Parenting Values Moderate the Intergenerational Transmission of Time Preferences*

Anne Ardila Brenøe
University of Zurich

Thomas Epper
University of St. Gallen

January 25, 2019

Abstract

Are time preferences passed on from parents to children? And what are the channels for such transmission? We study the intergenerational transmission of time preferences, using an experimentally validated survey measure. Parents' and children's patience is measured four decades apart, thereby eliminating concerns regarding reverse causality. Our results are threefold: First, we find substantial transmission of patience from parents to children. This intergenerational correlation is insensitive to the inclusion of comprehensive sets of administratively reported controls and does not diminish as children age, emphasizing the persistence of preference propagation. Second, we explore heterogeneity in the transmission with respect to theoretically important channels through which parents can influence children's trait: parenting values, parental time investment, and socio-economic status. We show that parenting values emphasizing the importance of conformity to current norms in society and children's imagination are key moderators of the intergenerational transmission of patience, while parental involvement and the socio-economic environment experienced during childhood are not. Third, we replicate and validate this finding in an independent sample with richer measures on parental involvement and data on child-rearing practices.

JEL classification: D1, J2, J6
Keywords: Intergenerational transmission, time preferences, patience, parenting style, parenting values, parental involvement, socio-economic status.

*Anne Ardila Brenøe, University of Zurich (Department of Economics, Schönberggasse 1, 8001 Zurich, Switzerland), Institute of Labor Economics (IZA), and Center for Economic Behavior and Inequality (CEBI) at the University of Copenhagen: anne.brenoe@econ.uzh.ch. Thomas Epper, University of St. Gallen (School of Economics and Political Science, Varnbüelstrasse 19, 9000 St. Gallen, Switzerland) and CEBI: thomas.epper@unisg.ch. We thank Orla Doyle, Mette Ejrnæs, Ernst Fehr, Matthias Sutter, David Yanagizawa-Drott, and seminar participants at DGPE Behavior and Incentives, the Copenhagen Education Network Workshop 2018, the CEBI Lunch Seminar 2018, the Education and Health Group at the University of Copenhagen, the IZA Brownbag Seminar, the Faculty Seminar at the University of Zurich, and the Brown Bag Seminar at the University of St. Gallen for helpful discussions and comments.

1 Introduction

Patient people generally experience better lifetime outcomes than their impatient peers.[1] Time preferences elicited during childhood are predictive for how individuals fare in later life, for instance, in terms of education, health, and earnings (Golsteyn, Grönqvist and Lindahl, 2014; Mischel, Shoda and Peake, 1988). If parents transmit their time preferences to children, it may help explain an important part of the cross-generational correlation of economic outcomes—such as the position in the wealth distribution, health status, and educational attainment. Deeper insights in how patience propagates across generations may further help policy makers develop programs counteracting potentially harmful behaviors sustained across generations, like underinvestment in human and health capital, notorious undersaving, and excessive credit card borrowing. Yet, we do not know much about the origins of time preferences and the transmission of such preferences across generations. Are time preferences passed on to the next generation? Is such transmission permanent or only short-lived? What are the channels through which preferences carry over from parents to offspring? And how relevant is the role of socialization and the socio-economic environment during childhood for this transmission? In this paper, we address these questions to improve our understanding of the propagation of time preferences across generations.

We study the transmission of patience from parents to children, using data from a unique, representative Danish survey that we link to high-quality administrative data. Our central survey question involves respondents to pick one out of three earnings profiles with varying steepness. We show that our index of patience is both externally and internally valid: First, the individuals whom we categorize as being patient face significantly better socio-economic outcomes in adulthood, even when controlling for a wide range of childhood family characteristics. Second, as Epper et al. (2018) demonstrate, our survey measure of patience is strongly correlated with time preferences elicited in a real-incentivized experiment among a broad and heterogenous population.

This paper makes three main contributions: First, parents and children answer the exact same time discounting question four decades apart, permitting us to eliminate concerns regarding reverse causality. Previous research has almost exclusively measured preferences at times when parents and children lived in the same household. Conse-

[1] See e.g. Ayduk et al. (2000); Chabris et al. (2008); Epper et al. (2018); Golsteyn, Grönqvist and Lindahl (2014); Meier and Sprenger (2012); Mischel, Shoda and Peake (1988); Shoda, Mischel and Peake (1990); Sutter et al. (2013).

quently, this research leaves open whether it is (i) parents who transmit preferences to children, (ii) children who affect parents' preferences, or (iii) the common environment that shapes both generations' preferences. Second, we use survey data on parenting values and parental time investments, and combine it with an index of childhood socio-economic status constructed from rich administrative registers. This information allows us to dig into the black box of socialization and carefully study theoretically relevant channels moderating the transmission of time preferences across generations (see e.g. Bisin and Verdier (2001)). Third, we replicate our findings using data from an independent, representative survey among Danish parents and their teenage children. This additional data source comprises more detailed information on parental involvement than our main survey, and it permits us to link parenting values to child-rearing practices and to replicate our transmission results using a (contemporaneous) measure of parental and offspring impulsivity.

We present our key results in three parts: The first part documents substantial transmission of patience from parents to children. The cross-generational correlation of preferences is robust to the inclusion of a wide array of administratively reported controls, including grandparental and parental socio-economic background and the child's endowment, such as birth weight, IQ, and education. Transmission is persistent, as the correlation between parental and offspring preferences does not diminish as children grow older, and this remains the case when keeping childhood family environment and genetic factors fixed.

The second part, identifies two parenting values—conformity and imagination—as important moderators of patience transmission. Conformity means that parents view good manners or obedience as one of the most important qualities children learn at home. We suggest that such values come with a stricter (and, thus, more authoritarian) parenting style. Similarly, we expect parents who see children's imagination as one of the most important qualities to be more permissive in terms of how they rear their children. Heterogeneity in parental involvement, as measured by how often the family jointly engages in different types of activities, however, appears not to substantially contribute to the inter-generational correlation of preferences. The same holds for socio-economic status as expressed by our exceptionally rich, register-based index. Taken together, our analysis thus suggests that *"how"* parents interact with their children is more important than *"how often"* they do so and that the actual parenting style plays a more important role than the socio-economic environment shared during the time living in the same

household as parents.

In a third part, we confirm our above conjectures and document that parents who rank conformity as highly important indeed use stricter rules to impose their will. The converse is the case for parents emphasizing imagination, who appear to be more permissive than the reference group. We replicate the results in the first part of the paper using survey responses on mothers' and children's impulsivity.

The remainder of this paper is structured as follows: Section 2 reviews the related literature. Section 3 introduces our empirical strategy. Section 4 provides an overview of the data and descriptive statistics. Section 5 contains our results and a discussion of those. Finally, Section 6 concludes. Additional tables and figures can be found in the appendix (A).

2 Related Literature

In this section, we review the literature on preference transmission, mainly focusing on time preferences and the role of socialization as a moderator of the patience transmission process.[2] There is a small, but emerging literature on the intergenerational transmission of time, risk, and social preferences. Generally, this literature finds that economic preference between parents and children positively correlate (Alan et al., 2017; Brown and van der Pol, 2015; Chowdhury, Sutter and Zimmermann, 2018; Dohmen et al., 2012; Gauly, 2016; Giulietti, Rettore and Tonini, 2016; Kosse and Pfeiffer, 2013). The literature encounters two major empirical limitations: First, measurements of parental and offspring preferences usually take place at times when both generations live in a common household. While some studies feature a time delay between the elicitation of the two generations' preferences, these delays remain considerably shorter than the four decades we consider in our study. This makes it difficult to draw any conclusion regarding the direction of preference propagation. Second, studies examining possible moderating channels of preference transmission usually rely on self-reported and incomplete information on socio-economic background, and they lack detailed information on parenting values, parental time investments, and child-rearing practices—data that is essential for testing the role of socialization and socio-economic status in preference propagation.

Related to our first research question, several papers have examined the transmission

[2]There is a literature studying the transmission of personality traits and intelligence (see e.g. Anger (2012)) which we do not discuss in detail here.

of time preferences across generations (Bartling et al. (2010); Brown and van der Pol (2015); Chowdhury, Sutter and Zimmermann (2018); Gauly (2016); Kosse and Pfeiffer (2013); see also Table A1 in the Appendix).[3] Overall, these papers find that patience is correlated across generations. Gauly (2016) administers a survey question on patience to respondents in the German Socio-Economic Panel (SOEP). Brown and van der Pol (2015) ask respondents in the Household Income Labour Dynamics Panel of Australia (HILDA) a survey question on financial planning to proxy time preferences. Bartling et al. (2010) and Kosse and Pfeiffer (2013) use the same data collected in an experiment with mothers and preschool children using money and gummy bears as payouts, respectively.[4] Chowdhury, Sutter and Zimmermann (2018) collect experimental data in Bangladesh for tradeoffs between smaller sooner and larger later outcomes of parents and children aged 6 to 17 years.

Previous studies from this strand of the literature have suggested that socialization is an important factor for the transmission of preferences (e.g. Dohmen et al. (2012); Gauly (2016)). Bisin and Verdier (2001) theoretically study the dynamics of preferences across generations and argue that a form of paternalistic altruism of parents may lead the offspring to end up with preferences that are close to those of the previous generation.[5] We find indeed that norms are empirically relevant. Relatedly, Doepke and Zilibotti (2017) build a model to study the role of parenting style in intergenerational transmission of preferences. Inspired by developmental psychology (Baumrind, 1967), they distinguish between three parenting styles: authoritarian, authoritative, and permissive. Authoritarian parents restrict their children's choices to impose their will. Authoritative parents aim to mold their offspring's preferences with the goal to conduct success in life. Permissive parents refrain from influencing the choice of their children. Parenting styles are generally difficult to directly observe, making it necessary to proxy them by parental values assessed by survey questions (see e.g. Doepke and Zilibotti (2017), Section 3). We follow a similar approach, but make use of an additional data source, enabling us to validate that the parenting values we consider indeed reflect particular nurturing practices. Specifically, we show that conformity and imagination are linked to a more strict (thus,

[3] Some of these papers and others also report results on other preference domains, such as risk or social preferences, with similar results. For example, Alan et al. (2017) consider risk preferences and Dohmen et al. (2012) investigate risk and trust preferences. We do not discuss these results further.

[4] Kosse and Pfeiffer (2013)'s main focus is on present bias, which we cannot identify. They find significant mother-child preference correlations up to a six months time delay, but not for longer delays.

[5] Interestingly, they show that cultural transmission has very different implications than evolutionary selection.

authoritarian) and more permissive parenting style, respectively.

Socialization has many facets. Most existing empirical studies investigating its role have focused on parental time investment or effort as a relevant factor for socialization. Both Alan et al. (2017) and Zumbuehl et al. (2018) consider parenting effort as a moderator of intergenerational transmission of risk (and trust) preferences. To the best of our knowledge, however, no previous study has examined the role of parental involvement or parenting values in the context of time preferences. Alan et al. (2017) conclude that parental investment is relevant moderator of the correlation between mothers' and daughters' risk preferences. Zumbuehl et al. (2018) find that more parental involvement comes with stronger preference transmission. Whether or not more time spent with children moderates transmission is likely to depend critically on *how* this time is actually spent, i.e. what type of activities parents engage in with their children. Our rich data permits us to account for time investments, actual activities, and parenting practices.

Previous studies do not generally find that the correlations of preferences weaken when controlling for socio-economic status. Chowdhury, Sutter and Zimmermann (2018) suggest that socio-economic status does not contribute significantly to the preference transmission. This is in line with our results. In contrast, Gauly (2016) finds that socio-economic status matters. By not directly examining the transmission of preferences, but cross-sectional correlations of socio-economic status with preferences, Deckers et al. (2017) identify socio-economic status as a powerful predictor of patience. Overally, the role of socio-economic status therefore appears to be unclear. This may be explained by the status indicators used in previous studies, but also the samples these studies consider. For instance, one may expect much less heterogeneity in socio-econoomic status in a development context than in a Western society.

3 Data

Our main data source is the Danish Longitudinal Survey of Youth (DLSY) and DLSY-Children[6], which we link to high-quality administrative data on the full Danish population from 1980 through 2016. This combined data set provides unique possibilities for studying the intergenerational transmission of time preferences. The DLSY is a longitudinal study of 3,151 individuals born around 1954, whom we will refer to as *parents*. In 1968, these original respondents attended 152 different seventh grade school classes

[6]The data set is provided by VIVE (The Danish Center for Social Science Research).

that were sampled to be nationally representative. The parents have subsequently been interviewed throughout their adult life with high response rates; around 75 percent of the original individuals participated in the last wave in 2004.[7] In addition, the parents of the respondents (henceforth referred to as *grandparents*) were interviewed in 1969, making it possible to control for the parents' socio-economic environment during their childhood. Finally, all *children* born to the DLSY respondents and at least 14 years old were interviewed in 2010, with an extraordinarily high response rate of 81 percent. We therefore have information on three generations: grandparents, parents , and children.

3.1 Measure of Time Preferences

In 1973 (at age 19), the parents answered a question regarding their time preferences. The question is:

If you were offered three jobs now and you should choose, which one would you take?

(a) *a job with average pay right from the beginning*,

(b) *a job with low pay the first two years, but high pay later*, or

(c) *a job with very low pay the first four years, but very high pay later*.

In what follows, we categorize respondents answering (b) or (c) as patient. The children answered the very same question nearly four decades later in 2010 when they were 27 years on average, with ages ranging between 14 and 40 years.[8] The timing of the parents' elicitation of time preferences allows us to rule out any issue of potential reverse causality, as only 2.8 percent ($N = 87$) of the children were born by 1973 and only 10 children were more than one year. As a robustness check, however, we exclude children born at the time of the parents' response to the time preference question and reach similar results. Thus, our empirical setup gives us the power to study intergenerational transmission of patience in the absence of reverse causality concerns.

We observe time preferences for 3,101 children and 1,829 parents.[9] Table 1 presents

[7] For the parents who have at least one child who would be eligible to attend the survey, only few baseline characteristics predict attrition (Appendix Table A2).

[8] Due to data protection rules, we are unable to report the exact maximum age.

[9] We do not observe all the original 3,151 DLSY respondents in the sample of parents: 618 individuals did not have any children by 1996; of those with at least one child by 1996, 301 individuals did not have a patience observation; of those with at least one child by 1996 and with a patience observation, 390 individuals did not have a child surveyed in 2010.

Table 1
Descriptive Statistics

	Average	Std.Err.
	(1)	(2)
Panel A: Child		
Child is patient	0.648	0.009
Daughter is patient	0.619	0.012
Son is patient	0.679	0.012
Parent is patient	0.742	0.008
Mother is patient	0.729	0.011
Father is patient	0.755	0.011
Parent values conformity	0.324	0.009
Parent values imagination	0.275	0.008
Daughter	0.519	0.009
Mother	0.521	0.009
Child age (years)	27.092	0.101
Birth order	1.715	0.015
Twin	0.019	0.002
Birth Weight (grams)	3,427	10.111
Lives with both parents at age 16	0.734	0.008
Father's years of education	13.051	0.051
Mother's years of education	12.672	0.047
# of siblings	1.469	0.017
# of siblings in sample	1.042	0.016
Observations	3,101	
Panel B: Parent		
Mother is patient	0.739	0.014
Father is patient	0.754	0.015
# of children	2.225	0.020
# of children in sample	1.695	0.018
Observations	1,829	

Note: This table presents descriptive statistics for the sample of children and their parents. **Panel A** contains means and standard errors for all children with a measure on their own and their parent's time preferences. **Panel B** contains the respective information for all parents of the children in Panel A. Note that we observe one parent per family only, i.e. either the mother or the father. Differences between Panel A and B can be explained by the fact that parents may have multiple children.

descriptive statistics for the full sample. While 64.8 percent of children are labeled as patient, 74.2 percent of parents are so. This discrepancy between the rates of parent and child patience is most likely not due to cohort differences in time preferences but rather due to the nature of the question; older children (those in their 30s) tend to be less patient (Appendix Figure A1). Restricting children to those in a similar age range (18–20 years) as when parents answered the time preference question, the share of patient children (72.8 percent) is similar to the one of parents (73.8 percent) (Appendix Table A3). Considering gender differences in patience, 73.9 percent of mothers, 75.4 percent of fathers, 61.9 percent of daughters, and 67.9 percent of sons are categorized as patient.[10] The sample is balanced with respect to child and parent gender. On average, children have 1.5 siblings, while parents to the children in the sample have 2.2 children by 2016 and have 1.7 children in the sample (54.7 percent have at least two children in the sample). Seventy-three percent of children lived with both biological parents at age 16 and their parents have, on average, completed around 13 years of education.

In comparison to experimental measures of time preferences (see e.g. Frederick, Loewenstein and O'Donoghue (2002)), our survey measure has both advantages and disadvantages. The possibly most important advantage is that our survey question is short, simple, and less abstract than typical experimental allocation choices. Specifically, our question asks subjects about their choice in a real-life situation with substantial economic consequences. This contrasts experimental measures, typically asking subjects to repeatedly choose between comparatively small sooner amounts and slightly larger later amounts (usually materializing within some weeks or a few months). This context-dependence might also be viewed as a shortcoming of our measure, in that considerations other than pure time preferences might lead subjects to choose a particular wage profile. Risk averse individuals may, for instance, choose the average pay fearing they would not reach the high pay (although the question does not explicitly associate risk with future pay rises). Therefore, as a robustness check, we include controls for children's risk preferences; the results remain robust to this inclusion.[11]

Importantly, Epper et al. (2018) document that the survey measure we use highly

[10] Experiments confronting subjects (usually students) with smaller sooner versus larger later rewards typically find that females are more patient than males (see e.g. Dittrich and Leipold (2014)). In contrast, Falk et al. (2018) show that, in representative samples across 76 countries, men are statistically significantly more patient in one-third of the countries, while women are so in only five countries. Therefore, given we also have a nationally representative sample, the gender gap in patience in favor of sons does not stand out.

[11] Unfortunately, we do not observe parents' risk preferences.

correlates with experimental measures of time preferences. More precisely, Epper et al. (2018) validate the DLSY patience measure both internally and externally. First, in a large-scale online experiment with 4,152 Danes from the broad population born between 1967 and 1986, they demonstrate that men's and women's answers to the DLSY question are highly correlated with a preference measure inferred from an experiment with real-monetary incentives (Appendix Figure A2).[12] Second, for our sample of parents, they show that the subjects we classify as patient have a consistently lower percentile rank in the within-cohort wealth distribution over a 15-year period (Appendix Figure A3).

Moreover, we illustrate in Appendix Table A4 that patient parents experience substantially better outcomes, both in terms of educational attainment and labor market performance. Patient mothers (fathers), for instance, have 0.42 (0.61) more years of education and earn 43 (27) log-points more during age 26 through 50 than impatient mothers (fathers).[13] Similarly, patient daughters (sons) have attained 0.50 (0.53) more years of education by 2016. These findings demonstrate that the DSLY measure captures patience well and that it is a good predictor of real-life economic outcomes.

Nevertheless, a final concern could be that—especially—women wishing to have children early might choose the impatient option, not because they per se are impatient but because they want a stable income to be able to afford having children in the near future. As a robustness check, proxying parents' preferred fertility with their revealed fertility,[14] we only consider children whose surveyed parent had their first child after 1977, i.e. when the wage increase in the most patient wage profile would be implemented. Thereby, we exclude parents who might have answered the time preference question considering their future fertility plans; the results remain similar. Appendix Table A6 further explores associations between parents' time preferences and fertility preferences at age 22 and their realized lifetime fertility. Women's fertility preferences are independent of their time preferences, while patient women are less likely to have children early. In contrast, patient men are more likely, at age 22, to desire having any

[12] In a study with 100 subjects from the general Danish population, Epper et al. tested 26 different survey measures on patience commonly used in the literature (exact list available on request). Among them the best predictors for time preferences elicited using a real-incentivized choice experiments were the questions (i) "Are you a person who is generally willing to give up something today in order to benefit from that in the future, or are you not willing to do so?" (Spearman's rho = 0.332, p-value ≈ 0; see e.g. Vischer et al. (2013)), and (ii) the DLSY question we use (Spearman's rho = 0.252, p-value = 0.001).

[13] Note, these differences in economic outcomes by patience category cannot be explained by justification bias, as parents answer the time preference question before their outcomes are measured.

[14] We acknowledge that this is an imperfect proxy for people's actual fertility preferences at the time of the elicitation of time preferences.

children and are accordingly more likely to have any (recognized) children by age 62.

3.2 Definition of Moderators

To explore potential moderators of the intergenerational transmission of patience, we consider parenting values, parental involvement, and childhood socio-economic status. The former two rely on parental response to questions in the DLSY survey, while we draw on ample administrative data to construct a socio-economic index. We define two parenting values—*conformity* and *imagination*—based on a survey question answered by parents in 1992 (i.e. at age 38).[15]

First, we define conformity as parents who state that one of the most important qualities that children learn at home is good manners or obedience.[16] We interpret this parenting value as parents wanting children to conform to societal norms through their behavior. In particular, we hypothesize that parents who value conformity would like their children to conform to the parents' preferences and attitudes. We expect the technology to achieve similarity between the parent's and child's preferences to be discipline for these parents, as their value emphasizes behavior; Subsection 3.3 investigates this. Second, we define imagination as parents who state that one of the most important qualities that children learn at home is imagination. This parenting value stands in contrast to conformity and represents parents who value that children live in their own "child world" and are more unrestricted to explore the world.[17] Thirty-two percent of

[15]We acknowledge that parents would ideally have been asked this question before having children. However, given most parents have more than one child and the question is general (it does not target a specific child), we do not consider it a major worry that parents would have chosen their parenting values endogenously to their children's (or a specific child's) time preferences. If anything parents might choose their values as a response to how their first child behaves; yet, we do not find any heterogeneity in the moderation analysis by birth order (not reported).

[16]Parents were asked: *Here is a list of qualities which children can be encouraged to learn at home. Which do you consider to be especially important for children to acquire at home?* They could choose up to three options from the following eight options: Independence (86 percent of parents choose this), Tolerance (36), Imagination (27), Good manners (30), Thrift (3), Sense of responsibility (72), Obedience (6), and Consideration for others (39). The question is similar to the one asked in the World Value Survey (WVS), though not identical as the response options differ slightly. (In the WVS, respondents can choose up to five values and have the following options: Good manners; Independence; Hard work; Feeling of responsibility; Imagination; Tolerance and respect for other people; Thrift, saving money and things; Determination, perseverance; Religious faith; Unselfishness; and Obedience.) Therefore, we are unable to define parenting values as in Doepke and Zilibotti (2017).

[17]In relation to the three parenting styles defined by developmental psychologists (Baumrind, 1967), our definition of conformity might proxy authoritarian parenting and imagination might proxy permissive parenting, leaving authoritative parenting the omitted category. However, our measures of parenting values are too crude to reasonably refer to these established parenting styles.

children have a parent valuing conformity, while 28 percent of children have a parent valuing imagination (Table 1).

We construct our measure of parental involvement based on answers to a question asked in 2001 (i.e. age 47). Parents who, at the time, had at least one child living at home indicate how often the family does different types of activities together, with the options of answering at least once a week, month, year or rarely/never. We rescale the answers to proxy the number of times the family does a specific activity within a year and construct a parental involvement index, summing the total number of times the family does any type of activity together and standardize it with a mean of zero and a standard deviation of one.[18]

We link the survey data to rich administrative data, including the Medical Birth Registry and several separate registers on education, income, (un)employment, fertility, and family structure. Therefore, in addition to the ample information on grandparents' socioeconomic status during parents' childhood observed in the DLSY, we observe the socioeconomic status experienced by the children during their childhood. Although we only observe patience for one of the parents, we do observe both parents in the registers. Thus, we observe both parents' complete fertility history, labor market experience, and educational attainment.[19] For the children, we observe their date of birth, birth outcomes, and educational attainment by 2016. Based on these rich measures on parental socio-economic status, we construct an SES index (standardized with mean zero and standard deviation one), using the first principal component from a principal component analysis (Appendix Table A5). We include the mother's and father's length of education, cumulated work experience through 2004, cumulated length of unemployment through 2004, the natural logarithm of average annual labor earnings 1980–2004; DLSY-parent's number of children; indicators for the child lives with both parents at age 16, the mother/father has children with another person than the parent, and the mother/father has missing educational information.

Table A8 displays the correlations between parental patience, parenting values, parental involvement, and the SES index. Panel A shows the raw correlations between each of the variables, while Panel B conditions on parental background variables similar to our preferred control version in Section 5. Patient parents are less likely to value conformity and have a higher SES index (as also shown in Appendix Table A4). Parents valuing

[18]See Appendix Table A7 for details.

[19]For the labor market outcomes, we restrict the focus to the years 1980–2004 (i.e. through age 50 of the parents) to proxy children's childhood family environment (the average child turned 21 years in 2004).

conformity are less likely to value imagination[20], engage in slightly fewer activities with the family (4.5 percent of a standard deviation), and perform worse on the SES index. Meanwhile, parents valuing imagination do not spend more time with their family and do not have a higher SES index, once conditioning on parental childhood background variables.[21]

3.3 Validation and Replication Sample

To relate our measures of parenting values to actual parenting practice, we draw on the Danish Longitudinal Survey of Children (DALSC).[22] The survey includes 6,011 randomly-sampled children born between September and October 1995 to a mother with Danish citizenship. It has followed children and their parents throughout childhood and contains very detailed information on parenting practices and parental involvement, reported by mothers and fathers respectively.

Mothers in the DALSC sample answered an identical question on parenting values as the one in the DLSY when their children were 4 years. Moreover, both mothers and fathers answered a question related to parenting values when their child was only 4 months, i.e. before parents would have adjusted their values to the preferences or behavior of the child. Parents answered on a four-point scale *How important do you find the following qualities are when bringing up children?*: *A firm hand*, *An ability to command the respect of others* (instill respect), and *An ability to identify oneself with the feelings of the child* (emphasize with child). To relate parenting values with actual (self-reported) parenting style, we construct two measures on punishment for each parent. These measures are constructed based on a question that each parent answers at child age 4, 7, and 11 years[23] (and are standardized to have a mean of zero and a standard deviation of one): *It's different what parents do when they want to teach children what's right and wrong. I now mention different ways to do it and would like to hear how often you react in these ways (weekly/rarer/never). Physical Punishment* is the mean of the first component from an principal component analysis at each child age by parent gender and includes answers to *I mark something is wrong by taking hard in him/her*, *I mark something is wrong by giving a slap*

[20] Only 2.7 percent of parents value both conformity and imagination. This is partly a mechanical relationship, as parents could only choose three values.

[21] These correlation matrices do not differ by parental gender. Yet, mothers are less likely to value conformity or imagination and have a lower SES index (not reported).

[22] The data set is provided by VIVE.

[23] Fathers only answer these questions at child age 7 and 11 years.

over the fingers, *I spank the child*, and *I slap the child*. Similarly, *Verbal Punishment* is the mean of the first component from an principal component analysis at each child age by parent gender and includes *I scold the child*, *I tell the child that it has done something wrong*, *I send him/her into their room*, and *I say he/she cannot do something that he/she would like to*.

To measure parental involvement in the child's upbringing, we consider two dimensions: quality time spent with the child and quality talking with the child. We construct a *Quality Time* index as the mean of the first component from an principal component analysis at each child age for each parent and includes measures on how often the parent does the following activities with the child at age 7 and 11: help with homework, read/sing, play, do out-of-school activities, and go on an excursion. For the analysis in Subsection 5.3, we further split this index into non-educational (play, do out-of-school activities, and go on an excursion) and educational quality time (help with homework, read/sing). Similarly, we construct a *Quality Talking* index as the mean of the standardized first component from a principal component analysis, including how often the parent discusses the following with the child at age 4, 7, and 11 years (with the age at observation in parenthesis)[24]: The child's own activities at kindergarten/day-care (4); The child's planned activities at kindergarten/day-care (4); activities at school and after-school care, out-of-school activities (7/11); relationship to other children (4/7/11); relationship to teachers and after-school care staff (4/7/11); physical well-being (4/7/11); and mental wellbeing (4/7/11).

As expected, parents who value conformity (including the proxies thereof in terms of a firm hand and instill respect) tend to be stricter by using more physical and verbal punishment in the upbringing of their child (Table 2). In contrast, parents who value imagination (including emphasis with the child) punish their child much less. Similarly, parents spend less (more) quality time with their child when they value conformity (imagination). For quality talking, we only observe increased involvement for parents valuing emphasis with the child at age 4 months. These broad patterns are both observed for mothers and fathers. Thus, parents with different child rearing values have different parenting practices, especially in terms of the way in which they teach their child how to behave.

In addition to this validation exercise, we also use the DALSC sample to replicate the moderation analysis in the main sample. As measure of time preferences, we use a

[24]Fathers only answer these questions at child age 7 and 11 years.

Table 2
Validation of Parenting Values and Practice

	Punishment		Quality	
	Physical	Verbal	Time	Talking with child
	(1)	(2)	(3)	(4)
Panel A: Maternal values at child age 4 years				
Conformity	0.22***	0.13***	-0.09***	-0.03
	(0.03)	(0.03)	(0.03)	(0.03)
Imagination	-0.06*	-0.08***	0.06*	0.02
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	5,282	5,283	5,035	5,254
Panel B: Maternal values at child age 4 months				
A Firm Hand (0-1)	0.22***	0.25***	-0.01	-0.02
	(0.05)	(0.05)	(0.05)	(0.05)
Instill Respect (0-1)	0.18***	0.10*	-0.01	0.10*
	(0.06)	(0.06)	(0.06)	(0.06)
Emphasize with Child (0-1)	-0.44***	-0.39***	0.36***	0.59***
	(0.12)	(0.11)	(0.12)	(0.12)
Observations	5,059	5,059	4,860	5,035
Panel C: Paternal values at child age 4 months				
A Firm Hand (0-1)	0.26***	0.03	-0.10	-0.02
	(0.06)	(0.06)	(0.06)	(0.06)
Instill Respect (0-1)	0.10	0.28***	-0.12*	0.09
	(0.07)	(0.07)	(0.07)	(0.07)
Emphasize with Child (0-1)	-0.37***	-0.24**	0.44***	0.52***
	(0.10)	(0.10)	(0.10)	(0.10)
Observations	3,265	3,238	3,271	3,234

Note: Danish Longitudinal Survey of Children (born in 1995). Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Each panel-column represents the results from one regression. All models control for mother's and father's length of education and age at child birth, child gender, birth order, and indicators for size of town of residence at birth, indicators for missing observations on the former controls, and indicators for the number of times the outcome variable was measured. In Panel A, *Conformity* and *Imagination* are defined as in DLSY; mothers answered this question at child age 4 years. In Panel B and C, both parents were asked at child age 4 months *How important do you find the following qualities are when bringing up children?* and could answer very important, somewhat important, less important, or not important at all; the answers are rescaled such that 0 (1) represents not important at all (very important). The dependent variables are standardized (mean 0, SD 1) and measure maternal practice in Panel A and B and paternal practice in Panel C. Maternal punishment is measured at child age 4, 7, and 11, while paternal punishment is at age 7 and 11. Quality time is measured at age 7 and 11 for both parents. *Quality Time* is the mean of the first component from an principal component analysis at each child age and includes measures on how often the parent does the following activities with the child: help with homework, read/sing, play, do out-of-school activities, and go on an excursion.

standardized index measuring impulsivity.[25] One caveat concerning this measure is that mothers and children were asked the impulsivity questions contemporaneously when children were 15 years. In other words, similar to previous studies on intergenerational correlations in preferences, we cannot rule out the possibility of reverse causality. Moreover, unlike the main sample, we can only say something about the correlations between mothers' and children's preferences (and not between fathers' and children's). Yet, utilizing the DALSC sample adds two advantageous features to the main analysis. First, it allows for a replication of intergenerational correlations within another domain of time preferences between mothers and children. Second, the DALSC contains much more detailed measures on parental involvement than the DLSY and therefore serves as a robustness check of the specification and measure of parental involvement in the main sample.

4 Empirical Strategy

Our empirical analysis proceeds in three parts. First, we examine the correlations between parents' and children's preferences, while extensively testing the robustness of the transmission by adding comprehensive sets of controls. Second, we investigate to which extent parenting values, parental involvement, and the socio-economic childhood environment moderate the transmission of time preferences. Third, we replicate our findings from the DLSY sample in the DALSC sample, for which we have more detailed parenting measures.

The first part of the analysis studies the conditional correlations between parents' and children's preferences. For this, we specify the following linear probability model

[25] More precisely, we construct the impulsivity measure based on eight questions asked to elicit hedonic behavior; respondents answered each question on a five-point Likert scale. We construct the index by adding the points from each question, reversing the values for some of the questions, such that a higher value always represents more impulsive behavior. We standardize the index for children and mothers separately, with a mean of zero and a standard deviation of one. The overall question is *How well does it describe you?* and the eight questions are: 1) You may run a risk, otherwise it will be too boring, 2) It annoys you to get late for appointments, 3) When listening to your favorite music, you often lose any sense of time and place, 4) You can say no to temptations when you know there is work to be done, 5) You take every day as it comes, rather than planning, 6) You often act impulsively (i.e. without making plans), 7) You often follow your heart rather than your head, and 8) You finish your things on time by making progress at all times.

for the full DLSY sample:[26]

$$T_c = \alpha_0 + \alpha_1 T_p + Q_c'\zeta + R_p'\delta + X_g'\epsilon + \theta_s + \nu_{cp}, \quad (1)$$

where c denotes the child, p the parent, and g the grandparent. T indicates whether the individual is patient (1) or not (0). Thus, α_1 represents the intergenerational correlation coefficient of interest. ν_{cp} denotes the error term; we cluster the standard errors at the parent level to allow for serial correlation in the outcome between siblings.

To shed light on the nature of the intergenerational transmission of patience, we examine these correlations while stepwise adding extensive vectors of background characteristics. First, we add a vector of child demographic characteristics, Q,[27] that adjusts for potential differences in child patience due to age and gender, among others. Second, we add a vector of parental demographic characteristics, R.[28] Third, we include school fixed effects for the surveyed parent's school in 1968, θ_s, as this was the original level of sampling. Fourth, to control for differences in parents' socio-economic status during their childhood, we add a vector of grandparents' socio-economic characteristics, X.[29] Because parental patience correlates with parents' adult (and children's childhood) socio-economic status and because the latter may be an important moderator of the intergenerational transmission, we prefer not to control for such variables in this part of the analysis. However, as a robustness check, we finally include parental adult socio-

[26]The results are robust to non-linear specification; Appendix Figure A4 illustrates marginal effects from probit models that are similar in magnitude to the ones reported in Table 3.

[27]This vector of *child demographics* includes indicators for being female, five-year age intervals, birth order, and being twin.

[28]This vector of *parent demographics* includes indicators for being born before 1954, born after 1954, gender, child-parent gender combination, and birth order.

[29]This vector of *grandparent SES* includes grandparental attitudes towards child education and work; an index for the grandparents' educational investment in the parent; quadratic taxable income in 1967 reported by the tax authorities; quadratic number of grandparents' children; indicators for the grandmaternal/paternal level of education, vocational training/education, grandmother/grandfather has subordinates, grandmother is housewife, gender of the surveyed grandparent, the parent lives with both parents at age 14, and indicators for missing observations for the different control variables.

economic controls[30], child endowments[31], and child risk preferences.[32]

To test whether the intergenerational transmission of time preferences persists or fades out as children age, we go on by including an interaction term between parental patience and child age. However, as parents' age at first birth is endogenous, it is not possible to say whether a differential transmission by child age in the full sample is due to the persistence (or fade-out) by child age or due to differences in the transmission process between parents who get children at young versus old ages. Therefore, we exploit the fact that most parents have multiple children observed in the sample, by further estimating a model comparing siblings. We do this by including parent fixed effects, μ_p, and eliminate thereby potential time-invariant characteristics within the same sibship. We estimate the sibling model for the total sample of siblings and for the sample of mothers and fathers, separately:

$$\mathrm{T}_c = \phi_1 \mathrm{T}_p \times \mathrm{Age}_c + \underset{\sim}{Q}_c' \zeta + \mu_p + \nu_{cp}, \tag{2}$$

where Age_c represents child age, normalized by subtracting the mean child age (i.e. 27) to ease the interpretation of ϕ_1. As long as we do not omit any important time-varying variables in this model, we can interpret ϕ_1 as the causal effect of parental patience on the age gap in child patience.[33] For each parent, we compare siblings born earlier versus later and are therefore older versus younger at the time of the interview, keeping the parent's age at first birth constant. Consequently, this approach comparing

[30]This vector of *parent SES* includes the surveyed parent's spatial, verbal, and inductive abilities measured at age 14; the mother's and father's length of education, cumulated work experience through 2004, cumulated length of unemployment through 2004, the natural logarithm of average annual labor earnings 1980–2004; quadratic number of children; indicators for the child lives with both parents at age 16, the mother/father has children with another person than the parent, and missing observations for the different control variables.

[31]This vector of *child endowments* includes squared birth weight, child IQ, standardized length of highest completed education by 2016 by cohort; indicators for being born preterm and missing observations for the different control variables.

[32]The children are asked three questions capturing risk preferences: 1) *You have the opportunity to buy a lottery ticket. There are 10 people in the lottery. The prize is 20,000 DKK. The winner of the lottery is found by lottery, i.e. everyone has the same chance of winning. What price do you want to pay for a lottery ticket for this lottery?*, 2) *You have won 500,000 DKK in the lottery! You are contacted by a reputable bank that offers you an investment opportunity. The terms are as follow: You have a 50 percent probability of doubling your investment within two years. However, there is also a 50 percent probability of losing your investment. How much of the 500,000 DKK will you invest?*, and 3) *Do you perceive yourself as a person willing to take risks to achieve something in life, or avoid any risks? Answer on a scale from 1–10, where "1" means avoiding risks and "10" means you do not mind taking risks.* We group answers into four categories for the two first questions and three categories for the third question and control the categories in the regression.

[33]See Brenøe and Lundberg (2017) for a more elaborate discussion of this empirical strategy.

siblings of the same parent but of different age provides a fruitful setting for studying the persistence of the transmission, while keeping the childhood family environment and genetic factors constant.

The second part of the analysis studies to which extent the three different aspects of family socialization moderate the intergenerational transmission of time preferences. For this, the model is:

$$\begin{aligned} \mathrm{T}_c = \beta_0 + \beta_1 \mathrm{T}_p + \mathrm{T}_p \times M_p' \gamma + \\ M_p' \rho + Q_c' \zeta + R_p' \delta + X_g' \epsilon + \theta_s + \nu_{cp}, \end{aligned} \tag{3}$$

where M_p represents the vector of moderators: parenting values (conformity and imagination), parental involvement, and the socio-economic family environment during the child's childhood (i.e. *both* parents' adult socio-economic status). From this part of the analysis, we are interested in two sets of estimates. First, we are interested in testing whether the general transmission coefficient, represented by β_1, changes in magnitude and statistical significance once allowing for a differential transmission from parents to children by the family socialization process. Second, we are interested in estimating the moderating role of the three different aspects of family socialization for the transmission process, represented by the vector of estimates in γ. In other words, this part of the analysis examines potential heterogeneity in the intergenerational transmission of patience by different styles of parenting (values and involvement) and family socio-economic status. This will help shed light on the moderators of the preference propagation process. The third part of the analysis replicates the second part, but with the DALSC rather than the DLSY sample.

5 Results

We present the results in the order introduced in Section 4. First, Table 3 presents an overview of correlations between parents' and children's time preferences with different sets of controls, while Table 4 provides evidence on the persistence of the transmission as children age. Second, Table 5 examines the moderating role of parenting and socio-economic status in the transmission of patience. Third, Table 6 replicates the moderation analysis with the DALSC sample.

5.1 Part 1: The Intergenerational Transmission of Time Preferences

The main finding in Table 3 is that parents significantly transmit patience to their children and that this transmission is robust to the inclusion of comprehensive sets of controls. Column (1) shows the raw correlation between parental and child patience: patient parents are 8.1 percentage points more likely to have a patient child compared to impatient parents.[34] Once controlling for child demographic characteristics (column (2)), the estimated transmission coefficient decreases slightly due to the correlation between parental patience and age at child birth (Appendix Table A6) and the empirical pattern of patience by child age (Appendix Figure A1).[35] It is noteworthy that the magnitude of the intergenerational transmission remains similar when further adding parental demographic variables, parents' school fixed effects (column (3)), and a rich set of grandparental socio-economic characteristics (column (4)).

The control version in column (4) represents our preferred model, as it includes comprehensive sets of controls predetermined at the time of the elicitation of parental time preferences. This model suggests that children of patient parents are 7.1 percentage points more likely to be patient themselves; this corresponds to an increased probability of 12.1 percent relative to the mean of children with impatient parents.[36] Considering this estimate differently, it also implies that children of impatient parents are 21.5 percent more likely to be impatient compared to children of patient parents. It is remarkable to observe such a strong transmission of patience from parents to children in this setting with a time lag of four decades between the elicitation of parents' and children's preferences.

[34] The strength of the intergenerational correlation coefficient does not differ by parent gender in any of the models (not reported).

[35] The decreased magnitude of the transmission estimate is driven by the inclusion of child age controls (not reported).

[36] The probability that the child is patient (impatient) among children of impatient (patient) parents is 58.8 (33.1) percent.

Table 3
Intergenerational Transmission of Patience

	Dependent Variable: Child is Patient (T_c)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Parent is Patient	0.081***	0.068***	0.071***	0.071***	0.051**	0.073***	0.067***	0.098***
	(0.021)	(0.020)	(0.021)	(0.021)	(0.021)	(0.022)	(0.026)	(0.024)
Sample	All	All	All	All	All	1974+	1978+	Siblings
Child demographics		✓	✓	✓	✓	✓	✓	✓
Parent demographics			✓	✓	✓	✓	✓	✓
Parent School FE			✓	✓	✓	✓	✓	✓
Grandparent SES				✓	✓	✓	✓	✓
Parent SES					✓			
Child endowments					✓			
Child risk pref					✓			
Observations	3,101	3,101	3,101	3,101	3,101	3,014	2,197	2,255
Average of T_c	0.648	0.648	0.648	0.648	0.648	0.653	0.686	0.647

Note: Standard errors in parentheses, clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable indicates whether the child is patient (1) or not (0). Each column presents the results from separate regressions. Each model is estimated as a linear probability model. *All* represents the full sample of children. The samples *1974+*, *1978+*, and *Siblings* only include respectively children born after 1973, children whose surveyed parent had their first child after 1977, and children with at least one sibling in the sample. Column (1) also control for parent gender. *Child demographics* include five-year age interval dummies, birth order dummies, and an indicator for being twin. *Parent demographics* include indicators for being born before 1954, born after 1954, female, child-parent gender combination, and birth order. *Parent School FE* include fixed effects for the surveyed parent's school in 1968. *Grandparent SES* includes grand-parental attitudes towards child education and work; an index for the grandparents' educational investment in the parent; quadratic taxable income in 1967 reported by the tax authorities; quadratic number of grandparents' children; indicators for the grandmaternal/paternal level of education, vocational training/education, grandmother/grandfather has subordinates, grandmother is housewife, gender of the surveyed grandparent, the parent lives with both parents at age 14, and indicators for missing observations for the different control variables. *Parent SES* includes the surveyed parent's spatial, verbal, and inductive abilities measured at age 14; the mother's and father's length of education, cumulated work experience through 2004, cumulated length of unemployment through 2004, the natural logarithm of average annual labor earnings 1980–2004; quadratic number of children; indicators for the child lives with both parents at age 16, the mother/father has children with another person than the parent, and missing observations for the different control variables. *Child endowments* include squared birth weight, child IQ, standardized length of highest completed education by 2016 by cohort; indicators for being born preterm and missing observations for the different control variables.

Column (5) adds additional sets of controls to compare children with similar health endowments, skills, and risk references, growing up in similar family environments. This is not our preferred model because parental patience clearly influences children's socio-economic family environment and might as well influence child characteristics. Therefore, including these controls might absorb some of the variation in the transmission process. Put differently, we would expect that the inclusion of these additional, broad sets of controls would cause the estimated correlation coefficient to decrease in magnitude.[37] This is also what we see in model (5); the estimate is smaller in magnitude than the one in our preferred model. Yet, it illustrates that even when conditioning on characteristics in the family environment that are influenced by parental patience, we still observe a sizable intergenerational transmission of time preferences (with an estimate of 5.1 percentage points). This finding is consistent with the results in Chowdhury, Sutter and Zimmermann (2018), indicating that the transmission of time preferences is independent of socio-economic status. Moreover, as discussed in Section 3, risk preferences might be associated with our measure of time preferences and thereby influence the estimated transmission of patience. The result in model (5) therefore also suggests that risk preferences are not an important confounding factor influencing our results on patience propagation.[38]

As mentioned previously, only 2.8 percent of children were born when parents answered the time preference question. However, including those children in the analysis could be problematic, as having a child may affect revealed patience. To test for this possibility, column (6) replicates our preferred model while restricting the sample to those children born after the elicitation of parents' preferences. The results are robust to this restriction. Moreover, as discussed in Section 3, parents who planned having children in the near future might prefer the flat (impatient) wage profile simply to be able to afford having children and not because they truly were impatient. Therefore, column (7) excludes parents (and their children) who had their first child before the patient wage profile would be fully implemented (i.e. before 1978). The results are again insensitive to this restriction, suggesting that our time preference measure is not just capturing correlations between parents' and children's fertility preferences. Lastly, column (8) shows that the transmission is similar in the subsample of children with at least one sibling in

[37] This is similar to the bad control problem. Though, we do not claim that our estimated transmission of patience is causal, as we do not have exogeneity in parental preferences.

[38] If we only add risk preference controls in model (4), the estimate is 0.067 ($se = 0.021$).

the sample.[39]

Table 4
Heterogeneity in the Intergenerational Transmission of Patience by Child Age

	Dependent Variable: Child is Patient (T_c)			
	(1)	(2)	(3)	(4)
Parent is Patient	0.071***			
	(0.021)			
Parent is Patient $\times$Age	-0.002	0.000	-0.011	0.019*
	(0.003)	(0.008)	(0.011)	(0.011)
Sample	All	Siblings	Mothers	Fathers
Observations	3,101	2,255	1170	1085
Average of T_c	0.648	0.647	0.610	0.686

Note: Standard errors in parentheses, clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable indicates whether the child is patient (1) or not (0). Each column presents the results from separate regressions. Each model is estimated as a linear probability model. *All* represents the full sample of children. The samples *Siblings* , *Mothers*, and *Fathers* only include respectively children with at least one sibling in the sample, siblings where the sampled parent is the mother, and siblings where the sampled parent is the father. Columns (1) controls for *Child demographics*, *Parent demographics*, *Parent School FE*, and *Grandparent SES*. Columns (2) to (4) control for *Child demographics* and parent fixed effects. *Age* is normalized by subtracting the mean child age (27 years), such that its mean is 0.

To examine the permanence of the intergenerational transmission, we explore whether the intergenerational correlation differs by child age. Column (1) in Table 4 estimates our preferred model but now also including an interaction between parental patience and child normalized age. The estimate of the interaction term shows that the transmission of patience from parents to children does not vary by child age, suggesting that the preference propagation persists as children age. Yet, as discussed in Section 4, this result is not necessarily due to no fade-out by age, but could as well be explained by a stronger transmission of patience among parents who get children at younger ages followed by some fade-out. Therefore, column (2) restricts the sample to siblings and include parent fixed effects.[40] Comparing siblings with each other clearly show that parents do not differently transmit patience to younger versus older children or vice versa. As average spacing between the oldest and youngest sibling within a family in the sample is 5.8

[39]The estimate is slightly larger in magnitude but not statistically significantly so.
[40]The results for columns (2) to (4) are similar when restricting the sample to full siblings (not reported).

Table 5
Moderation of the Intergenerational Transmission of Patience: Values, Involvement, and SES

	Dependent Variable: Child is Patient (T_c)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parent is Patient (T_p)	0.085***	-0.021	0.075***	-0.031	-0.025	-0.020	-0.014
	(0.022)	(0.031)	(0.022)	(0.031)	(0.038)	(0.038)	(0.038)
$T_p \times$Conformity		0.171***		0.172***	0.173***	0.160***	0.159***
		(0.045)		(0.045)	(0.054)	(0.054)	(0.055)
$T_p \times$Imagination		0.141***		0.146***	0.150***	0.141**	0.132**
		(0.049)		(0.049)	(0.056)	(0.056)	(0.058)
$T_p \times$SES Index			-0.001	0.002	0.005	0.007	
			(0.021)	(0.021)	(0.026)	(0.026)	
$T_p \times$Involvement						0.011	0.011
						(0.026)	(0.026)
$T_p \times$Avg Parental Educ							0.010
							(0.028)
Observations	2,859	2,859	2,859	2,859	2,132	2,132	2,132
Average of T_c	0.645	0.645	0.645	0.645	0.657	0.657	0.657

Note: Standard errors in parentheses, clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable indicates whether the child is patient (1) or not (0). Each model is estimated as a linear probability model. Each column presents the results from separate regressions. All models controls for *Child demographics*, *Parent demographics*, *Parent School FE*, and *Grandparent SES*. Each model controls for the moderators that are interacted with T_p.

years ($SD = 3.9$), this of course does not tell whether the strength of the transmission is completely constant across all ages. However, it suggests that the influence of parents' preferences on children's preferences persists. The remaining two models split the sample by parent gender and show that, if in anything, fathers tend to affect older children more strongly relative to younger siblings. Consequently, these findings emphasize the persistence of the transmission effect, stressing that it does not fade out as children age.

5.2 Part 2: Moderators

So far, we have documented a significant and robust correlation in patience across generations and shown that this transmission persists as children age. This part of the analysis investigates potential moderators of the relationship in the social family environment. All models in Table 5 control for the large set of covariates included in our preferred model (column (4) in Table 3). Column (1) replicates our preferred model in the sample

of parents answering the parenting value question in 1992.[41] Next, column (2) includes interactions between parenting values and parental patience. This shows that parents valuing conformity or imagination in fact are those who drive the transmission of time preferences. Parents emphasizing conformity have a stricter discipline in their child rearing practices (as seen in Table 2). This group of parents might restrict children's choices to mirror their own type of behavior more closely than parents with other parenting values (Doepke and Zilibotti, 2017). At the same time, parents who value imagination tend to spend more quality time with their children and might do this in a more permissive way. Therefore, children of this group of parents might imitate their parents to a greater extent, which could explain the transmission of patience from parents valuing imagination to their children. Thus, the remaining group of parents, which has values closest to the authoritative parenting style, do not transmit patience to children. This is a reasonable finding in the light of the theoretical model by Doepke and Zilibotti (2017), as we would expect authoritative parents to want their children to be patient no matter the parents' own preferences.

Column (3) considers the potential moderating role of the socio-economic childhood family environment by including an interaction term between parental patience and the SES index. From this, we do not observe any evidence of heterogeneity in socio-economic status.[42] Interacting both parenting values and the SES index with parental patience does not change the previous findings (column(4)). This is also the case when restricting the sample to those with an observation on parental involvement (column (5)). Thus, the childhood socio-economic status does not moderate the transmission process.

To test whether parental involvement in addition to parenting values moderates the intergenerational transmission of patience, column (6) includes parental patience interacted with the three distinct aspects of family socialization. The results from this model confirm the previous findings and suggest that involvement is not an important moderator. However, this measure of parental involvement is not perfect, motivating the replication exercise with the DALSC sample (that has a much richer involvement measure) in Subsection 5.3. Finally, as a robustness check column (7) interacts average parental education with parental patience instead of the SES index. We do this because parental

[41] Parents who had at least one child at the time of the survey answered this question.

[42] The estimate of the SES index is 3.6 percentage points ($se = 0.018$). Thus, we fail to replicate a large gap in children's economic preferences by their socio-economic family background as the one found by Deckers et al. (2017). One reason might be that they study a smaller ($N = 435$), quite selected sample of relatively young children (age 7–9) in two specific German cities and that we consider a much more comprehensive non-self-reported array of socio-economic characteristics.

education is the only socio-economic variable that has some (though small) predictive power in terms of predicting child patience. From this, we still do not find that the socio-economic environment moderates the preference propagation. Consequently, the main finding from this moderation analysis is that parenting values are the main moderators of the socialization process. This clearly provides new insights on the black box of family "socialization".

We find no significant difference in the moderation patterns by child gender (not shown). In contrast, Appendix Table A11 shows some relevant differences by parental gender. While conformity is the strongest moderator for mothers' preference transmission, imagination has greater predictive power as moderator for fathers' propagation of patience.[43] Moreover, some relevant differences emerge in terms of the moderating role of involvement and socio-economic status. Similar to the findings in Alan et al. (2017), we find that mothers with greater involvement more strongly transmit their preferences to children. As Alan et al. (2017) suggest, this might be because children spending more time with their mothers have greater opportunity to observe and imitate maternal behavior. In contrast, more involved fathers tend to transmit patience to their children less strongly. This difference by parental gender is likely due to the different roles mothers and fathers play in the upbringing of children. Fathers who display greater involvement in their children might also exert more effort in the development of their children to achieve more favorable child outcomes. Finally, children growing up in more socio-economically advantaged families experience a reduced strength of the transmission of fathers' time preferences. In fact, there is only an SES gap in children's patience among those with an impatient father.

5.3 Part 3: Replication

The previous two parts of the analysis, relying on the DLSY, have demonstrated that parents transmit patience to their offspring and that parenting values are important moderators of the relationship. The purpose of this subsection is twofold. First, it is to replicate the main findings on moderators in a different sample. Second, it is to test the robustness of the findings for involvement when having richer data on this aspect of parents' socialization with their children. As noted in Subsection 3.3, the preference measure has two caveats. First, we only measure mothers' (and not fathers') preferences

[43] However, we cannot rule out that the magnitude of the interaction terms between parental patience and conformity and imagination respectively are not statistically different.

Table 6
Replication in DALSC Sample: Moderation of the Intergenerational Transmission of Impulsivity

	Dependent Variable: Child Impulsivity (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
Mother impulsivity (I_m)	0.12***	0.08***	0.07***	0.07***	0.07***	0.07***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
$I_m \times$ Conformity		0.08**	0.08**	0.08**	0.08**	0.08**
		(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
$I_m \times$ Imagination		0.03	0.03	0.03	0.03	0.03
		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
$I_m \times$ Quality Time			0.02			
			(0.02)			
$I_m \times$ Non-Ed Quality Time				0.03**	0.03	0.03*
				(0.02)	(0.02)	(0.02)
$I_m \times$ Ed Quality Time				-0.02	-0.02	-0.02
				(0.02)	(0.02)	(0.02)
$I_m \times$ Quality Talking					0.03	0.03
					(0.02)	(0.02)
$I_m \times$ Avg Parental Educ						-0.00
						(0.02)
Observations	3,833	3,833	3,767	3,767	3,767	3,767

Note: Danish Longitudinal Survey of Children (born in 1995). Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable is a continues index of child impulsivity, standardized with a mean of zero and standard deviation of one. Each column represents the results from one regression. All models control for mother's and father's length of education and age at child birth, child gender, birth order, and indicators for size of town of residence at birth, indicators for missing observations on the former controls, and indicators for the number of times the quality time variables included in the model were measured. *Quality Time* is the mean of the standardized first component from a principal component analysis, including how often the mother does the following activities with the child at age 7 and 11 years: play, do out-of-school activities, go on an excursion, help with homework, and read/sing. *Non-Ed Quality Time* (*Ed Quality Time*) is constructed similarly, including play, do out-of-school activities, go on an excursion (help with homework, read/sing). *Quality Talking* is the mean of the standardized first component from a principal component analysis, including how often the mother discusses the following with the child at age 4, 7, and 11 years: The child's own activities at kindergarten/day-care (4); The child's planned activities at kindergarten/day-care (4); activities at school and after-school care, out-of-school activities (7/11); relationship to other children (4/7/11); relationship to teachers and after-school care staff (4/7/11); physical well-being (4/7/11); and mental wellbeing.

(impulsivity). Second, similar to previous studies, children's and mothers' preferences are measured contemporaneously, implying that we cannot rule out reverse causality. Column (1) in Table 6 replicates the finding in Table 3 of an intergenerational correlation in preferences in a different sample and with a different measure of time preferences.[44] Having a mother scoring one standard deviation higher in the impulsivity index increases child impulsivity by 12 percent of a standard deviation. The magnitude of the correlation coefficient is comparable to the correlation between mothers' and children's risk preferences in Dohmen et al. (2012) (14.9 percent of a standard deviation).

The intergenerational correlation between mothers' and children's impulsivity is much stronger for mothers who value conformity (column(2)). This is consistent with the gender-specific findings in Appendix Table A11. Using a richer measure of quality time than in the main analysis confirms the previous result that maternal involvement does not moderate the preference correlation (column (3)). However, when splitting involvement into non-educational and educational quality time, the estimates indicate that non-educational quality time moderates some of the transmission (columns (4) to (6)). This result is again in line with the gender-specific findings in the DLSY sample. At the same time, quality talking does not moderate the transmission. Finally, neither does parental education moderate the relationship. Consequently, all the main findings in the DLSY sample replicate in the DALSC sample, with better measures on maternal involvement and with a different time preference measure.

6 Concluding Remarks

We study the intergenerational transmission of time preferences, using an externally and internally validated survey measure. Parents' and children's patience were measured four decades apart, thereby eliminating concerns regarding reverse causality. We document substantial transmission of patience across generations. The transmission results are insensitive to the inclusion of a comprehensive set of administratively reported controls, and they do not diminish as children age.

We further open up the black box of socialization, and consider a broad set of possible moderators of the transmission process. Specifically, we explore the moderating role of parenting values, parental involvement, and socio-economic status in patience prop-

[44] All results in Table 6 are robust to the inclusion of paternal quality time variables, maternal personality traits, and maternal and child IQ (not shown).

agation. We find that parenting values, and, in particular, conformity and imagination, are relevant channels through which patience transmits from parents to children. Our validation indicates that parents who view conformity as particularly relevant indeed implement stricter parenting practices, such as more physical and verbal punishment. The opposite holds for parents who value imagination particularly high: these parents exhibit what appears to be a more permissive parenting style. Interestingly, more parental time investment does not contribute to the patience transmission, suggesting that style is more important than the time shared in joint activities with children. Using an exceptionally rich, register-based index characterizing socio-economic status during childhood does not contribute as a moderator either.

Our results have various implications. Macroeconomic models considering multiple generations, for instance, usually assume that time preferences propagate from parents to offspring (see e.g. Krusell and Smith (1998)). The empirical evidence on the intergenerational transmission of preferences, however, has previously only considered relatively short time horizons. Our study provides support for the assumption in macroeconomic models that time preferences indeed transmit from generation to generation and that this propagation persists over a very long time period.

References

Alan, Sule, Nazli Baydar, Teodora Boneva, Thomas F Crossley, and Seda Ertac. 2017. "Transmission of Risk Preferences from Mothers to Daughters." *Journal of Economic Behavior and Organization*, 134: 60–77.

Anger, Silke. 2012. "The Intergenerational Transmission of Cognitive and Non-Cognitive Skills during Adolescence and Young Adulthood." *SSRN Electronic Journal*.

Ayduk, Ozlem, Rodolfo Mendoza-Denton, Walter Mischel, Geraldine Downey, Philip K Peake, and Monica Rodriguez. 2000. "Regulating the Interpersonal Self: Strategic Self-regulation for Coping With Rejection Sensitivity." *Journal of Personality and Social Psychology*, 79(5): 776–792.

Bartling, Björn, Ernst Fehr, Barbara Fischer, Fabian Kosse, Michel Maréchal, Friedhelm Pfeiffer, Daniel Schunk, Jürgen Schupp, C Katharina Spieß, and Gert G Wagner. 2010. "Determinanten kindlicher Geduld - Ergebnisse einer Experimentalstudie im Haushaltskontext." *Schmollers Jahrbuch*, 130(3): 297–323.

Baumrind, Diana. 1967. "Child care practices anteceding three patterns of preschool behavior." *Genetic psychology monographs*.

Bisin, Alberto, and Thierry Verdier. 2001. "The Economics of Cultural Transmission and the Dynamics of Preferences." *Journal of Economic theory*, 97(2): 298–319.

Brenøe, Anne Ardila, and Shelly Lundberg. 2017. "Gender Gaps in the Effects of Childhood Family Environment: Do they Persist into Adulthood?" *European Economic Review*, 000: 1–21.

Brown, Heather, and Marjon van der Pol. 2015. "Intergenerational Transfer of Time and Risk Preferences." *Journal of Economic Psychology*, 49: 187–204.

Chabris, C. F., D Laibson, CL Morris, J P Schuldt, and D Taubinsky. 2008. "Individual Laboratory-Measured Discount Rates Predict Field Behavior." *Journal of Risk and Uncertainty*, 37: 237–269.

Chowdhury, Shyamal, Matthias Sutter, and Klaus F. Zimmermann. 2018. "Evaluating Intergenerational Persistence of Economic Preferences: A Large Scale Experiment with Families in Bangladesh." *IZA Discussion Paper*, 11337.

Deckers, Thomas, Armin Falk, Fabian Kosse, and Hannah Schildberg-Hörisch. 2017. "Socio-Economic Status and Inequalities in Children's IQ and Economic Preferences." *IZA Discussion Paper*, 11158: 63.

Dittrich, Marcus, and Kristina Leipold. 2014. "Gender Differences in Time Preferences." *Economics Letters*, 122(-): 413–415.

Doepke, Matthias, and Fabrizio Zilibotti. 2017. "Parenting with style: Altruism and paternalism in intergenerational preference transmission." *Econometrica*, 85(5): 1331–1371.

Dohmen, Thomas, Armin Falk, David Huffman, and Uwe Sunde. 2012. "The Intergenerational Transmission of Risk and Trust Attitudes." *Review of Economic Studies*, 79(2): 645–677.

Epper, Thomas, Ernst Fehr, Helga Fehr-Duda, Claus Thustrup Kreiner, David Dreyer Lassen, Søren Leth-Petersen, and Gregers Nytoft Rasmussen. 2018. "Time Discounting and Wealth Inequality." *mimeo*.

Falk, A., A. Becker, B. Enke, D. Huffman, and U. Sunde. 2018. "Global Evidence on Economic Preferences." *Quarterly Journal of Economics*, 133(4): 1645–1692.

Frederick, Shane, George Loewenstein, and Ted O'Donoghue. 2002. "Time Discounting and Time Preference: A Critical Review." *Journal of Economic Literature*, 40(2): 351–401.

Gauly, Britta. 2016. "The Intergenerational Transmission of Attitudes: Analyzing Time Preferences and Reciprocity." *Journal of Family and Economic Issues*, 38(2): 293–312.

Giulietti, Corrado, Enrico Rettore, and Sara Tonini. 2016. "The chips are down: The influence of family on children's trust formation." *IZA Discussion Paper*.

Golsteyn, Bart H H, Hans Grönqvist, and Lena Lindahl. 2014. "Adolescent Time Preferences Predict Lifetime Outcomes." *Economic Journal*, 124(580): F739–F761.

Kosse, Fabian, and Friedhelm Pfeiffer. 2013. "Quasi-Hyperbolic Time Preferences and Their Intergenerational Transmission." *IZA Discussion Paper*, 7221.

Krusell, Per, and Anthony Jr Smith. 1998. "Income and Wealth Heterogeneity in the Macroeconomy." *Journal of Political Economy*, 106(5): 867–896.

Meier, Stephan, and Charles D Sprenger. 2012. "Time Discounting Predicts Creditworthiness." *Psychological Science*, 23(1): 56–58.

Mischel, Walter, Yuichi Shoda, and Philip K Peake. 1988. "The Nature of Adolescent Competencies Predicted by Preschool Delay of Gratification." *Journal of Personality and Social Psychology*, 54(4): 687–696.

Shoda, Yuichi, Walter Mischel, and Philip K Peake. 1990. "Predicting Adolescent Cognitive and Self-Regulatory Competencies from Preschool Delay of Gratification: Identifying Diagnostic Conditions." *Developmental Psychology*, 26(6): 978–986.

Sutter, Matthias, Martin G Kocher, Daniela Glätzle-Rützler, and Stefan T. Trautmann. 2013. "Impatience and Uncertainty: Experimental Decisions Predict Adolescents' Field Behavior." *American Economic Review*, 103(1): 510–531.

Vischer, Thomas, Thomas Dohmen, Armin Falk, David Huffman, Jürgen Schupp, Uwe Sunde, and Gert G Wagner. 2013. "Validating an ultra-short survey measure of patience." *Economics Letters*, 120(2): 142–145.

Zumbuehl, Maria, Thomas Dohmen, Gerard Pfann, et al. 2018. "Parental Involvement and the Intergenerational Transmission of Economic Preferences and Attitudes." University of Zurich, Department of Business Administration (IBW).

A Appendix

Table A1
Literature on Transmission of Time Preferences

Article	Type of Measure	Measure	Sample (#, age)	Delay between parent and child measurement	Main findings	Comment
Bartling et al. (2010)	Experimental	Intertemporal choices over money (mothers; delays of 6 and 12 months) and gummy bears (children; later today, tomorrow, or the day after)	270 children (age 5–6) and their mothers, i.e. no fathers	Simultaneous measurement in separate rooms	Children of more patient mothers are more likely to be patient. Only significant correlations for the near-present tradeoffs (see Kosse and Pfeiffer (2013)).	Only weak evidence; small sample
Brown and van der Pol (2015)	Survey question	Question on planning horizon as a proxy for time preferences	Panel data from Household Income Labour Dynamics of Australia (HILDA), 6 waves; children: 2757 (male) + 2555 (female); parents: 2965 mothers + 2338 fathers; analysis restricted to young adults (age 16–25) and both parents; examine all four dyads	Have data from 6 waves over 8 years; compare transitions in answer categories from one to next year and find relatively stable responses; do not explore persistence of transmission, however.	Support for transmission of time preferences; gender differences: association of time preferences larger for mothers than fathers	Hypothesize correlation of planning horizon and discount rate
Chowdhury, Sutter and Zimmermann (2018)	Experimental	Choice lists with tradeoffs next day vs 3 weeks (children), 3 months (all) or 1 year (parents)	Household sample from Bangladesh; relatively poor families; 911 children (age 6–17); 544 pairs of mothers/fathers	Simultaneous measurement in separate rooms	Significant correlation between mothers', fathers', and children's preferences; correlation of similar size for both genders	Relatively homogenous sample; SES has only limited predictive power for children's preferences
Gauly (2016)	Survey question	Patience question of the German Socio-Economic Panel (SOEP)	2395 "children" for whom it was possible to identify biological parents; age not reported	Simultaneous measurement (same year of SOEP)	Parents transmit own attitudes to children via direct socialization. Find lowest correlation (of all measures) for patience, but large correlations between father-son and mother-daughter pairs.	Included also a measure of reciprocity and examine the persistence of the correlation across five years. Find weaker correlations when delay increases.
Kosse and Pfeiffer (2013)	Experimental	See comment	See comment	See comment	Mothers' and children's preferences for immediate gratification (present bias) are positively correlated. No significant correlation between mothers' and children's impatience.	Use data described in Bartling et al. (2010).

This table restricts attention to studies eliciting time preferences or proxies of these. There is a larger literature focusing on other preference domains (see Section 1.).

Table A2
Attrition in DLSY

Type of attrition	T_p NA	T_p or T_c NA	Values NA | (2) not NA	Values or involvement NA | (2) not NA
	(1)	(2)	(3)	(4)
Father			+	
P birth order 3+				+
P inductive reasoning	-	-		-
Grandfather edu NA			+	+
Grandmother edu NA		+		
Grandparents NA	+			
P IQ NA			-	
Grandparents' income NA				-

Note: All dependent variables are binary and condition on having any children born by 1996. The level of observation is the parent. *T_p NA* indicates that parental patience is unobserved. *T_p or T_c NA* indicates that either parental patience is unobserved or all his/her children have missing information on patience. *Values NA | (2) not NA* indicates that parenting values are missing for the sample of parents with patience observed both for both the parent and at least one child. *Values or involvement NA | (2) not NA* indicates that parenting values or parental involvement are missing for the sample of parents with patience observed both for both the parent and at least one child. Each column reports the by-1969-predetermined variables that are statistically significant at the 5 percent level in a Probit model; the model includes 34 predetermined variables.

Table A3
Patience by cohort

	Children		Parents	
Age	Percent	Observations	Percent	Observations
18	0.682	107	0.778	126
19	0.776	98	0.742	2,285
20	0.730	122	0.692	312
Average	0.728	327	0.738	2,723

Table A4
Associations Between Patience and Socio-Economic Status

	(1)	(2)	(3)	(4)	(5)	(6)
	Parents by age 50					Child
	SES Index	Education (years)	Unemploy-ment	Work Experience	Log (Earnings)	Education (years)
Panel A: Women						
Patient	0.16**	0.42**	-0.81***	2.58***	0.43***	0.50***
	(0.06)	(0.18)	(0.19)	(0.59)	(0.14)	(0.10)
Observations	1,369	1,369	1,369	1,369	1,369	1,807
Average	0.064	12.181	1.863	21.012	11.450	14.164
Panel B Men						
Patient	0.21***	0.61***	-0.42***	0.78	0.27**	0.53***
	(0.06)	(0.19)	(0.14)	(0.58)	(0.12)	(0.11)
Observations	1,370	1,370	1,370	1,370	1,370	1,666
Average	0.073	12.943	1.322	21.814	11.916	13.560

Note: Standard errors in parentheses, clustered at the parent school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Each panel-column presents the results from separate regressions. The sample of parents correspond to the original DLSY respondents who have at least one child. The sample of children are children to the DLSY parents. All models include *Parent demographics*, *Parent School FE*, and *Grandparent SES* (see the table note in Table 3 for details). Column (6) also include *Child demographics*. *SES Index* (standardized with mean zero and standard deviation one) is the first principal component from a principal component analysis; see Appendix Table A5. *Education* measures the length of highest completed education in years by 2016. *Unemployment* measures the cumulated length of unemployment in years 1980–2004. *Work Experience* measures the cumulated length of work experience in years 1964–2004. *Log(Labor Earnings)* is the natural logarithm of average annual labor earnings 1980–2004.

Table A5
Principal Component Analysis: SES Index

	First Component	Average
Mother's Education (years)	0.27	12.63
Father's Education (years)	0.32	12.97
Mother's Education missing	-0.21	0.0017
Father's Education missing	-0.26	0.0045
Parent's # of Children	-0.12	2.47
Mother has children with other than Father	-0.21	0.14
Father has children with other than Mother	-0.14	0.17
Mother's years of unemployment 1980–2004	-0.30	2.01
Mother's years of work experience 1964–2004	0.37	20.58
Father's years of unemployment 1980–2004	-0.22	1.17
Father's years of work experience 1964–2004	0.25	23.36
Log(Mother's mean labor earnings 1980–2004)	0.40	11.69
Log(Father's mean labor earnings 1980–2004)	0.38	12.18
	Eigenvalue	**Proportion**
Component 1	2.87	0.22
Component 2	1.59	0.12
Component 3	1.41	0.11
Component 4	1.25	0.10
Component 5	1.05	0.08
Component 6	0.92	0.07
Observations	3,518	

Note: Principal component analysis (PCA) of the socio-economic status experienced during children's childhood. The sample includes all children born by 1996, also those who did not answer the survey in 2010. We use the first component to construct the SES index.

Table A6
Associations Between Patience and Fertility Preferences

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Fertility Preferences at Age 22 and Early Fertility						
	Desired # of Children			Has Any Children by		
	0	1	2	1973	1976	1979
Women						
Patient	0.01	-0.02	0.00	-0.05***	-0.14***	-0.10***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)
Observation	1267	1267	1267	1369	1369	1369
Average	0.093	0.066	0.539	0.071	0.264	0.496
Men						
Patient	-0.07***	0.01	0.07**	-0.00	-0.02	-0.04
	(0.02)	(0.02)	(0.03)	(0.01)	(0.02)	(0.03)
Observation	1211	1211	1211	1370	1370	1370
Average	0.116	0.043	0.597	0.012	0.087	0.231
Panel B: Complete Fertility by 2016 (Age 62)						
	Has Any Child	# of Children	Age at First Birth	Age at Last Birth	# of T_c Obs	Daughter w T_c Obs
Women						
Patient	0.01	-0.04	1.49***	0.93**	-0.10	-0.03
	(0.02)	(0.06)	(0.32)	(0.41)	(0.07)	(0.04)
Observation	1369	1369	1191	1191	1191	964
Average	0.870	1.836	25.653	28.919	1.376	0.669
Men						
Patient	0.09***	0.21***	0.75	0.44	0.00	0.01
	(0.03)	(0.08)	(0.45)	(0.46)	(0.07)	(0.05)
Observation	1370	1370	1061	1061	1061	871
Average	0.778	1.680	28.900	31.884	1.413	0.659

Note: Standard errors in parentheses, clustered at the parent school level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Each panel-column-gender presents the results from separate regressions. All models are estimated by OLS. The sample includes all original DLSY respondents. All models include *Parent demographics*, *Parent School FE*, and *Grandparent SES* (see the table note in Table 3 for details). *Desired # of Children* indicates whether the respondent in 1976 reported that their desired number of children was respectively, 0, 1, or 2, leaving 3 or more children the omitted category (due to the survey question, those who already had children and did not want more have a coded desired number of children equivalent to the number of children they had by 1976; the correlations between patience and desired fertility is similar when excluding those who already had children in 1976). *Has Any Children by* indicate whether the respondent had at least one child by 1973, 1976, and 1979, respectively. *Has Any Child* indicates whether the person has any children by 2016. *# of Child w T Obs* measures the parent's number of children with an observation on patience, conditional on having at least one child by 1996. *Daughter w T Obs* indicates whether the parent has at least one daughter with an observation on patience, conditional on having at least one child in the survey.

Table A7
Parental Involvement by Activity

Activities (proxy for times a year)	Average	Std. Errors
Library	4.8	0.3
Swimming	4.7	0.3
Nature	16.8	0.5
Cinema	2.4	0.1
Theater	0.7	0.1
Visit friends and family	19.4	0.5
Do housework chores (cooking, cleaning, shopping)	38.3	0.6
Talk about homework and school	47.4	0.4
Eat dinner	51.2	0.2
Attend sport activities	17.4	0.6

Note: The exact question is *How often does the family—including the children living at home—do the following activities together?: visit the library, go to the swimming pool, go out in the nature, go to the cinema, go to the theater, visit friends and family, do housework chores (cooking, cleaning, shopping), talk about homework and school, eat dinner, and attend sport activities.* We scale at least once a week/month/year/never to 52/12/1/0 times a year. The sample had 1,250 observations per activity.

Table A8
Correlations between Parental Patience, Values, Involvement, and SES

	Patient (1)	Conformity (2)	Imagination (3)	Involvement (4)
Panel A: Raw correlations				
Conformity	-0.059***			
	(0.021)			
Imagination	0.007	-0.314***		
	(0.024)	(0.021)		
Involvement	0.004	-0.045***	0.026*	
	(0.012)	(0.015)	(0.014)	
SES	0.056***	-0.057***	0.035***	-0.027
	(0.013)	(0.014)	(0.013)	(0.037)
Panel B: Conditional correlations				
Conformity	-0.050**			
	(0.023)			
Imagination	-0.012	-0.283***		
	(0.027)	(0.023)		
Involvement	-0.003	-0.046***	0.022	
	(0.013)	(0.016)	(0.015)	
SES	0.048***	-0.032**	0.007	-0.030
	(0.013)	(0.014)	(0.015)	(0.042)

Note: (Clustered) standard errors in parentheses (at the school level) in Panel A (Panel B). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Each row-column presents the results from separate regressions, with the variable in the column being the dependent variable. All models are estimated by OLS. Panel A shows the raw correlations, while the correlations shown in Panel B include *Parent demographics*, *Parent School FE*, and *Grandparent SES* (see the table note in Table 3 for details). The level of observation is the parent.

Table A9
Validation of Parenting Values and Practice

	Mother's expectation for child educational attainment	Mother: child edu performance very important	Non-Ed Quality Time	Ed Quality Time
	(1)	(2)	(3)	(4)
Panel A: Maternal values at child age 4 years				
Conformity	-0.40***	0.05***	-0.05	-0.09***
	(0.08)	(0.02)	(0.03)	(0.03)
Imagination	0.01	-0.04**	0.05	0.01
	(0.08)	(0.02)	(0.03)	(0.03)
Observations	3,874	4,033	5,035	5,036
Average	14.37	0.52	-0.00	-0.01
Panel B: Maternal values at child age 4 months				
A Firm Hand (0-1)	-0.10	0.05	0.03	-0.02
	(0.14)	(0.03)	(0.05)	(0.05)
Instill Respect (0-1)	-0.41***	0.11***	-0.04	0.04
	(0.15)	(0.03)	(0.06)	(0.06)
Emphasize with Child (0-1)	0.37	-0.10	0.22*	0.38***
	(0.30)	(0.06)	(0.12)	(0.12)
Observations	3,773	3,938	4,860	4,861
Average	14.37	0.52	-0.00	0.01
Panel C: Paternal values at child age 4 months				
A Firm Hand (0-1)			-0.10	-0.09
			(0.06)	(0.06)
Instill Respect (0-1)			-0.12*	-0.14**
			(0.07)	(0.07)
Emphasize with Child (0-1)			0.40***	0.39***
			(0.10)	(0.10)
Observations			3,276	3,273
Average			-0.00	0.04

Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A10

Ordered Probit Models: Intergenerational Transmission of Patience

	Dependent Variable: Child Time Preferences	
	(1)	(2)
Parent is very patient	0.178***	
	(0.063)	
Parent is medium patient	0.140**	
	(0.055)	
Parent is patient		0.154***
		(0.052)
Observations	3,101	3,101
Intercept Cut 1	-0.401	-0.411
	(0.347)	(0.348)
Intercept Cut 2	1.037	1.034
	(0.348)	(0.349)

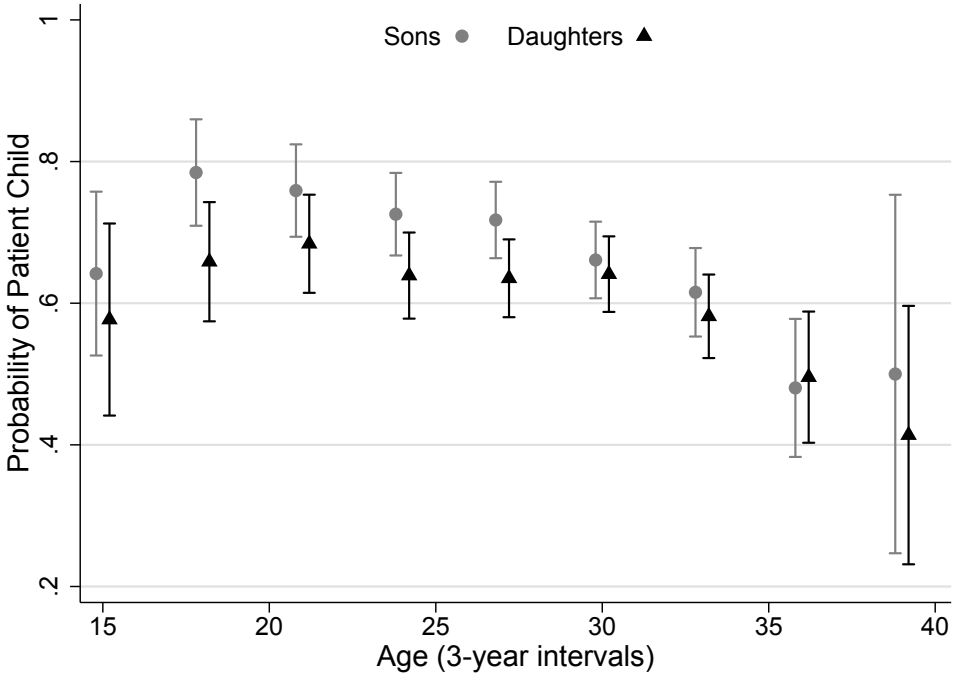
Note: Standard errors in parentheses, clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable indicates whether the child is impatient (1), medium patient (2), or very patient (3). Each column presents the results from separate ordered probit regressions. Both models control for *Child demographics*, *Parent demographics*, *Parent School FE*, and *Grandparent SES*.

Table A11
Moderation of the Intergenerational Transmission of Patience by Parental Gender

	Dependent Variable: Child is Patient (T_c)							
	Mothers				Fathers			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Parent patient (P_p)	0.083***	-0.000	0.016	0.019	0.105***	-0.039	0.012	0.012
	(0.030)	(0.041)	(0.051)	(0.052)	(0.033)	(0.052)	(0.062)	(0.061)
$P_p \times$ Conformity		0.162**	0.147*	0.160*		0.160**	0.106	0.106
		(0.065)	(0.088)	(0.087)		(0.068)	(0.082)	(0.081)
$P_p \times$ Imagination		0.077	0.050	0.039		0.216***	0.242***	0.260***
		(0.072)	(0.084)	(0.083)		(0.072)	(0.083)	(0.082)
$P_p \times$ SES Index		0.026	0.045	0.054		-0.043	-0.095**	-0.078*
		(0.028)	(0.037)	(0.038)		(0.036)	(0.044)	(0.044)
$P_p \times$ Involvement				0.077**				-0.073*
				(0.039)				(0.039)
Conformity		-0.158***	-0.123	-0.121		-0.169***	-0.122*	-0.122*
		(0.056)	(0.075)	(0.074)		(0.059)	(0.071)	(0.070)
Imagination		-0.051	-0.027	-0.018		-0.146**	-0.154**	-0.164**
		(0.065)	(0.080)	(0.079)		(0.064)	(0.075)	(0.074)
Involvement				-0.011				0.097***
				(0.034)				(0.036)
SES Index		0.024	0.015	0.013		0.056*	0.100***	0.083**
		(0.024)	(0.031)	(0.031)		(0.030)	(0.036)	(0.035)
Observations	1,506	1,506	1,091	1,091	1,349	1,349	1,031	1,031
Average of T_c	0.618	0.618	0.634	0.634	0.675	0.675	0.680	0.680

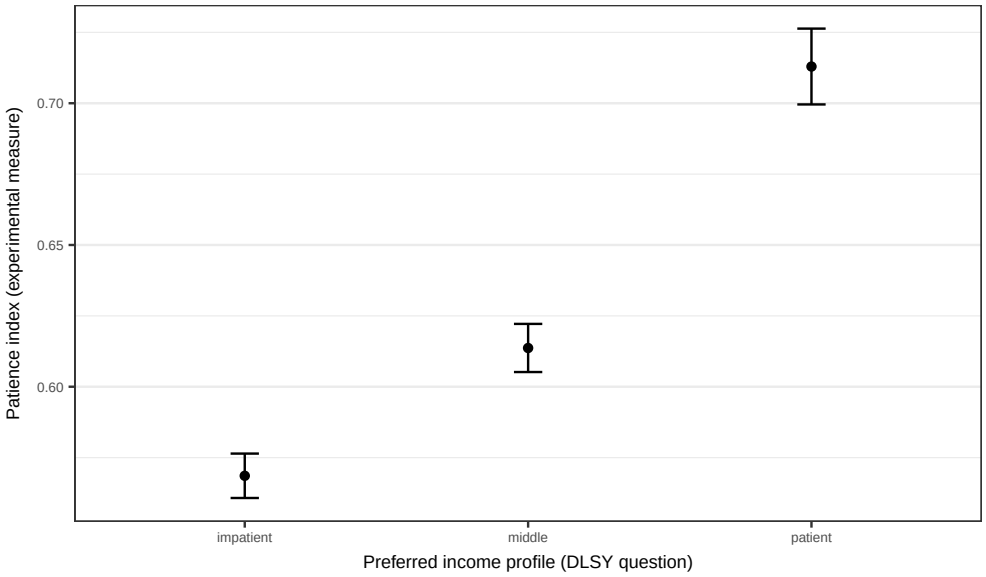
Note: Standard errors in parentheses, clustered at the parent level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The outcome variable indicates whether the child is patient (1) or not (0). Each model is estimated as a linear probability model. Each column presents the results from separate regressions. All models controls for *Child demographics*, *Parent demographics*, *Parent School FE*, and *Grandparent SES*.

Figure A1
Child Patience by Age and Gender



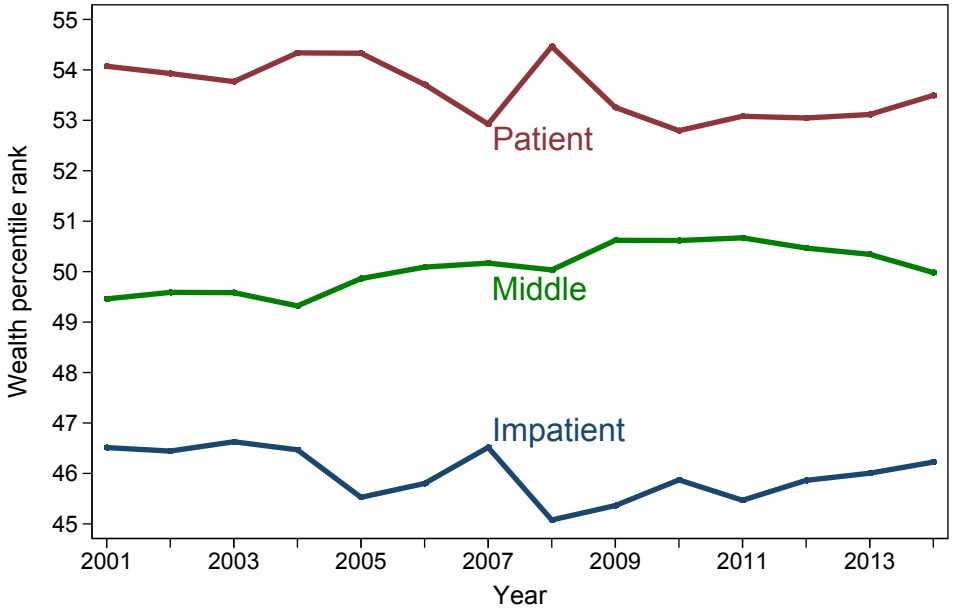
Note: This graph illustrates the share of patient children by age and gender. Age is shown in 3-year intervals. The whiskers represent the 95 percent confidence interval.

Figure A2
Experimentally Validated Measure



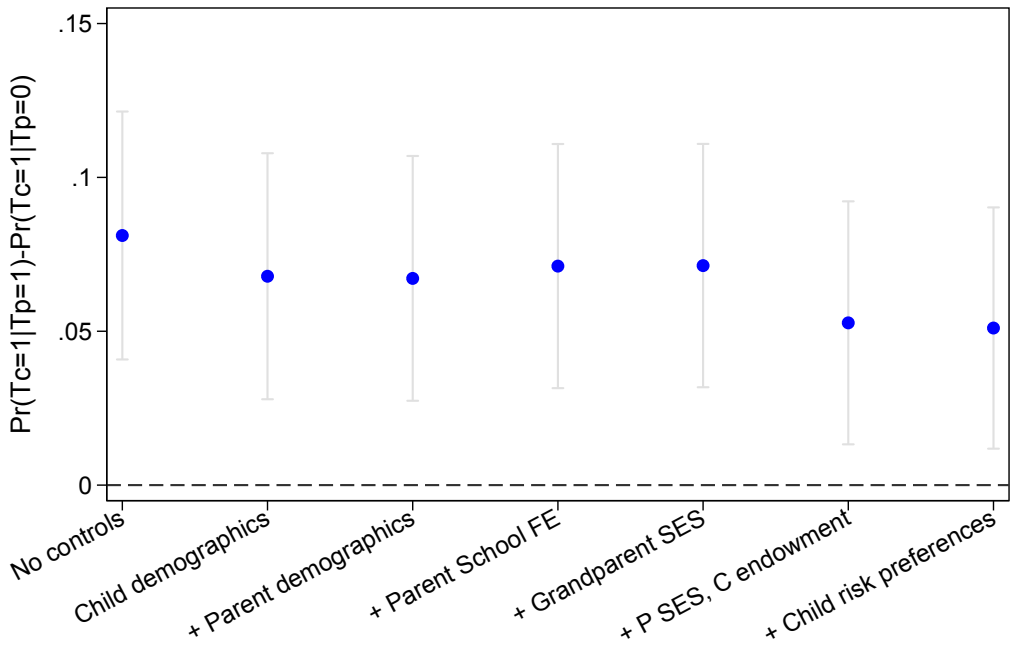
Source: Epper et al. (2018)

Figure A3
Time Discounting and Wealth Inequality



Source: Epper et al. (2018)

Figure A4
Intergenerational Transmission of Patience: Marginal Effects of Patient Child Conditional on Patient Parent



Note: Each blue dot presents the results from separate regressions and illustrates the marginal effect of observing a patient child conditional on having a patient parent, with the gray whiskers representing the 95 percent confidence interval. Observations: 3,101; Average of T_c: 0.352. The outcome variable indicates whether the child is patient (1) or not (0). Each model is estimated by probit. The legend explains the controls included in each model; the sets of controls correspond to the ones in Table 3.