experimenter doubled any amount sent by B with the result that A received twice the amount that B had sent. The amount that player A sends in this game is a measure of trust.

[10] For 3,327 children in the 2003 wave, we have complete information on their own answers to the trust questions and both of their parents' answers to these questions. We also have complete information about willingness to take risks for 3,331 children from the 2004 wave, and both their parents. These samples do not completely coincide because some of the children or their parents that were interviewed in 2003 did not answer the questions about risk attitudes in the 2004 wave. Likewise, in the 2004 wave we do not have information on some subjects' answers to the trust questions in 2003. These are mostly respondents who were not yet interviewed in 2003.

variety of ages, rather than just teenage children. This is because the SOEP interviews adult children living with their parents, but also follows children once they are older and have moved out of the parents' home to form a new household. For our sample of 3,751 parents-child pairs, 56.9 percent live in the same household, while 39.6 percent of children in our sample live in different households from both of their parents. Only a small fraction lives in the same household with only one parent. Half of the children in our sample are older than 23 years of age, and the oldest child is 54. On average, children in our sample are 25.3 years old (std. dev. 6.96). Fathers in our sample are on average 54.6 years old (std. dev. 8.70) and mothers are on average 51.7 years of age (std. dev. 8.3).

Variation in parents' willingness to take risks and trust is a prerequisite for identifying an impact of parents' risk and trust attitudes on children's attitudes. Figure 1 indicates that there is in fact substantial variation for both mothers and fathers. The histograms for willingness to take risks (upper panel) report the fraction of fathers and mothers choosing a given answer on the 11-point scale of the general risk question. The histograms for trust (lower panel) show the distributions of the parental trust measures. These are derived from principal component analysis and combine responses to the three separate measures into a scalar, analogous to the approach taken in Fehr et al. (2003).[11] We use these trust measures throughout the paper, and construct the measure for the child in the same way.

Figure 1 also shows that mothers are less willing to take risks than fathers, in line with the gender effect that Dohmen et al. (2005) find using the entire sample of the 2004 wave. Table 1 investigates the impact of other plausibly exogenous individual characteristics, such as age and height. The results in the table are OLS estimates, where the dependent variable in each column is an individual's standardized response to the general risk question. Throughout the analysis we use standardized versions of the risk and trust measures, in order to aid comparison of coefficients. Standardization is conducted

[11] We obtain an individual's trust measure by multiplying the standardized answers to the respective trust questions with the loadings of the questions on the principal component. Principal components analysis is preferable to factor analysis as we are interested in capturing and using the essential variation of the responses in regression analysis across parents-child pairs, rather than for detailed analysis of covariance (see also Tabachnick and Fidell, 2001). However, our results are almost identical if we instead use factor analysis for all regressions. We obtain the principal component without rotation. Analysis of eigenvalues suggests that only the principal component exhibits an eigenvalue larger than unity. The factor loadings, which are multiplying the standardized responses to the trust, reliance and caution questions are -0.7968, 0.8187 and 0.6377, respectively, for children, -0.7819, 0.8170, and 0.6619, respectively, for fathers, and -0.7687, 0.8113, and 0.6132, respectively, for mothers.

separately for the child, the mother, and the father, for the sample where the child and both parents all have non-missing attitude responses. The table shows that age and height affect risk and trust attitudes, as do religion, and characteristics of the region of youth in terms of city size. The relevance of these characteristics motivates us to control for them in our analysis in the next section, where we investigate whether parent and child attitudes are similar even after controlling for similarity in other characteristics that affect attitudes.

3 Intergenerational Correlation in Economic Attitudes

3.1 Risk attitudes

We begin the analysis by assessing whether there is an intergenerational correlation in willingness to take risks. Initially, we focus on the general risk question, and then we assess the robustness of the results to using alternative survey measures.

Figure 2 provides a first look at the relationship between the general risk attitudes of parents and children, as it appears in the raw data. The figure shows children's average willingness to take risks, for given willingness to take risks of their mother (upper left diagram) or their father (upper right diagram). Children's willingness to take risks is clearly positively associated with parents' willingness to take risks. This is illustrated by the positively-sloped regression lines in the diagrams, which are based on a weighted regression of children's willingness to take risks on the respective parent's willingness to take risks. The weighting takes into account the frequency of child-parent pairs with a particular combination of willingness to take risks, i.e., the number of children whose parent states a particular value on the risk scale.[12]

In Table 2 we regress children's standardized answers to the general risk question on the answers of their respective mothers and fathers. We estimate linear regressions, where the dependent variable is the child's general willingness to take risk. The key explanatory variables are standardized risk attitudes of mothers and fathers. All coefficients are OLS estimates, but the results are robust to using other estimation techniques.[13] We

[12] Note that there is an outlier for mothers choosing a value of 10 on the risk scale. This outlier has little impact on the slope of the weighted regression line, however, because there are very few mothers in this category (see Figure 1, upper left panel).

[13] We have alternatively conducted all estimations with interval regression techniques that correct for

report robust standard errors, corrected for possible correlation of the error term across individuals from the same household.

Column (1) of Table 2 shows that on average children report a greater willingness to take risks as parents' willingness to take risks increases. Coefficients for the mother and the father are both highly significant, and are of comparable size, indicating that child attitudes are strongly related to attitudes of both parents.[14] The coefficients on parents' risk attitudes are sizable compared to other important variables. The marginal effect is roughly 0.16 for both mothers and fathers, which implies that a one standard deviation increase in willingness to take risks for both parents is associated with a total increase of about 0.32 standard deviations for the child. This is equivalent to reducing age by 15 years, and is substantially larger than the impact of gender (see Column (2) of Table 1).

In Column (2) of Table 2 we add exogenous controls – gender, age, and height – which were found previously to affect risk attitudes (see Table 1). It is interesting to investigate whether attitudes are still related once we control for similarity in personal characteristics. For example, tall parents tend to have tall children, which could potentially explain a similarity in risk attitudes. Alternatively, if personal characteristics do not explain the intergenerational correlation, this suggests a more direct relationship between attitudes of parents and their children, consistent with the transmission process assumed in models of attitude transmission. Not surprisingly, the results in Column (2) indicate that daughters are less willing to take risks than sons, and that taller and younger children are more likely to report that they are willing to take risks. Age and height of the parents do not have a statistically significant effect on children's willingness to take risks. More importantly, the positive relationship between children's and parents' willingness to take risks remains virtually the same as in Column (1), and is similarly significant, after controlling for personal characteristics of parents and the child.

In Column (3) we add a variety of other controls for individual characteristics and environmental factors that could affect risk attitudes. These include characteristics of the

censoring of the dependent variable. In this case we find virtually identical results, which are available upon request. We also used a binary measure, indicating willingness to take risks if individuals responded a value greater than five on the scale from zero to ten. All results are essentially the same if we use the binary measure instead of the full scale.

[14] The coefficient on a parent's risk attitudes is approximately 50 percent larger if the other parent's attitudes are omitted from the regression. This suggests the presence of positive assortative mating, an issue discussed in detail in Section 4, and provides an additional motivation for including both parents in the specification for Table 2.

region where the individual lived during the first 15 years of life (big city, city, small town, countryside, missing), and religion (catholic, protestant, other Christian, other religion, not a member of any church, missing information on religion), for the child and both parents, as well as indicators for child ethnicity (nationality on passport, aggregated into 17 categories). The regression also controls for subjective health status of parents and the child, and an indicator for having lived in the GDR before 1989. We also include fixed effects for children's and parents' current regions of residence (*Raumordnungsregion*) which correspond to county-sized administrative areas.[15] Finally, for the child and both parents we control for household income in 2004, and control for years of schooling as a proxy for permanent income.[16] A caveat is that child income could be endogenous with respect to risk attitudes, so that interpreting coefficients on child income causally is inadvisable. Important for the question at hand, however, is the fact that the two coefficients of main interest, mother's and father's willingness to take risks, remain essentially unchanged relative to previous columns when we add income and the full array of other controls. Thus, there is a strong and significant relationship between children's and parents' risk attitudes, controlling for similarity across generations in a wide range of personal and environmental factors.

Table 3 explores whether the intergenerational correlation in risk attitudes is robust to using alternative survey measures. Each column uses a different question to measure risk attitudes for parents and children. The set of controls is the same as those in our full specification, Column (3) of Table 2. To facilitate comparison, in Column (1) we once again report the coefficients for the general risk question. Columns (2) to (6) report coefficient estimates using each of the five context-specific questions, which ask about will-

[15] Germany is divided geographically into 97 such regions, which are defined by the Federal Office for Building and Regional Planning and reflect an aggregation of administrative districts, something akin to counties in the U.S., taking into account economic agglomeration and commuting flows. Each region captures a center of economic activity and its surrounding area, and corresponds to a regional labor market.

[16] In order to avoid dropping of observations due to missing observations, we set all missing observation to zero and include an indicator for missing schooling information. We also estimated all specifications with information on occupational prestige as a proxy for permanent income, instead of education. We use information on childrens' and their parents' occupational prestige in form of the Treiman standard international occupational prestige score, which takes discrete values from 13 to 78, where higher scores indicate higher prestige (see Ganzeboom and Treiman, 1996 for the methods used to construct the scale). As shown by Ermisch et al. (2006), this prestige measure exhibits a strong correlation with permanent income. This approach is useful mainly because it mitigates the problem of missing values on income and thus keeps the number of observations reasonably high. All results are qualitatively and quantitatively similar if we use occupational prestige instead of years of schooling as a proxy for permanent income.

ingness to take risks in car driving, financial matters, sports and leisure, health, and career, respectively. As is evident from Table 3 the correlation of risk attitudes is significant at the 1-percent level for every context, for both mothers and fathers. Thus the correlation in risk attitudes is not confined to the general risk question but is also observed for questions incorporating more specific contexts. One possibility is that the correlation is observed for all of the different measures because they each measure the same underlying disposition towards risk. Another possibility is that the different measures capture distinct aspects of risk attitude that vary across contexts, and that there is a distinct intergenerational correlation for each of these more specific characteristics. In Section 3.3, as part of additional robustness checks, we investigate the specificity of the intergenerational correlation in more detail.

Column (7) of Table 3 reports results based on the hypothetical lottery question. The measure differs from the others in that it uses a cardinal scale with seven response values: investment amounts of 0, 20,000, 40,000, 60,000, 80,000 and 100,000. It also incorporates a different type of context, and also includes given stakes and probabilities. The dependent variable is the total amount invested by the child in the lottery, and parents' attitudes are indicated by their respective investment choices. There is substantial censoring at zero, due to the many individuals who choose to invest nothing in the lottery. Thus, in this case we report coefficients that are marginal effects, estimated using interval regression techniques that correct for censoring. The resulting intergenerational correlations are highly significant and positive.[17] The results from the lottery measure provide a further indication that the intergenerational correlation is robust, and show that it does not simply reflect a similar way of answering the type of qualitative, 11-point response scales used for the other measures. The marginal effects shown in Column (7) of Table 3 imply that a parent increasing their investment by 1,000 Euros causes a child to invest roughly an additional 250 Euros, which is substantial.[18]

In summary, the results show that the risk attitudes of parents are reflected in the

[17] We also estimated a Probit model, available upon request, where the dependent variable is equal to 1 if the child invested a positive amount and zero otherwise. Regressors included indicators for positive investment by mother and father, and the same controls as in Column (7). In this case, the probability that a child invests increases by 0.16 if the father invests, and 0.11 if the mother invests. Parental investment is highly statistically significant, and quantitatively more important than any other control in the regression.

[18] One Euro was worth approximately 1.2 U.S. dollars on average during the period when interviews were conducted.

willingness to take risks of the child, and thus provide evidence for a process of intergenerational attitude transmission. Notably, although on average child attitudes are strongly related to parental attitudes, there is heterogeneity in how close children are to their parents. An interesting topic for future research, which would go in the direction of further refining models of attitude transmission, is exploring factors that strengthen or weaken this relationship. In unreported regressions, we have identified one factor that appears to play a role, namely birth order. We find that the correlation between child's risk attitudes and parents' risk attitudes, purged for the influence of the exogenous controls included in Column (3) of Table 2, is significantly lower for younger siblings. Ascending in the birth order by one child reduces the correlation between the residuals for child's risk attitudes and mother's risk attitudes by about 0.03, and the correlation between child's risk residuals and father's residuals by about 0.02. Thus, firstborn children are more similar to parents in terms of risk attitudes, compared to younger siblings.

3.2 Trust attitudes

We now turn to the analysis of the intergenerational correlation in trust. Since we are interested in behaviorally valid measures, we collapse agreement with the three statements into a single component, as was done in the validation study by Fehr et al. (2003).[19] In Section 3.3, however, we also assess the robustness of the results to analyzing agreement with each statement separately.

Figure 2 plots children's average values of the trust measure, constructed via principal component analysis, for given values of the same trust measure of mothers (lower left diagram) and fathers (lower right diagram). The regression lines are weighted by the number of observations of children whose parents' trust measure takes a particular value. The upward slopes of the weighted regression lines give an initial indication that children's tendency to trust is increasing in their parents' willingness to trust.

To test the relationship suggested in Figure 2 more rigourously we ran three regressions for trust attitudes analogous to the ones reported for risk in Table 2. The results are displayed in Table 4. The dependent variable is the (standardized) principal component (*"trust"*) of the child, which is regressed on the respective standardized principal components of the mother and father, respectively. In the first column of Table 4 no further

[19] We collapse the measures using principal component analysis, as described in Footnote 11.

controls are added. The coefficients for parents' trust attitudes are positive and significant at any conventional level, indicating the presence of a positive intergenerational correlation. As was the case for risk, child attitudes are related to attitudes of both the mother and the father. An interesting difference, however, is that the coefficient for mother is significantly larger than the coefficient for father in the case of trust attitudes (p-value < 0.02), whereas there was no significant difference for risk attitudes (p-value < 0.79). The coefficients remain basically unchanged and highly significant when we add further controls in Columns (2) and (3). In summary, these findings are consistent with transmission of priors regarding trustworthiness from parents to children.

An important final point regarding trust is that we have so far assumed that willingness to take risks and willingness to trust are distinct attitudes. One may argue, however, that trusting someone is a risky decision and thus that willingness to trust could partly reflect risk preference. On the other hand, there is no conceptual reason why the belief-related component of willingness to trust, in the form of a prior about trustworthiness of others, should be related to risk preference. It is important to know whether the trust measures capture something distinct from the measures of risk preference, because only if this is the case we can sensibly talk about an independent correlation for risk and trust.

To study this question we ran the regressions reported in Table 5. In Column (1) we regress children's willingness to take risks on parents' willingness to take risks and willingness to trust. We also control for the trust attitudes of children and include our standard controls as in Column (3) of Table 2. The marginal coefficients on mothers' and fathers' willingness to take risks are positive and significant and similar in size to those in Column (3) of Table 2. This shows that the disposition towards trust does not explain risk attitudes. But what about the relation between trust and risk? In Column (2) we regress children's trust jointly on parents' willingness to take risks and their trust attitudes, together with the controls as in Column (1). We find that the coefficients on mothers' and fathers' trust are positive and highly significant.[20] They are also very similar to those obtained in the regressions from Table 4, i.e., without controlling for risk attitudes. This implies that trust attitudes do not simply measure attitudes towards risk and that the intergenerational correlations in risk and trust attitudes represent two distinct forms of

[20] We find similar results if we instead use the hypothetical lottery question, or other risk questions, as the measure of risk preference in the regression.

attitude transmission.

3.3 Robustness

3.3.1 Collaboration on Survey Responses

A potential concern regarding the results shown in Tables 2 and 4 is that correlations could be driven by parents and children somehow coordinating on how to answer different questions. While this is potentially a very serious concern we are quite confident that it does not explain the findings. First, interviewers are specifically instructed to administer the survey individually, and to make sure that different household members answer independently. If for some reason one household member wants to fill in the paper survey at the same time that the interviewer conducts a personal interview with another household member, the interviewer is instructed to ensure that these two survey respondents are in different rooms. Therefore, collaboration is ruled out by design. Second, filling out a survey involves answering about 150 question modules. Thus, even if respondents did have some limited communication during the interview, despite the best efforts of the interviewer, it is very unlikely that this applies systematically to the small subset of questions that are the key variables in this study. Third, we have estimated all of the regressions in Tables 2 and 4, excluding from the sample observations of parents-child pairs if one of the three individuals had sent in the questionnaire answers by surface mail, i.e., answered the survey without the interviewer being present. In this case, we find a similar and significant intergenerational correlation in risk and trust attitudes. Fourth, we also estimated the same regressions using the 40 percent of children in the sample who live in a separate household from their parents. In this case the intergenerational correlation is still highly significant for both mothers and fathers, for both risk and trust (the correlations for trust are essentially unchanged; for risk the correlations are somewhat smaller but the combined effect of both parents is still large). Fifth, the correlations obtained from using just the sample of children living with their parents yields similar results to using the whole sample. Finally, we have also restricted the sample to parents-child-pairs who all participated in CAPI interviews only; this excludes the possibility that questionnaires were completed simultaneously, because only one person at a time can possibly fill out the survey on the laptop. Again, we find significant correlations similar to those in Tables 2

and 4. These findings make us confident that the results are not driven by collaboration between family members.

3.3.2 Specificity of the Transmission Process and Scale-Use

Another question concerns the specificity of the transmitted attitudes: Do parents pass on a relatively general disposition towards risk-taking or trust to their children, or do children end up being similar to the parents even in relatively detailed ways? Or do children just use response scales in a similar way as their parents? To address these issues, we exploit that parents differ in their willingness to take risks across different contexts. For example, some parents are reluctant to take risks in car driving, but even more so with respect to financial matters. If a general disposition is transmitted, we would predict that the child is risk averse, but not that this specific difference across contexts is reproduced in the next generation. On the other hand, if these same differences are observed in the child, this is difficult to explain with scale use, given that all of the context-specific measures involve exactly the same 11-point scale.

In Columns (1) to (6) of Table 6 we regress children's answers to a given risk question on parents' responses to all of the risk questions *simultaneously*. We also control for children's answers to all context-specific risk questions. Table 6 reveals that the respective estimated coefficients, which are found along the diagonal of the table, are all positive and highly significant. Thus, controlling for risk attitudes in all other contexts, children's in a given context are strongly and significantly associated with those of their parents in that same context. Moreover, most other coefficients off the diagonal are not significant; if they are significant, they are typically substantially smaller than those on the diagonal. Thus, parents' attitudes in a given context are the best predictor of a child's attitudes in that same context.[21]

In Table 7 we perform the same exercise as in Table 4, but use answers to three trust questions separately instead of the principal component. As with risk attitudes, within-parent differences in responses to the different contexts are observed in the child, holding the response scale constant. These results suggest that children are not just similar to their parents in terms of a general disposition towards risk-taking or trust, but are similar

[21] Note that context-specific measures tend to be correlated for an individual (ranging from 0.26 to 0.45), making the diagonal result all the more striking.

in an even more precise sense.

This detailed analysis of the intergenerational correlation in context-specific measures of risk attitudes, and context-specific individual trust measures reveals that the transmission process is fairly specific, and sheds doubt on the hypothesis that similar scale-use might drive the previous findings concerning an intergenerational correlation in attitudes. The fact that we observe a strong correlation in economic attitudes, across various survey measures for risk and trust, with different response scales, provides another indication that the results are not explained simply by patterns of scale-use being shared by parents and children. As an additional robustness check, however, we investigated the intergenerational correlation in risk attitudes excluding families who exhibit a particularly salient heuristic for scale use, namely choosing the midpoint of the scale. We actually found a stronger intergenerational correlation in risk attitudes after eliminating child-parents pairs where the child and both parents make identical choices by choosing 5 on the scale. This indicates that the results are not driven by a similar tendency within families to choose the mid-point of response scales.

3.3.3 Reverse Causality

Some of the findings already suggest that the intergenerational correlation in attitudes is unlikely to be explained by reverse causality from the child to the parents. For example, parental attitudes in contexts such as career strongly predict child attitudes in the same context, even controlling for attitudes in other contexts. Given that parental career is often largely determined by the time a child is born, due to a whole sequence of educational and other choices, the intergenerational correlation in this context is unlikely to be driven by reverse causality. We also show below that child attitudes are related to the prevailing attitude in the region. It is clearly not plausible that child attitudes influence the average attitude in the region, whereas socialization of the child by parents and other role models can explain both results. One way to investigate the issue of causality further, however, is to use an instrumental variable approach, which is what we pursue in this section.

Previous research has used cultural characteristics, such as religion, as instruments for attitudes such as trust. Historically, different religions have been associated with different economically relevant attitudes, most famously Protestantism and attitudes towards work as discussed by Weber (1930). More recently, Guiso et al. (2003) use the World

Values Survey and find significant differences in trust by religion. McCleary and Barro (2006) pursue a similar approach, although they find less evidence that religious belief (belief in hell) is related to trust. In Table 1 we saw that religion affects risk attitudes of children. Performing the same type of regressions for mothers and fathers we also find a similar impact of religion, although the effect is stronger for mothers.[22] As is the case for children, religion has little impact on mothers' and fathers' trust, indicating that religion may work less well as an instrument for trust in our data. Other parental characteristics are also related to parental risk and trust attitudes, including years of education, and characteristics of the region of residence during youth, and are potential instruments by virtue of being plausibly exogenous with respect to child attitudes.

In Table 8 we instrument for parents' attitudes, and control for child religion, region of youth, and years of education, to rule out that the instruments affect child attitudes solely through a correlation with these child characteristics. In Columns (1) to (3) we find a strong positive relationship between child risk attitudes and mother's and father's instrumented attitudes, respectively, except in Column (3) where father is no longer significant. The latter result could indicate that for fathers previous results were biased upwards, but it seems more likely that the IV estimates for fathers suffer more from problems of weak instruments. Indeed, in the first stage for Column (3) the F-test for mothers is around 6, whereas for fathers it is only about 4.[23] In Columns (4) to (6) of Table 8 coefficients for mothers' and fathers' instrumented trust attitudes are positive and large, but only mother's trust is significant. Again, first stage F-tests are relatively low, particularly in Column (6). Overall, the results reinforce the case against reverse causality as the main explanation for the intergenerational correlations, but given that the instruments are not particularly strong, we take the IV estimates as additional, suggestive evidence.

4 Assortative mating of parents

We now turn to the second mechanism discussed in the literature, positive assortative mating. Notably, the previous results are consistent with both mothers and fathers influencing the child, which is a prerequisite for assortative mating to be relevant for child attitudes.

[22] Results available upon request.
[23] We find qualitatively similar results instrumenting using only parental religion.

A priori, the prediction of whether assortative mating should be positive or negative depends on whether these are substitutes or complements in the production of joint utility for the couple (Lam, 1988). For example, to the extent that there are gains to specialization in production, and these different tasks are better suited for different risk attitudes, it could be optimal to have one member of the couple who is risk-seeking and another who is risk averse.[24] On the other hand, given that we find that both parents influence child attitudes, attitude transmission models predict positive assortative mating, because parents who have a preference for children with attitudes similar to their own have an incentive to seek out partners with similar risk and trust attitudes.

Panel A of Table 9 presents estimation results for the correlation of risk attitudes among couples. In Columns (1), (2) and (3), the sample includes all cohabiting married and non-married couples for whom we have non-missing values on risk attitudes and other relevant regressors; the sample in Columns (4), (5) and (6) only includes parents for whom the child's risk attitude is observed, that is, for parents in the sample analyzed in Section 3.1. The dependent variable is the willingness of the female spouse (partner) to take risks on the 11-point scale. The results show a strong and positive relationship of female spouse's risk attitudes with the risk attitudes of the male spouse.

The effect remains positive and significant when controlling for exogenous and other controls in Columns (2) and (3) or (5) and (6), respectively. The usual effects of age and height on risk attitudes remain significant. Evidence of positive assortative mating on risk attitudes is not confined to the question about risk taking in general. We find a similarly significant and positive correlation if we use any of the five context-specific risk questions to measure female and male spouse's risk attitudes, and run regressions with the same specifications as in Table 9.[25] Using female spouse's responses to the hypothetical lottery question as the dependent variable, we also find a strong positive relationship, such that if the male spouse invests 1,000 Euros more, the female spouse invests an additional 300 Euros.

Panel B of Table 9 investigates whether there is significant correlation between couples in terms of trust, and whether the correlation is positive as in the case of risk

[24] Chiappori and Reny (2006) develop a theoretical model in which negative assortative mating arises in equilibrium, because couples face income risk and it is optimal to have one safe and one risky income in the household portfolio.

[25] Results are available upon request.

attitudes. For our usual specifications, we find a strong positive relationship between the trust principal component of the female spouse and the trust principal component of the male spouse,indicating the presence of positive assortative mating along the dimension of trust.

To check whether endogeneity of female spouse's attitudes could bias the estimated correlation, we investigated the within-couple correlation in attitudes, instrumenting for one spouses' attitudes by the attitudes of the spouse's parents (mother and father). The relevant sample is thus all couples for whom we observe attitudes of at least one spouse's parents. The dependent variable is the attitude of the spouse for whom we do not observe parental attitudes, regressed on the instrumented attitude of the other spouse. The maintained assumption is that parental attitudes are exogenous to the attitudes of the child's spouse, other than through the channel of the child's attitudes (and potentially other child characteristics, but these are included as controls). In this case first stage F-tests are typically well above 10, and the IV estimate of the correlation between couples is almost twice as large, for both risk and trust attitudes. This suggests that if anything the coefficients on spouse's attitudes in Table 9 may be biased downwards.

As another robustness check, we assess whether there is a significant correlation even for couples who have only been married a relatively short time. If so, this helps to rule out the possibility that people who get married subsequently develop similar attitudes, as opposed to the hypothesis of positive assortative mating in which the similarity in attitudes causes people to get married. Using the same specification as in the Columns (2) and (5) of Table 9, we restrict the sample to couples who got married during the current or previous year, and estimate the within-couple correlation. We find that the correlation is still significant and positive, and almost as large as for the full sample of couples: the coefficient on male spouse's risk attitudes is 0.24 and the coefficient for trust attitudes is 0.34, both significant at the five percent level. These findings are again supportive of the second, reinforcing mechanism for attitude transmission, working through positive assortative mating.

5 The Impact of Regional Risk and Trust Attitudes

So far we have shown that parental attitudes have a substantial impact on child attitudes, reinforced by positive assortative mating. This does not rule out, however, that other individuals in the environment influence the child as well. Theories of attitude formation typically assume that child attitudes may be affected by other local role models, in addition to parents.

Table 10 investigates whether prevailing attitudes in a child's region of residence have explanatory power for child attitudes. The table reports results using the specification from Column (2) of Tables 2 and 4, but adding controls for average attitudes in the region. The average is calculated using all participants in the SOEP data set with non-missing attitudes, in order to obtain the best estimate. The sample used to calculate the average is substantially larger than the one used for the regression analysis, because it includes individuals for whom we do not observe parents. We exclude the child's attitude when calculating the regional average. Columns (1) and (3) report the results from Tables 2 and 4, for ease of comparison, and Columns (2) and (4) show results for risk and trust, respectively, once we control for regional attitudes. The coefficients for regional attitudes are positive and highly significant in Columns (2) and (4), controlling for parental attitudes. This indicates that child attitudes are influenced by attitudes in the environment, controlling for parental attitudes.

To check whether the results in Table 10 could reflect sorting of children into regions with similar attitudes to their own, we estimated the same regressions using only the sample of children who currently live with their parents and thus presumably did not choose their region of residence. Parents might sort into regions based on attitudes, but we control for parental attitudes in the regression. In this case we again find a positive and significant impaction of regional attitudes on the child, for both risk and trust attitudes, which is only slightly smaller than when we used the whole sample, indicating that sorting does not explain the result.[26] Thus, we conclude that the evidence is consistent with

[26] Detailed results are available upon request. We also also check robustness to eliminating the small fraction of children who are living with very old parents (parents age 70 and up), and alternatively to eliminating children who live with their parents and are relatively old themselves (children age 40 and up), because in these situations it could be the case that the child chose the region, and parents moved in with the child due to old-age-related infirmity. Results are very similar when these cases are excluded, for both risk and trust.

prevailing attitudes in the local area influencing child attitudes, controlling for parental attitudes.

An important final point is that a role for regional attitudes in influencing the child does not conflict with the previous conclusion that parents matter for child attitudes. Note that in Table 10 the coefficients on parental attitudes are essentially unchanged when we control for regional attitudes, compared to Columns (1) and (3). This is consistent with our previous results showing that including regional fixed effects does not affect the relationship between parental and child attitudes. We also pursued another approach to investigating whether the correlation between parent and child attitudes could be spurious, and driven by similarity in region characteristics. We randomly re-match parents and children with members of other families living in the same region, and test whether the correlation in these synthetic families is similar to the correlation observed within real families. If this were the case, this would suggest that the driver of similar attitudes within families is the fact that they often share the same region of residence. Panels (a) and (b) of Figure 3 present histograms of the correlations of risk attitudes between child and mother, and child and father, respectively, in 500 samples where parents are randomly drawn among the population of the same region.[27] The vertical bars indicate the correlation that results from the true mothers and fathers, respectively. Panels (c) and (d) of Figure 3 present similar histograms for trust. The figures illustrate that in all cases the hypothesis that regional affiliation drives the positive correlation in attitudes between child and parents is strongly rejected. On the other hand, the correlations obtained with randomly assigned parents rather than true parents are always positive, consistent with our results above showing an independent role for regions in influencing child attitudes.

6 Concluding Remarks

By assuming that economically relevant attitudes are transmitted across generations, new theories have been able to rationalize a wide range of important behaviors and outcomes. A key element of these new explanations, however, has been unobserved, namely the process of attitude transmission itself. This paper provides empirical evidence on attitude transmission, thereby testing a key set of assumptions behind a large literature. We test

[27] The sample only includes child-parent pairs that live within the same region.

three different channels for attitude transmission emphasized in the literature: (1) transmission of attitudes from parents to children; (2) positive assortative mating of parents, which tends to reinforce the impact of parents on the child; (3) an influence of other role models in the environment on child attitudes, in addition to parents. Testing all three mechanisms in the same data, using the same empirical strategy, is important for comparing and disentangling their respective roles. The findings indicate that all three mechanisms play a role in shaping individual attitudes. This provides an empirical underpinning for the attitude transmission approach, and helps open the black box of where fundamental economic attitudes come from.

In this paper, we document a robust intergenerational correlation in risk and trust attitudes and establish that children end up having similar attitudes towards risk and trust as their parents. An intriguing question one might ask given these results is which mechanism or combination of mechanisms is most important in the transmission process. There are at least three potential transmission channels: genetics, child learning by imitation, and deliberate efforts by parents to shape the preferences and beliefs of their children. In this paper, we have been hesitant to address this question mainly because we believe that our data are not well-suited for generating compelling new evidence. Using twin data, recent work by Cesarini et al. (2007, 2008) provides evidence for the relevance of genetics in the transmission of responder behavior in ultimatum games, and cooperation in the trust game, respectively. At the same time, our evidence on family structure and environment suggests that alternative transmission channels are also important. Moreover, genetic and social influences may act in concert, and possibly interact.[28] One should note, however, that establishing empirical evidence for attitude transmission from parents to children, and for assortative mating, on basis of a large sample is important regardless of the precise transmission mechanism, because of the relevance for economic theories and the far reaching implications for understanding, e.g., social mobility or persistence of cultural differences.

Evidence of attitude transmission is relevant for other literatures as well. A large body of evidence has shown strong persistence in economic outcomes, such as income, education, and asset holdings across generations (for a recent survey see Björklund, 2007).

[28] That is to say, the impact of genetics and environment may not simply be additive. For a discussion see Bouchard and Loehlin (2001).

Typically, however, empirical studies in this literature remain silent about the particular economic channel through which parental outcomes causally affect children's outcomes, and without doubt, many factors may play a role at the micro level and explain the causal effects of parental outcomes for children's outcomes, such as, e.g., direct transfers of resources. The transmission of attitudes provides an additional mechanism for explaining persistent differences in outcomes: children may end up with similar outcomes to the parents partly because they have similar attitudes and thus make the same patterns of choices in life. Hence, the evidence presented in this paper helps shedding new light on intergenerational outcome transmission. The construction and estimation of structural models in order to investigate the relative importance of attitude transmission and alternative channels in explaining intergenerational mobility constitutes an interesting topic for future research.

Another application of our findings is to the literature on assortative mating, where there is evidence of correlated behaviors between married individuals, for example in terms of smoking or educational choice (see, e.g., Fernández et al., 2005). Positive assortative mating on the basis of fundamental attitudes is one relevant underlying mechanism for explaining why couples exhibit similar behaviors. The finding that regional attitudes affect child attitudes is also relevant for literatures on social interaction and neighborhood effects. Specifically, regional contagion of risk preference and trust provide evidence for two of the three channels for social interaction effects hypothesized by Manski (2000), namely social interaction effects working through the channel of preferences and through the channel of expectations. These mechanisms can in turn help explain evidence of neighborhood effects. For example, regional attitude transmission helps explain the finding that similarity in various economic behaviors is reinforced for ethnic groups that tend to cluster in the same geographic area (Fernández and Fogli, 2005), and the finding that an individual's trust is related to trust in the country of ancestry (Guiso et al., 2006). Transmission of attitudes, particularly regarding risk, is also potentially relevant for explaining correlations between adolescents' risky behaviors (e.g., drug use and crime), and behaviors of other role models in the local environment (see, e.g., Case and Katz, 1991; Glaeser et al., 1996; Kling et al., 2007).

We have focused on transmission of risk attitudes and trust partly because these are particularly relevant for economic behavior. Indeed, previous evidence shows that individ-

ual differences in the particular measures that we use translate into important differences in behavior and outcomes. An important direction for future research, however, is investigating the three-fold channels for transmission of other economically relevant attitudes. For example, impatience is a prime candidate, as recent theoretical work hypothesizes that parents deliberately invest in a particular discount rate for the child (Doepke and Zilibotti, 2005 and 2008). Another candidate is reciprocity, the tendency to respond in-kind to hostile or kind actions by others. Like trust, reciprocal inclinations are a crucial determinant of how someone behaves in conditions of contractual incompleteness, except that they are relevant for the behavior of a second-mover, deciding how to respond to kind or unkind behavior. Transmission of reciprocity would be important, because the degree of reciprocity in a society is a crucial component of social capital, in particular for the informal enforcement of norms (Fehr and Gächter, 2000 and Bowles and Gintis, 2000b).

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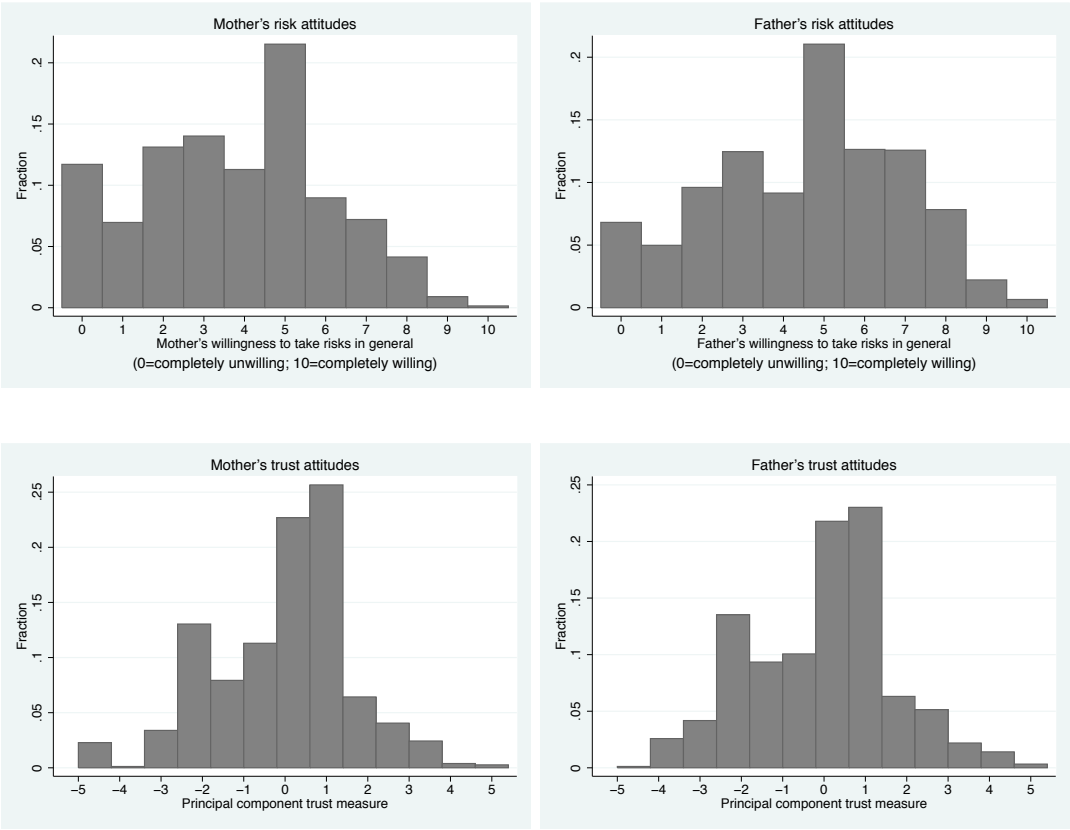
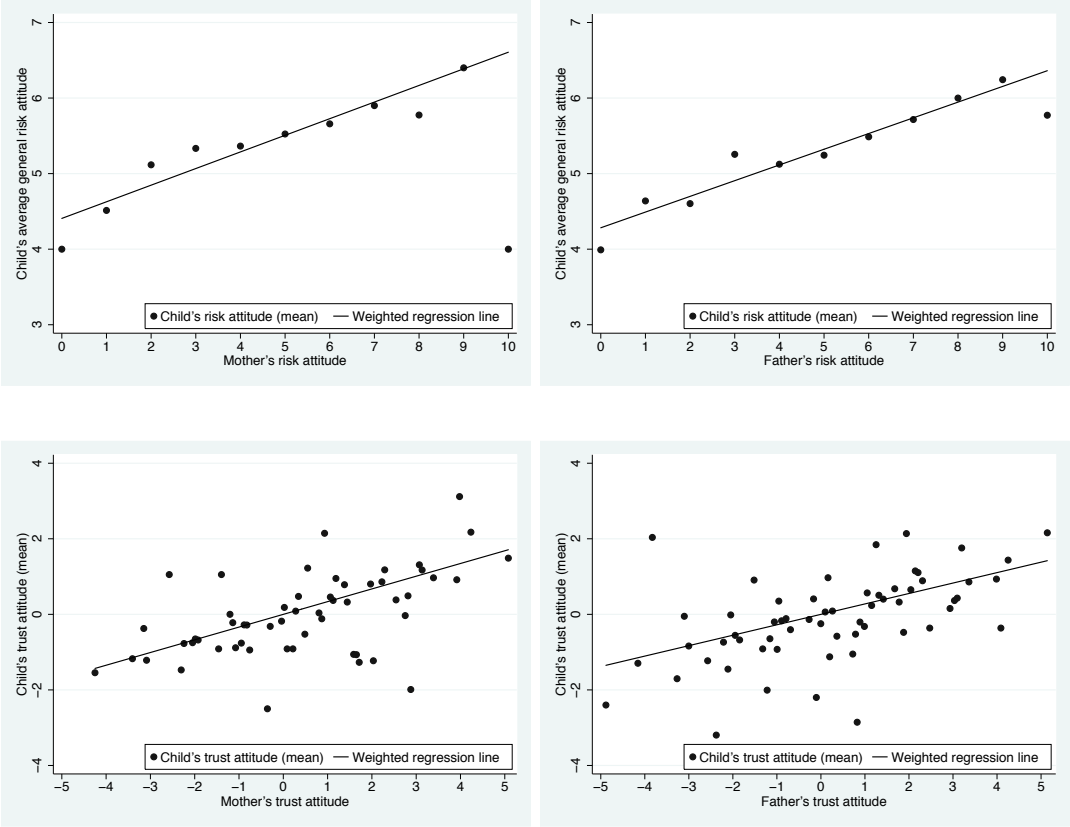
Figures

Figure 1: Parents' Attitudes towards Risk and Trust



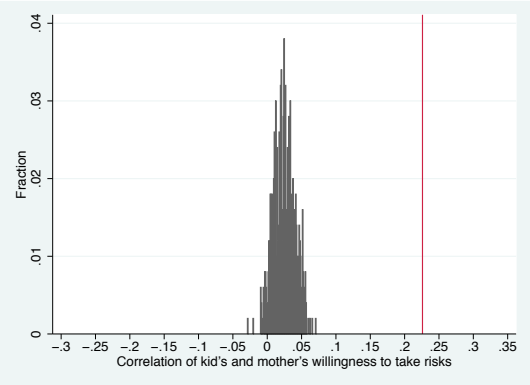
Notes: The upper histograms in the figure show the distributions of responses to the question about general risk attitudes for mothers (left histogram) and fathers (right histogram). The bottom histograms in the figure show the distributions of the trust principal component, which combines the information from three separate survey measures of trust, for mothers (left histogram) and fathers (right histogram).

Figure 2: Child's Attitudes towards Risk and Trust as a Function of Parents'

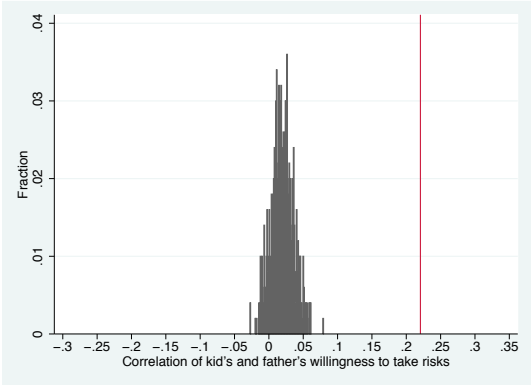


Notes: The upper graphs in the figure show children's average self-reported willingness to take risks for a given willingness to take risks of mothers (left diagram) and fathers (right diagram). The bottom graphs in the figure show children's average principal component "trust" for a given principal component "trust" of mothers (left diagram) and fathers (right diagram).

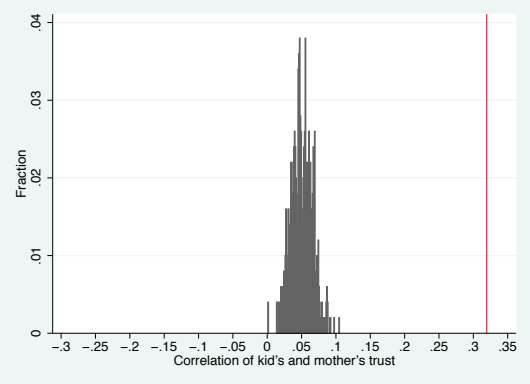
Figure 3: Correlations with Randomly Assigned Parents from Same Region



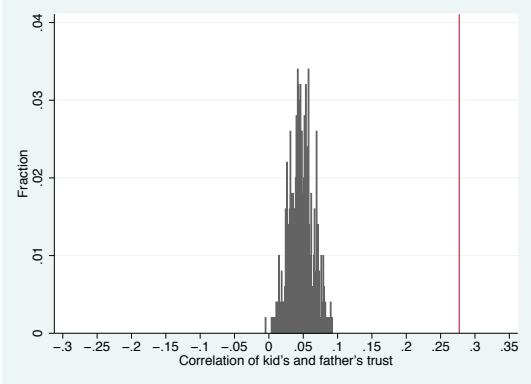
(a) Correlation Random Mother-Child: Risk



(b) Correlation Random Father-Child: Risk



(c) Correlation Random Mother-Child: Trust



(d) Correlation Random Father-Child: Trust

Notes: The upper diagrams in the figure show the distribution of correlation coefficients of willingness to take risks between children and randomly matched adults. The correlation coefficients are obtained from 500 iterations where each involves randomly matching a child to a parent who lives in the same region as the child's actual parent. The vertical line indicates the correlation coefficient for the risk attitudes of children and their actual parents, observe in the SOEP data. The bottom diagrams in the figure show similar results for the correlation in the principal component "trust", again based on 500 iterations of random matching within regions. The vertical line indicates the correlation coefficient for the principal component "trust" of children and their actual parents as observed in the SOEP. Note that child-parents pairs who do not currently live in the same region are excluded.

Tables

Table 1: The Relationship between Attitudes and Personal Characteristics

Dependent variable:	Willingness to take risks		Trust (principal component)	
	(1)	(2)	(3)	(4)
1 if female	-0.197***	-0.204***	0.043	0
	[0.048]	[0.048]	[0.051]	[0.051]
Age of respondent (years)	-0.021***	-0.022***	-0.006**	-0.009***
	[0.002]	[0.003]	[0.003]	[0.003]
Height of respondent (cm)	0.012***	0.011***	0.008***	0.006**
	[0.003]	[0.003]	[0.003]	[0.003]
Years of education		0.002		0.009**
		[0.004]		[0.004]
Years of Education Missing		-0.055		-0.034
		[0.085]		[0.067]
1 if grew up in big city		0.111*		0.192***
		[0.057]		[0.060]
1 if grew up in city		-0.006		-0.095
		[0.057]		[0.058]
1 if grew up in the countryside		0.058		-0.027
		[0.050]		[0.053]
1 if information on childhood		0.055		-0.017
residence missing		[0.064]		[0.066]
1 if respondent catholic		0.232**		0.026
		[0.114]		[0.126]
1 if respondent protestant		0.220*		0.093
		[0.114]		[0.125]
1 if respondent other religion		0.151		-0.135
		[0.143]		[0.145]
1 if no religious affiliation		0.296***		-0.163
		[0.114]		[0.126]
1 if missing information for		0.201		-0.053
respondent's religion		[0.123]		[0.288]
Constant	-1.390***	-1.551***	-1.259**	-0.925*
	[0.496]	[0.519]	[0.503]	[0.515]
Observations	3327	3327	3280	3280
R-squared	0.05	0.06	0.01	0.03

The dependent variable in Columns (1) and (2) measures general willingness to take risks on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks). The dependent variable in Columns (3) and (4) is the principal component constructed from an individual's level of agreement with three statements regarding trust (general trust, reliance in others, need for caution in dealing with strangers). To ease comparison of coefficients, dependent variables in all columns are standardized. Reference categories are other Christian denomination, and grew up in small town, for religion and characteristics of region of youth, respectively. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. All religion information is obtained from the 2003 wave of the SOEP. Reference groups are protestant and grew up in a small town.

Table 2: The Relationship between Children's and Parents' Risk Attitudes

Dependent variable:	Child's willingness to take risks in general		
	(1)	(2)	(3)
Mother's willingness to take risks in general	0.165***	0.153***	0.148***
	[0.019]	[0.019]	[0.022]
Father's willingness to take risks in general	0.157***	0.142***	0.154***
	[0.020]	[0.020]	[0.023]
1 if female		-0.228***	-0.214***
		[0.051]	[0.055]
Age of Child (years)		-0.017***	-0.019***
		[0.004]	[0.005]
Height of Child (cm)		0.009***	0.009***
		[0.003]	[0.003]
Age of mother (years)		0.010**	0.014**
		[0.005]	[0.006]
Age of father (years)		-0.007	-0.012**
		[0.004]	[0.005]
Height of mother (cm)		-0.002	-0.002
		[0.003]	[0.004]
Height of father (cm)		-0.003	-0.002
		[0.003]	[0.003]
Constant	0	-0.487	-1.860**
	[0.017]	[0.617]	[0.942]
Additional controls	No	No	Yes
Observations	3,331	3,327	2,980
R-squared	0.07	0.11	0.21

The dependent variable in Columns (1), (2) and (3) measures general willingness to take risks on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Explanatory risk variables are also measured on the eleven-point scale, and are also standardized. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional controls include: years of schooling of child and child's father and mother; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for child and parents (big city, city, countryside, missing; the reference category is small town); indicator variables for religion of child and parents (catholic, protestant, other non-Christian, no religious affiliation, missing religion; the reference category is other Christian), gross annual household income for child, child's mother and father, subjective health status of child, and child's mother and father (five response categories), and fixed effects for region (Raumordnungsregion) and 17 nationality-ethnicity dummies (reference category is German). All religion information is obtained from the 2003 wave of the SOEP.

Table 3: Robustness to Alternative Risk Measures

	Dependent variable:						
	Child's willingness to take risks in the context of:						Amount invested in
	General	Car driving	Financial matters	Sports & leisure	Career	Health	Hypothetical Lottery
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Willingness to take risks: Mother	0.148***	0.147***	0.137***	0.184***	0.178***	0.168***	0.247***
(in respective context)	[0.022]	[0.023]	[0.021]	[0.021]	[0.024]	[0.022]	[0.040]
Willingness to take risks: Father	0.154***	0.143***	0.137***	0.164***	0.146***	0.135***	0.253***
(in respective context)	[0.023]	[0.024]	[0.022]	[0.022]	[0.025]	[0.022]	[0.037]
Observations	2,980	2,633	2,888	2,926	2,544	2,974	2,970
R-squared	0.21	0.23	0.21	0.26	0.23	0.19	

The dependent variable in Columns (1)-(6) measures willingness to take risk in the particular context on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), all of which are standardized. The dependent variable in Column (7) is the amount invested in the hypothetical lottery, answers are in categories of 0 Euros, 20,000 Euros, 40,000 Euros, 60,000 Euros, 80,000 Euros and 100,000 Euros. Explanatory risk variables in Columns (1)-(6) are coded on the eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and are all standardized. Explanatory variables in Column (7) are in Euro-categories. The set of explanatory variables in Columns (1)-(6) is identical to that in Column (3) of Table 2, no regional and nationality dummies are included in Column (7). Coefficients in Columns (1)-(6) are OLS estimates, coefficients in Column (7) are Interval Regression estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Log-Pseudo-Likelihood of estimates in column (7) is -3,803.

Table 4: The Relationship between Children's and Parents' Trust

Dependent variable:	Child's trust (principal component)		
	(1)	(2)	(3)
Trust: Mother	0.243***	0.239***	0.205***
	[0.020]	[0.020]	[0.024]
Trust: Father	0.161***	0.159***	0.141***
	[0.020]	[0.020]	[0.024]
1 if female		0.013	-0.035
		[0.052]	[0.059]
Age of Child (years)		-0.013***	-0.009*
		[0.004]	[0.005]
Height of Child (cm)		0.004	0.001
		[0.003]	[0.003]
Age of mother (years)		0.008	0.011*
		[0.005]	[0.006]
Age of father (years)		0.004	0
		[0.005]	[0.006]
Height of mother (cm)		-0.001	-0.003
		[0.003]	[0.004]
Height of father (cm)		0.003	0
		[0.003]	[0.003]
Constant	0	-1.374**	0.091
	[0.017]	[0.634]	[0.798]
Additional controls	No	No	Yes
Observations	3,327	3,276	2,626
R-squared	0.12	0.13	0.26

The trust variables measure trust as the principal component obtained from agreement with three statements regarding trust (general trust, reliance on others, need for caution in dealing with strangers) measured on a four-point scale. The measures are standardized. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional controls include: years of schooling of child and child's father and mother; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for child and parents (big city, city, small town, countryside, missing); indicator variables for religion of child and parents (catholic, protestant, other non-Christian, no religion, missing religion; the reference category is other Christian). All religion information is obtained from the 2003 wave of the SOEP.

Table 5: Distinguishing the Correlation in Trust from the Correlation in Risk Attitudes

	Dependent variable:	
	Child's willingness to take risks	Child's trust principal component
	(1)	(2)
Mother's willingness to take risks in general	0.138***	-0.014
	[0.024]	[0.022]
Father's willingness to take risks in general	0.173***	-0.035
	[0.025]	[0.023]
Trust: Mother	-0.068***	0.208***
	[0.025]	[0.024]
Trust: Father	-0.027	0.145***
	[0.025]	[0.024]
Child's willingness to take risks in general		0.043**
		[0.022]
Trust: Child	0.045**	
	[0.023]	
1 if female	-0.249***	-0.014
	[0.060]	[0.060]
Age of child (years)	-0.016***	-0.008
	[0.005]	[0.005]
Height of child (cm)	0.007**	0.001
	[0.004]	[0.003]
Age of mother (years)	0.014**	0.01
	[0.006]	[0.006]
Age of father (years)	-0.014**	0
	[0.006]	[0.006]
Height of mother (cm)	-0.002	-0.004
	[0.004]	[0.004]
Height of father (cm)	-0.002	0
	[0.003]	[0.003]
Constant	-1.011	0.123
	[0.785]	[0.803]
Additional controls	Yes	Yes
Observations	2,607	2,607
R-squared	0.22	0.26

The dependent variable in Column (1) measures general willingness to take risk on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Explanatory risk variables are measured on the eleven-point scale and standardized as well. The trust variables measure trust as the standardized principal component obtained from agreement with three statements regarding trust (general trust, reliance on others, need for caution in dealing with strangers) measured on a four-point scale. Coefficients in all columns are OLS estimates. Additional controls include: years of schooling of Child and Child's father and mother; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for child and parents (big city, city, countryside, missing; the reference category is small town); indicator variables for religion of child and parents (catholic, protestant, other non-Christian, no religious affiliation, missing religion; the reference category is other Christian), gross annual household income for Child, Child's mother and father, subjective health status of Child, and Child's mother and father (five response categories), and fixed effects for region (Raumordnungsregion) and 17 nationality-ethnicity dummies (reference category is German). All religion information is obtained from the 2003 wave of the SOEP.

Table 6: Specificity of the Intergenerational Correlation in Risk Attitudes

Dependent variable:	Child's willingness to take risks in the context of:					
	General	Car driving	Financial matters	Sports & leisure	Career	Health
	(1)	(2)	(3)	(4)	(5)	(6)
Willingness to take risks in the context of:						
General: Mother	0.087***	-0.022	-0.015	0.019	0.026	-0.041
	[0.025]	[0.025]	[0.026]	[0.023]	[0.024]	[0.025]
General: Father	0.084***	-0.028	-0.053*	-0.014	0.018	-0.014
	[0.025]	[0.027]	[0.029]	[0.025]	[0.026]	[0.028]
Driving: Mother	-0.047**	0.114***	0.012	-0.008	-0.014	-0.016
	[0.023]	[0.026]	[0.025]	[0.022]	[0.024]	[0.025]
Driving: Father	0.006	0.098***	-0.019	0.006	-0.006	-0.022
	[0.024]	[0.026]	[0.026]	[0.023]	[0.025]	[0.025]
Financial: Mother	0.018	-0.046*	0.115***	-0.016	-0.04	-0.004
	[0.023]	[0.026]	[0.027]	[0.022]	[0.025]	[0.026]
Financial: Father	-0.024	0.025	0.089***	0.036	-0.029	-0.037
	[0.024]	[0.027]	[0.025]	[0.024]	[0.026]	[0.026]
Sports: Mother	-0.02	0.006	-0.059**	0.111***	-0.031	0.012
	[0.025]	[0.030]	[0.028]	[0.025]	[0.027]	[0.027]
Sports: Father	-0.022	-0.04	0.031	0.091***	0.02	-0.021
	[0.026]	[0.027]	[0.026]	[0.025]	[0.026]	[0.027]
Career: Mother	0.003	-0.001	-0.017	0.02	0.080***	-0.022
	[0.026]	[0.030]	[0.030]	[0.026]	[0.028]	[0.029]
Career: Father	-0.02	0	0.053*	-0.032	0.084***	-0.015
	[0.026]	[0.027]	[0.028]	[0.025]	[0.028]	[0.029]
Health: Mother	0.018	-0.027	-0.016	-0.044**	0.015	0.103***
	[0.023]	[0.026]	[0.028]	[0.022]	[0.024]	[0.026]
Health: Father	-0.036	-0.008	-0.039	-0.035*	-0.044*	0.145***
	[0.022]	[0.024]	[0.025]	[0.021]	[0.024]	[0.025]
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,308	2,308	2,308	2,308	2,308	2,308
R-squared	0.54	0.49	0.44	0.57	0.53	0.47

The dependent variable in each column measures willingness to take risk in the particular context on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Explanatory risk variables are coded on the eleven-point scale and standardized as well. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for correlation of errors at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional controls include: years of schooling of Child and Child's father and mother; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for child and parents (big city, city, countryside, missing; the reference category is small town); indicator variables for religion of child and parents (catholic, protestant, other non-Christian, no religious affiliation, missing religion; the reference category is other Christian), gross annual household income for Child, Child's mother and father, subjective health status of Child, and Child's mother and father (five response categories), and fixed effects for region (Raumordnungsregion) and 17 nationality-ethnicity dummies (reference category is German). All religion information is obtained from the 2003 wave of the SOEP. A substantial fraction, roughly 1/4, of the sample do not have complete answers to risk questions in all contexts due to item non-response, in particular when the question does not apply (e.g., car driving for 17 year old individuals).

Table 7: Specificity of the Intergenerational Correlation in Trust

Dependent variable is Child's	General trust (1)	Reliability (2)	Need for caution (3)
Trust: Mother	0.155***	0.051**	-0.015
	[0.025]	[0.024]	[0.024]
Trust: Father	0.098***	0.040*	0.046*
	[0.025]	[0.024]	[0.025]
Reliability: Mother	0.038*	0.124***	0.039
	[0.023]	[0.024]	[0.024]
Reliability: Father	0.038	0.151***	0.03
	[0.025]	[0.026]	[0.025]
Caution: Mother	0.043**	-0.012	0.159***
	[0.021]	[0.021]	[0.024]
Caution: Father	0.011	-0.014	0.068***
	[0.021]	[0.021]	[0.023]
Trust: Child		-0.428***	-0.133***
		[0.022]	[0.023]
Reliability: Child	-0.436***		0.172***
	[0.022]		[0.023]
Caution: Child	-0.114***	0.144***	
	[0.020]	[0.020]	
1 if female	0.031	0.004	-0.01
	[0.054]	[0.053]	[0.054]
Age of child (years)	0.002	-0.009*	0.004
	[0.005]	[0.005]	[0.005]
Height of child (cm)	0	-0.003	0.005*
	[0.003]	[0.003]	[0.003]
Age of mother (years)	0.005	0.016***	-0.002
	[0.005]	[0.006]	[0.006]
Age of father (years)	-0.004	-0.008	0.006
	[0.005]	[0.005]	[0.005]
Height of mother (cm)	0.006*	0.002	0
	[0.003]	[0.003]	[0.003]
Height of father (cm)	-0.001	0.002	-0.004
	[0.003]	[0.003]	[0.003]
Constant	-1.668**	-0.744	-1.438*
	[0.714]	[0.693]	[0.740]
Additional controls	Yes	Yes	Yes
Observations	2,626	2,626	2,626
R-squared	0.39	0.4	0.28

The measures for general trust, reliability and need for caution reflect agreement or disagreement with corresponding statements on a four-point scale. The statements are "In general, one can trust people.", "In these days you cannot rely on anybody else.", and "When dealing with strangers it is better to be cautious when dealing with them.", respectively. Answers are reported on a four-category scale from "strongly agree" to "strongly disagree". All dependent and explanatory variables are standardized. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional controls include: years of schooling of child and child's father and mother; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for child and parents (big city, city, countryside, missing; the reference category is small town); indicator variables for religion of child and parents (catholic, protestant, other non-Christian, no religious affiliation, missing religion; the reference category is other Christian), gross annual household income for child, child's mother and father, subjective health status of Child, and Child's mother and father (five response categories), and fixed effects for region (Raumordnungsregion) and 17 nationality-ethnicity dummies (reference category is German). All religion information is obtained from the 2003 wave of the SOEP.

Table 8: The Relationship Between Children's and Parents' Attitudes: IV Results

Dependent variable:	Child's willingness to take risks in general			Child's trust (principal component)		
	(1)	(2)	(3)	(4)	(5)	(6)
Mother's willingness to take risks in general	0.276***		0.256**	0.894***		0.480***
	[0.089]		[0.100]	[0.128]		[0.175]
Father's willingness to take risks in general		0.187*	-0.002		0.603***	0.197
		[0.101]	[0.115]		[0.086]	[0.163]
1 if female	-0.232***	-0.231***	-0.230***	-0.02	-0.015	-0.014
	[0.048]	[0.049]	[0.048]	[0.060]	[0.054]	[0.052]
Age of Child (years)	-0.016***	-0.017***	-0.016***	0	-0.004	-0.003
	[0.004]	[0.004]	[0.004]	[0.004]	[0.003]	[0.003]
Height of Child (cm)	0.009***	0.009***	0.009***	0	0.003	0.002
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
Constant	-1.062**	-1.134**	-1.084**	0.029	-0.439	-0.267
	[0.504]	[0.509]	[0.507]	[0.603]	[0.551]	[0.522]
Additional controls for Child's education, religion, residence of youth	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,327	3,327	3,327	3,008	3,005	3,005
R-squared second stage (centered)		0.09	0.09	-0.20	0.003	0.08
First stage partial R^2 (Mother)	0.04		0.05	0.03		0.06
First stage F(2,50) (Mother)	9.33		5.91	5.19		5.67
First stage partial R^2 (Father)		0.03	0.04		0.05	0.07
First stage F(2,50) (Father)		7.16	4.18		8.93	6.72
Hansen Overidentification (p-value)	0.18	0.77	0.18	0.82	0.32	0.36

The dependent variable in Columns (1), (2), and (3) measures general willingness to take risk on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Parental risk variables are measured on the eleven-point scale and standardized as well. The dependent variable in Columns (4), (5), and (6) measures trust as the principal component obtained from agreement with three statements regarding trust (general trust, reliance on others, need for caution in dealing with strangers) measured on a four-point scale. The measures are standardized. Parental trust variables are obtained by a similar procedure and are standardized as well. Coefficients in all columns are second-stage IV estimates. Instruments for parental risk variables in Columns (1), (2) and (3), and for parental trust variables in Columns (4), (5), and (6) are parental religion variables (catholic, protestant, other non-Christian, no religion, missing religion; the reference category is other Christian), exogenous parental characteristics (age, height), parental education (years of schooling of mother and father, respectively; corresponding indicator variables for missing schooling information) and indicator variables for characteristics of the residence of youth of mother and father, respectively, before age of 16 (big city, city, countryside, missing; the reference category is small town). All religion information is obtained from the 2003 wave of the SOEP.

Table 9: The Relationship between Female and Male Spouses' Attitudes

Panel A

Dependent variable:	Willingness to take risks in general: Female spouse					
		Full Sample			Parents in Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
Willingness to take risks: Female partner (standardized)	0.341***	0.312***	0.272***	0.388***	0.358***	0.263***
	[0.012]	[0.012]	[0.013]	[0.019]	[0.020]	[0.021]
Additional controls						
Age, Height	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Observations	7278	7271	6677	3331	3331	3107
R-squared	0.12	0.13	0.19	0.15	0.17	0.3

Panel B

Dependent variable:	Trust (Principal Component): Female spouse					
		Full Sample			Parents in Sample	
	(1)	(2)	(3)	(4)	(5)	(6)
Trust: Male partner (standardized)	0.500***	0.495***	0.426***	0.477***	0.472***	0.410***
	[0.011]	[0.012]	[0.013]	[0.020]	[0.020]	[0.022]
Additional controls						
Age, Height	No	Yes	Yes	No	Yes	Yes
Other controls	No	No	Yes	No	No	Yes
Observations	6873	6860	6320	3327	3318	2894
R-squared	0.25	0.25	0.31	0.23	0.23	0.34

The dependent variable in Panel A measures general willingness to take risk on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Explanatory risk variables are also coded on the eleven-point scale and standardized. The dependent variable in panel B measures trust as the principal component obtained from agreement with three statements regarding trust (general trust, reliance on others, need for caution in dealing with strangers) measured on a four-point scale. The measures are standardized. Risk and trust variables for male partners are obtained by a similar procedure and are standardized as well. The sample in Columns (1), (2) and (3) is restricted to cohabiting married and non-married couples, the sample in Columns (4), (5) and (6) is restricted to mothers and fathers of children for which risk and trust measures, respectively, are observed. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional other controls in Columns (3) and (6) include: years of schooling of female and male partner; corresponding indicator variables for missing schooling information; indicator variables for characteristics of the residence of youth before age of 16, for both partners (big city, city, countryside, missing; the reference category is small town); indicator variables for religion of both partners (catholic, protestant, other non-Christian, no religious affiliation, missing religion; the reference category is other Christian), gross annual household income for both partners, subjective health status of both partners (five response categories), and fixed effects for region (*Raumordnungsregion*) and 17 nationality-ethnicity dummies (reference category is German) of female partner. All religion information is obtained from the 2003 wave of the SOEP.

Table 10: The Role of Regional Attitudes

Dependent variable:	Child's willingness to take risks in general		Child's Trust (Principal Component	
	(1)	(2)	(3)	(4)
Mother's willingness to take risks in general	0.153***	0.142***	0.239***	0.222***
	[0.019]	[0.019]	[0.020]	[0.021]
Father's willingness to take risks in general	0.142***	0.136***	0.159***	0.152***
	[0.020]	[0.020]	[0.020]	[0.020]
Average regional willingness to take risks in general		0.072***		
		[0.017]		
Average regional trust (principal component)				0.094***
				[0.019]
1 if female	-0.228***	-0.233***	0.013	0.01
	[0.051]	[0.051]	[0.052]	[0.051]
Age of Child (years)	-0.017***	-0.017***	-0.013***	-0.013***
	[0.004]	[0.004]	[0.004]	[0.004]
Height of Child (cm)	0.009***	0.009***	0.004	0.004
	[0.003]	[0.003]	[0.003]	[0.003]
Age of mother (years)	0.010**	0.010**	0.008	0.008
	[0.005]	[0.005]	[0.005]	[0.005]
Age of father (years)	-0.007	-0.007	0.004	0.003
	[0.004]	[0.004]	[0.005]	[0.005]
Height of mother (cm)	-0.002	-0.002	-0.001	-0.001
	[0.003]	[0.003]	[0.003]	[0.003]
Height of father (cm)	-0.003	-0.002	0.003	0.002
	[0.003]	[0.003]	[0.003]	[0.003]
Constant	-0.487	-0.402	-1.374**	-1.628*
	[0.617]	[0.836]	[0.634]	[0.857]
Additional controls	No	Yes	No	Yes
Observations	3,327	3,327	3,276	3276
R-squared	0.11	0.12	0.13	0.14

The dependent variable in Columns (1) and (2) measure general willingness to take risks on an eleven-point scale from zero (completely unwilling to take risks) to ten (completely willing to take risks), and is standardized. Explanatory risk variables are also measured on the eleven-point scale, and are also standardized. Average willingness to take risks in the region (Raumordnungsregion)is based on the full 2004 SOEP sample and excludes the child from calculation of the average. Results in Columns (1) and (3) are taken from Column (2) of Tables 2 and 4, and are shown again for ease of comparison. Coefficients in all columns are OLS estimates. Robust standard errors in brackets allow for clustering at the household level; ***, **, * indicate significance at 1-, 5-, and 10-percent level, respectively. Additional controls include: Gender and age composition of the region, and number of residents. All religion information is obtained from the 2003 wave of the SOEP.

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