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IZA DP No. 14993

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ABSTRACT

Parental Separation and the Formation of Economic Preferences*

We estimate the effect of parental separation on the risk and trust attitudes of German adolescents using a large household survey dataset, which allows us to match respondents to their siblings and parents. Our results indicate that adolescents from separated families are less trusting but have the same risk tolerance as adolescents from non-separated families, even after conditioning on the attitudes of parents and other controls. This trust deficit persists into early adulthood. Moreover, for both trust and risk, we find that separation attenuates the transmission of preferences from father to child. Additional analyses point to reduced parental involvement and greater family conflict as potential mechanisms.

JEL Classification: J12, J13, D91, D81

Keywords: family dissolution, divorce, preferences, risk, trust, intergenerational transmission

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1 Introduction

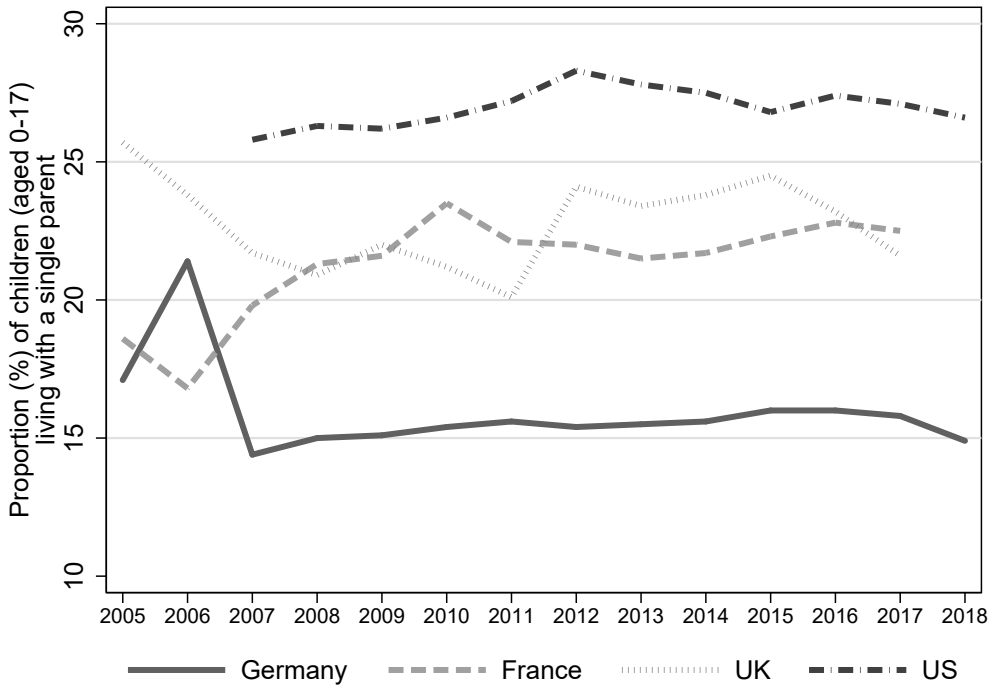
Preferences, like risk aversion and trust, are important factors in how people make decisions.[1] This is conceptually obvious, and well-supported empirically. For example, people who are more tolerant to risk are more likely to be entrepreneurs and have higher earnings (Cramer et al., 2002; Dohmen et al., 2011; Falk et al., 2018). They are also more likely to engage in risky health behaviors like smoking (Anderson and Mellor, 2008; Falk et al., 2018). Higher interpersonal trust has been associated with greater acceptance of measures to reduce COVID-19 transmission (Jørgensen et al., 2021), while different rates of trust in scientists and authorities seem to explain large cross-country differences in vaccine acceptance (Lindholt et al., 2021). High trust is associated with prosocial behavior, while low trust is associated with internalizing and externalizing problems, like a lack of social integration, loneliness, and aggression (Rotenberg, 2019). Trust also appears to be a causal factor in earnings (Algan and Cahuc, 2013). In short, these preferences are important, and there is a strong case for understanding how they form.

In this paper, we focus on how one prominent component of childhood circumstances—parental separation—shapes risk aversion and trust. Our definition of parental separation is living in a household that does not include both parents, which includes births into single parent households. The probability of experiencing parental separation is high. In 2017 the proportion of 0-17 year olds living in a single parent household was 15% in Germany, 22% in the U.K., 23% in France, and 27% in the U.S. (OECD, 2021); rates that were similar in 2005 (see Figure 1). As such, if parental separation is influencing preferences, the aggregate social effects may be significant.

The potential for parental separation to shape preferences is supported by the extant literature that finds non-cognitive skills, like personality traits and preferences, are malleable during childhood (Heckman and Kautz, 2013; Kautz et al., 2014) as well as the extant literature linking parental divorce to child cognitive and non-cognitive development (Amato and Keith, 1991; Amato, 2000, 2001). Early studies found generally large, negative associations with outcomes such as learning and psychological wellbeing, although evidence from studies adopting more rigorous designs suggest smaller effects, and there is wide appreciation for the fact that effects are heterogeneous (Amato, 2010, 2014; Härkönen et al., 2017).

[1] While we include trust under the umbrella of 'preferences', as done in, e.g., Zumbuehl et al. (2021), we recognize that trust could also be described as a belief.

Figure 1: Prevalence rates of single-parent households



Note: Authors' calculations using data from (OECD, 2021).

There is little evidence on whether parental separation affects risk and trust attitudes.[2] Conceptually, parental separation could affect preferences through numerous channels. For example, separation often involves an economic shock and economic shocks in childhood have been linked to higher risk aversion in later life (Malmedier and Nagel, 2011). Risk-taking has been theorized as developmentally-necessary behavior, particularly in adolescence, which can support identity formation, providing individuals with a sense of agency and control (Zinn, 2019). Thus, where a separation presents a disruptive situation out of the child's control, destabilizing their sense of security within the family, risk-taking may be a response which reinforces a sense of agency (O'Hara et al., 2019). Theories on optimal parenting style assume that parents invest in their children's preferences (Bisin and Verdier, 2001; Doepke and Zilibotti, 2017) and Zumbuehl et al. (2021) have shown empirically that there is a link between parental involvement

[2]Parental divorce is associated with more risky substance use in adolescence and young adulthood (Zeratsion et al., 2014; Gustavsen et al., 2016; Khlat et al., 2020) but these behaviors are likely to be influenced by factors other than general willingness to take risks. A few studies have estimated correlations between parental divorce and trust (Franklin et al., 1990; Jacquet and Surra, 2001; King, 2002; Viitanen, 2014), finding either negative or insignificant effects. However, none address preference-based selection into divorce by parents and, with the exception of Viitanen (2014), samples are drawn from small, non-representative surveys. We address this type of selection and use a large representative sample. Additionally, we explore the interaction with age at separation and the attenuating effect of separation on the intergenerational transmission of preferences.

and risk and trust attitudes. Separation may attenuate the ability to shape preferences by increasing conflict and directly lowering involvement.

To identify the effect of parental separation on preferences, we utilize a large, representative German dataset that allows us to match parents to children. We focus primarily on preferences at age 17 but also consider persistence into early adulthood. We recognize that the decision to separate cannot reasonably be treated as exogenous to the child's preferences. However, we argue that the primary threat to identification can be mitigated by controlling for the mother's and father's preferences. This deals with the possibility that, for example, less trusting parents are more likely to separate and are also more likely to pass on their low trust through genes and parenting. We also make use of variation in the age of separation. Essentially, even if parental separation itself is endogenous, we can test whether there is a causal age of separation effect as long as this age is stochastic conditional on experiencing separation. This is similar to how Chetty and Hendren (2018) evaluate the effects of neighborhoods on intergenerational mobility, and has parallels with difference-in-differences designs.

In addition, we consider whether separation distorts the transmission of preferences from parent to child. The intergenerational transmission of preferences between parents and children is well established (Dohmen et al., 2012; Alan et al., 2017). However, it is unclear what role family structure plays in that transmission. Alan et al. (2017) and Zumbuehl et al. (2021) find that parental involvement influences the concordance between parent/child risk and trust attitudes. We extend this work by focusing on an explicit disruptor to parental involvement.

We find that parental separation does not affect child risk attitudes on average but is associated with lower trust. Conditional on parents' preferences and other controls, this effect is around 0.07 standard deviations and persists into early adulthood. It is also stronger if the separation occurs earlier in life. For both risk and trust, we find that separation increases the absolute difference between father's and child's preference. This result is consistent with the hypothesis that more parental involvement leads to 'more similar' preferences, noting that, following separation, fathers are much more likely to be secondary carers. However, we also find a stronger dissimilarity between mother's and child's trust, which suggests additional channels may be at play. We show that separation is associated with less child-reported parental in-

volvement and greater conflict with both mother and father, which may help to explain our results.

Our paper contributes to several multi-disciplinary areas of academic research. First, our results provide empirical support needed for theories of parenting that use preference transmission as a decision variable (Bisin and Verdier, 2001; Doepke and Zilibotti, 2017). Second, we contribute to evidence on the extent to which risk and trust attitudes are formed by nature (genes) or nurture (family environment) (Cesarini et al., 2008; Hiraishi et al., 2008; Cesarini et al., 2009; Zyphur et al., 2009; Van Lange et al., 2014; Wootton et al., 2016; Harden et al., 2017; Reimann et al., 2017; Nicolaou and Shane, 2019). This literature generally finds a limited, or even zero, role for common family environment. However, our results indicate that parents do have an influence on their children's preferences beyond the effect of genes. Third, we contribute to the myriad literature on the effect of parental separation on the development of personality (e.g., Franklin et al., 1990; Evans and Bloom, 1997; Brennan and Shaver, 1998; Prevoo and Ter Weel, 2015). Our results, for example, indicate that riskier behaviors among children of divorce are likely to be driven by factors other than a higher general proclivity towards risk, which suggests that influencing risk aversion is unlikely to address such behaviors.

Our paper is structured as follows. In Section 2 we discuss the data and estimation strategy. In Section 3 we present and discuss our results. Section 4 concludes.

2 Data and Methods

2.1 German Socio-Economic Panel

Our analysis is based on data from the German Socio-Economic Panel (SOEP) study.[3] The SOEP is a representative household panel surveying around 30,000 individuals in 15,000 households annually (Goebel et al., 2019). It not only includes rich information on socio-economic conditions, family background, and childhood circumstances, but also measures economic preferences. Importantly, the household structure allows us to match family members.

We base our analyses largely on the youth questionnaire, which is administered to adolescents in responding SOEP households in the calendar year they turn 17 years old. This questionnaire is tailored to their life-cycle stage, asking for example about their school performance, leisure-

[3]This paper uses data from the Socio-Economic Panel (SOEP), data for 1984-2018, version 35i, SOEP, 2019, doi:10.5684/soep-core.v35i.

time activities, relationship with their parents, upbringing, and plans for the future. Since 2006, the youth questionnaire also includes self-reported measures of both risk and trust preferences. Therefore, we use all waves between 2006 and 2018.

Preference measures. Adolescents are asked "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?" and respond on an ordinal scale from 0 (risk averse) to 10 (fully prepared to take risks). This question is widely used as an overall measure of risk preferences, with its favorable predictive properties well-established (Dohmen et al., 2011; Vieider et al., 2015; Falk et al., 2016). Therefore, we use the answer to this single item as our direct measure of risk preference. To measure trust, we rely on three items that are introduced by the question "To what degree do you agree with the following statements?": (i) "People can generally be trusted", (ii) "Nowadays you can't rely on anyone", and (iii) "If you are dealing with strangers, it is better to be careful before trusting them". Respondents answer on an ordinal scale from 1 (disagree completely) to 7 (agree completely). We reverse answers to the second and third item, so that higher values indicate greater trust, and compute our measure of trust as the average across all three items. This measure has been found to correlate with behaviorally elicited trust (Fehr et al., 2003) and has been used in studies closely related to ours (Dohmen et al., 2012; Zumbuehl et al., 2021). In addition, we standardize both risk and trust preferences separately by gender to mean zero and standard deviation one, so that effect sizes reflect standard deviations.

A unique feature of our data is the household structure which allows us to match children with parents if parents are SOEP respondents themselves. Importantly, this enables us to also observe parents' risk and trust preferences directly, which are surveyed in the same way as for their adolescent children. Adults' willingness to take risk was asked in 2004, 2006, and annually since 2008, while trust was asked in 2003, 2008, 2013, and 2018.[4] For each parent we use age-standardized scores separately by gender and compute the average across all available observations of their risk or trust preference to reduce measurement error.[5]

[4]For the three trust items, the scale was reduced and reversed in the adult questionnaire ranging from 1 (agree completely) to 4 (disagree completely). We rescale accordingly, so that higher values continue to indicate greater trust.

[5]Specifically, before averaging, we standardize the preference measures separately by age at the time of survey and gender, to account for age patterns in preferences and differences between mothers and fathers. We also standardize the resulting final scores separately by gender.

Parental separation. We do not observe parental divorce or separation directly. Instead, we rely on the adolescents' living arrangements in the first 15 years of life to infer whether their parents have separated and, if so, at which age of the child. Specifically, adolescents are asked how many of their first 15 years of life they have lived together with both (biological or adoptive) parents. We assign adolescents who do not respond the full 15 years to this question as children of separation and interpret the number of years they indicate as their age at parental separation, unless one of their parents deceased at that point or before then. To account for the gap between age 15 and 17, which is when the survey is taken, we also count those adolescents as children of separation who are currently living with only one parent and pool 15 to 17 as their age at parental separation.

Other variables. The richness of the SOEP data allows us to control for key demographics (gender, immigration background, siblings, and birth order), fixed effects for survey year and state of residence, as well as parental characteristics (deceased, education, age at birth, and preferences) in all our analyses. Moreover, the tailored questionnaire allows us to explore several potential mechanisms around the relationship between adolescents and parents, including involvement and conflict. See Appendix Table A.1 for a full list of variables and their definitions.

2.2 Sample

We include all 17-year-old adolescents with complete information on year of birth, gender, federal state of residence, presence of siblings, birth order, and the number of years lived with both parents. We further restrict the sample to adolescents reporting both of their parents' year of birth.[6] This results in 5,192 observations from 3,848 separate families.[7] Appendix Table A.2 presents summary statistics of our key variables for our final sample, separately for children with and without parental separation.

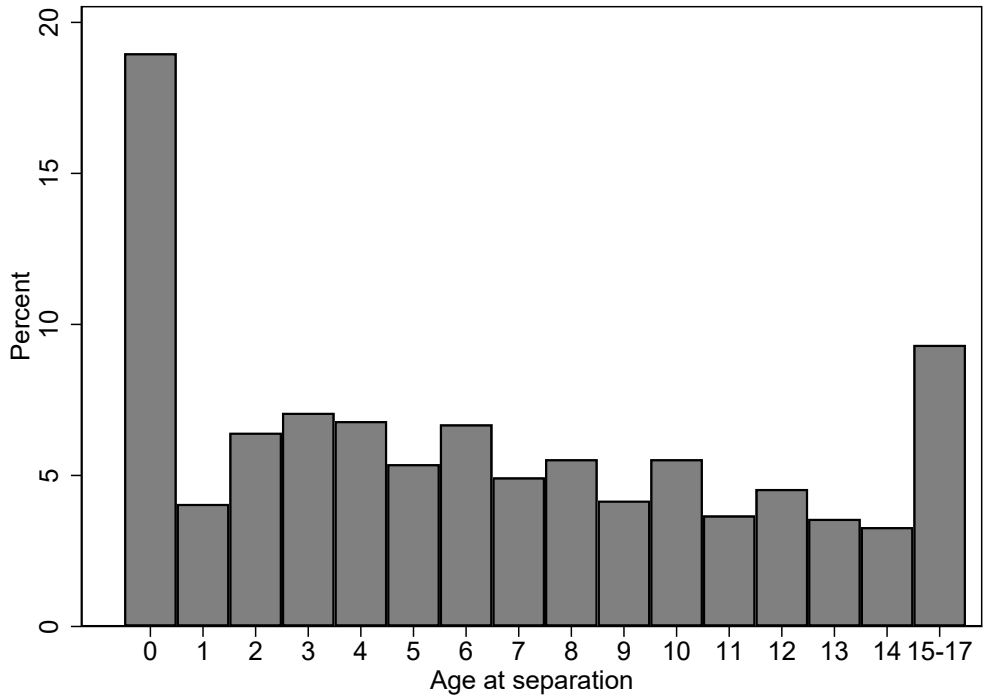
In total, we observe 1,823 adolescents (35.1% of our sample) whose parents separated at some point during their childhood or adolescence. The average age at separation is 6.3 years. Figure 2 displays the distribution of their age at parental separation. Age zero stands out, accounting for 19.0% of all children of separation. We expect that children whose parents were never

[6]This excludes 3.7% of observations; however, it ensures a homogeneous sample of children who know of both their mother and father.

[7]We define families as siblings who have both the same mother and father or the same mother only in case the father is not observed in SOEP.

a couple or separated before their birth are mostly represented here, rather than separations occurring before age one. For all other ages, the frequency of parental separation fluctuates around 5% but generally slightly reduces from childhood into adolescence. The frequency is relatively high for ages 15 to 17 because it reflects the aggregate frequency over all three ages.

Figure 2: Distribution of Age at Separation



Note: SOEPv35i. Sample restricted to 1,823 children of separation.

At the time of the interview, 81.6% of children whose parents separated live with their mother, while only 10.0% of them live with their father (see Appendix Table A.2). Table 1 presents a more detailed picture of the living arrangements throughout the first 15 years of life. For each age at separation, the columns indicate the average number of years spent living with their mother, their father, either parent and their new partner, or in other arrangements. Across all ages of separation, children spend the vast majority of years living with their single mother followed by living with their mother and her partner. They only spend a few months, on average, living with their single or partnered fathers. This difference is starker the younger the child is when parents separate. For example, children whose parents separate when they are only one year old spend on average 13.1 out of 15 years living with their single or partnered mother; for children aged zero at separation (i.e., whose parents may never have been a couple

or separated before their birth or soon after) it is 14.3 years. The average time spent living with other relatives, foster parents, or in a home is negligible across our sample.

Table 1: Summary Statistics on Living Arrangements for Children of Separation

	Average number of years lived with...						
Age at separation	Single mother (1)	Mother + partner (2)	Single father (3)	Father + partner (4)	Other relatives (5)	Foster parents (6)	In a home (7)
0	10.5	3.8	0.3	0.1	0.1	0.0	0.0
1	8.0	5.1	0.3	0.2	0.1	0.0	0.0
2	7.8	4.4	0.2	0.3	0.2	0.1	0.0
3	7.3	3.3	0.5	0.4	0.2	0.3	0.0
4	6.5	3.5	0.4	0.3	0.0	0.2	0.1
5	5.3	3.5	0.5	0.4	0.1	0.1	0.1
6	5.5	2.9	0.4	0.1	0.0	0.0	0.0
7	5.1	1.9	0.6	0.3	0.1	0.0	0.0
8	4.4	1.9	0.5	0.2	0.0	0.1	0.0
9	3.9	1.2	0.8	0.1	0.0	0.0	0.0
10	3.1	0.9	0.7	0.2	0.1	0.0	0.1
11	2.8	0.7	0.2	0.1	0.1	0.0	0.0
12	1.8	0.5	0.5	0.1	0.0	0.1	0.0
13	1.4	0.1	0.4	0.0	0.0	0.0	0.0
14	0.7	0.1	0.1	0.1	0.1	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Ages	5.5	2.4	0.4	0.2	0.1	0.1	0.0

Note: SOEPv35i. Sample restricted to 1,823 children of separation.

2.3 Identification Strategy

To study the effect of parental separation on adolescents' risk and trust preferences and on the strength of the intergenerational transmission of preferences from parents to their children, we estimate the following equation:

$$Y_{ij} = \alpha + \beta Sep_{ij} + \boldsymbol{X}'_{ij}\gamma + \epsilon_{ij}, \tag{1}$$

where Y_{ij} is our outcome of interest for child i in family j; that is either their risk or trust preference, or the absolute difference between their own and either of their parent's preference. Sep_{ij} is an indicator for parental separation and $\boldsymbol{X}_{ij}$ is a vector of controls. We successively include more detailed control variables to assess the sensitivity of our results to the richness of the information included. Our most extensive and preferred set of control variables includes gender, whether the father and/or mother is deceased, immigration background, whether the

adolescent has any siblings and whether they have older siblings, mother's and father's education and age at birth of the child, mother's and father's preferences, as well as fixed effects for the survey year and state of residence. These controls are plausibly correlated with separation and preferences, but are unlikely to be mechanisms through which separation affects preferences. Finally, ϵ_{ij} is an error term that is clustered at the family level.

The estimation of equation (1) does not warrant the identification of a causal effect of parental separation, which is inherently an endogenous choice of parents. However, a key strength of our design is the ability to link parents with children. This allows us to control for parents' preferences, which could arguably be the most evident source of omitted variable bias. In addition to addressing endogeneity, these measures of parental preferences also help us gauge the scope for their importance in shaping how parental separation affects children's preferences, by assessing the sensitivity of our results to their inclusion.

Overall, we have a direct measure of maternal preferences for 97.7% (risk) and 92.2% (trust) of adolescents in our sample, while we have fewer observations with available preferences for fathers (risk: 81.5%, trust: 75.7%). Importantly, whether parental—and more specifically paternal—preferences are missing is related to whether parents separated or not. If they did, children no longer live in the same household as both of their parents, making the absent parent less likely to participate in the general SOEP survey. For this reason, we refrain from dropping observations with incomplete parental preferences. Instead, we use multiple imputation with chained equations to impute each parent's risk and trust preferences and also their education, whenever missing. We base the imputation on a myriad of family and parental characteristics, that is far more extensive than the demographics we have considered so far. Specifically, in addition to all control variables from (1), we include whether father and/or mother are non-German, whether the child ever lived with a step-parent, mother's and father's religion (3 categories: Christian, other religion, none/missing), mother's and father's occupational status (5 categories: blue-collar worker, self-employed, white-collar worker, civil servant or public administration employee, none of these), whether mother and/or father are absent from the child's life, and the child's risk and trust measures. We perform sensitivity analyses around the imputed values to assess their impact on our results.

3 Results

3.1 Risk and Trust in Adolescence

We first estimate equation (1) for risk as outcome, with the results in Table 2. We successively introduce a richer set of control variables, starting only with gender and whether either parent deceased, and then introducing further family and parental characteristics. Finally, we add measures of parental risk preferences. Across all specifications, however, there is no evidence for any effect of parental separation on children's risk preference at age 17.

Table 2: Effect of Separation—Risk

	Outcome variable: preference measure (in std.)			
	(1)	(2)	(3)	(4)
Separation	0.047	0.048	0.007	-0.008
	(0.031)	(0.031)	(0.031)	(0.031)
Female	0.004	0.001	-0.005	-0.001
	(0.028)	(0.028)	(0.028)	(0.028)
M: deceased	0.079	0.088	0.162	0.133
	(0.160)	(0.162)	(0.157)	(0.153)
F: deceased	0.013	0.009	0.011	-0.002
	(0.088)	(0.089)	(0.088)	(0.089)
Immigration background		0.037	0.043	0.044
		(0.037)	(0.036)	(0.036)
Siblings		0.050	0.035	0.034
		(0.049)	(0.049)	(0.049)
Later-born		0.027	0.027	0.033
		(0.030)	(0.030)	(0.030)
M: education		-0.029	-0.052	-0.062*
		(0.037)	(0.037)	(0.036)
F: education		-0.053	-0.053	-0.048
		(0.036)	(0.036)	(0.036)
M: age at birth		-0.004	-0.003	-0.003
		(0.004)	(0.004)	(0.004)
F: age at birth		0.001	-0.000	0.000
		(0.003)	(0.003)	(0.003)
M: risk			0.143***	0.126***
			(0.016)	(0.016)
F: risk				0.113***
				(0.016)
Obs.	5192	5192	5192	5192
Families	3848	3848	3848	3848

Note: SOEPv35i. Full analysis sample. OLS regressions with multiple imputation with chained equations for missing parents' risk (linear) and education (logit) using 20 imputed datasets. In addition, a maximum set of state dummies, survey year dummies, and a constant is controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

The results look noticeably different when estimating equation (1) with trust as outcome: across all specifications, there is a significant reduction in adolescents' trust levels associated with parental separation (see Table 3). The effect size decreases as we introduce more controls relating to family and parental background, which points to the association being driven in part by selection of certain families choosing to separate. However, the effect still persists and is economically meaningful with a reduction of 0.07 of a standard deviation (std.) even when controlling for both parents' trust levels—arguably the most evident source of omitted variable bias. It is also possible that results controlling for parental trust are a lower bound, if for example separation causes parents' own trust to be lower, which then acts as a mechanism for the child's lower trust. Importantly, our results are qualitatively robust whether we control for parental trust or not. Overall, these results thus provide strong evidence for parental separation lowering children's level of trust by age 17.

The effect size is large relative to other important covariates; it amounts to approximately 70% of the impact of being from an immigrant background and is equivalent to the effect of a 0.42 std. decrease in maternal trust. Another way to think about magnitudes is to consider the effect size in the context of estimates of trust on economic outcomes. For example, according to Bjørnskov (2012), a 0.07 std. decrease in a nation's social trust would cause a 0.035% decrease in GDP growth, primarily through lower schooling and poorer governance. Such an effect is non-trivial given the compounding effects of growth.

To test the sensitivity of these main findings, we also conduct two robustness checks. First, we exclude children who were aged zero when their parents 'separated', meaning they might never have lived in a relationship as a family. Our results are unaltered, see Table A.3. Second, to investigate whether our results are driven by the specific imputation method we have chosen, we adjust father's preferences when imputed in incremental steps by subtracting or adding 0.1, 0.3, and 0.5 to the imputed value for their risk (panel A) or trust (panel B) measure in Table A.4. Our results remain highly robust.

In Table A.5 we consider the effect of parental separation on each trust item separately, rather than averaging them. Parental separation is associated with lower trust on each of the items. However, the effects are larger (0.07-0.09 std.) for the first two items ("People can generally be trusted" and "Nowadays you can't rely on anyone") compared to the third item (0.01 std.

Table 3: Effect of Separation—Trust

	Outcome variable: preference measure (in std.)			
	(1)	(2)	(3)	(4)
Separation	-0.142***	-0.117***	-0.075**	-0.069**
	(0.031)	(0.031)	(0.030)	(0.030)
Female	-0.001	0.002	0.007	0.010
	(0.028)	(0.027)	(0.027)	(0.027)
M: deceased	-0.061	-0.033	-0.014	-0.022
	(0.197)	(0.202)	(0.209)	(0.216)
F: deceased	-0.156	-0.109	-0.087	-0.063
	(0.096)	(0.097)	(0.095)	(0.096)
Immigration background		-0.141***	-0.119***	-0.105***
		(0.035)	(0.034)	(0.034)
Siblings		0.134***	0.112**	0.109**
		(0.051)	(0.050)	(0.050)
Later-born		-0.038	-0.028	-0.026
		(0.030)	(0.030)	(0.030)
M: education		0.225***	0.125***	0.104***
		(0.038)	(0.038)	(0.038)
F: education		0.180***	0.085**	0.038
		(0.038)	(0.038)	(0.038)
M: age at birth		0.001	-0.002	-0.002
		(0.004)	(0.004)	(0.004)
F: age at birth		0.000	0.000	0.000
		(0.003)	(0.003)	(0.003)
M: trust			0.213***	0.161***
			(0.016)	(0.018)
F: trust				0.129***
				(0.018)
Obs.	5192	5192	5192	5192
Families	3848	3848	3848	3848

Note: SOEPv35i. Full analysis sample. OLS regressions with multiple imputation with chained equations for missing parents' trust (linear) and education (logit) using 20 imputed datasets. In addition, a maximum set of state dummies, survey year dummies, and a constant is controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

and non-significant; "If you are dealing with strangers, it is better to be careful before trusting them"). This suggests parental separation may matter more for generalized trust rather than trust specifically in strangers. Nevertheless, effects are all in the same direction.

In a next step, we return to both our risk and aggregate trust preference measures and investigate whether there are important heterogeneities in the effects. Even though we observe no effect on adolescents' risk preferences on average, the results could mask differences by child or family characteristics. Also for trust, effects could differ between groups. For example, sons

may cope differently with parental separation than daughters, and so may children who experience parental separation at different ages. Whether parents re-partner or not may also matter for children's preference development, with the step-parent potentially playing a significant new role in the children's life. Finally, effects could differ by parental preferences; for example, more trusting parents may be better able to compensate for the adverse consequences of family dissolution and thereby mitigate part of the loss in children's trust.

To investigate heterogeneities, we add an interaction term between parental separation and our moderator of interest. We present the results in Table 4. The estimates are based on our preferred model with the richest set of control variables, including preference measures for both parents. We continue to find no significant effect of parental separation on children's risk preferences even when we allow for heterogeneous effects. For trust, we find no significant heterogeneous effects by the child's gender, whether they grow up with a step-parent, or either parent's trust level. We do, however, find that each additional year of the child's age at separation mitigates the reduction in trust, such that the reduction is particularly strong (up to 0.13 std.) if parents separate when the child is very young.[8] We explore this finding in more detail next.

3.1.1 Results by Age at Separation

We now investigate differential effects by age at separation in more detail. In Table 4 we have only allowed for a linear term for age at separation (in years); however, effects may be nonlinear and vary across the child's developmental stages. The idea that there are particular critical periods for the formation of aspects of personality is widely recognized (Knudsen, 2004), and separation during such periods may have a more enduring effect. Indeed, Conzo and Salustri (2019) find that children aged 0-6 who were exposed to conflict during World War II had lower trust later in life, whereas children who were older did not (see also Kim and Lee, 2014; Bellucci et al., 2020). This may be a particularly formative time for trust, where parental separation has the greatest influence.

Therefore, we re-estimate equation (1), but use separate indicators for each age at parental separation (in full years) rather than the aggregate indicator for separation at any age. The

[8]It is worth highlighting that a significant interaction term with age adds weight to the argument that parental separation causally affects trust. As long as age at separation is stochastic, conditional on being a child of separation, then the interaction term can be treated as causal. This is similar to the strategy used by Chetty and Hendren (2018) to evaluate the effects of neighbourhoods on intergenerational mobility.

Table 4: Heterogeneous Effects of Separation

	Outcome variable: preference measure (in std.)			
	(1)	(2)	(3)	(4)
Panel A: Risk				
Separation	-0.024	-0.019	-0.009	-0.005
	(0.042)	(0.037)	(0.042)	(0.031)
Separation*Female	0.033			
	(0.058)			
Separation*Step-family		-0.115		
		(0.212)		
Separation*Age at separation			0.000	
			(0.005)	
M: Separation*risk				0.020
				(0.032)
F: Separation*risk				-0.044
				(0.036)
Panel B: Trust				
Separation	-0.062	-0.079**	-0.126***	-0.069**
	(0.042)	(0.036)	(0.042)	(0.030)
Separation*Female	-0.013			
	(0.057)			
Separation*Step-family		0.114		
		(0.227)		
Separation*Age at separation			0.009*	
			(0.005)	
M: Separation*trust				0.015
				(0.036)
F: Separation*trust				-0.017
				(0.037)
Obs.	5192	5192	5192	5192
Families	3848	3848	3848	3848

Note: SOEPv35i. Full analysis sample. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Column 3 also controls for step-family. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

resulting coefficients indicate the association of the child's preference with parental separation at a specific age relative to no parental separation and are displayed in panels (a) (risk) and (b) (trust) of Figure 3. With generally only around 100 children in our sample experiencing parental separation at each specific age, coefficients are naturally imprecisely estimated, as the 90% and 95% confidence intervals displayed show. Nonetheless, for trust they show a pattern

that is consistent with our previous findings: it is especially parental separation at younger ages (0 to 6) that is associated with a reduction in trust, whereas later separation (ages 11 to 17) has no negative bearing. These results complement the findings of Conzo and Salustri (2019). For risk, the pattern appears to be reversed, with only the later years (ages 12 to 14) revealing a potential consistent reduction in children's willingness to take risks—however, the volatile estimates and absence of any average effects do not let us draw any firm conclusions.

3.1.2 Selection on Observables vs. Sibling Fixed Effects

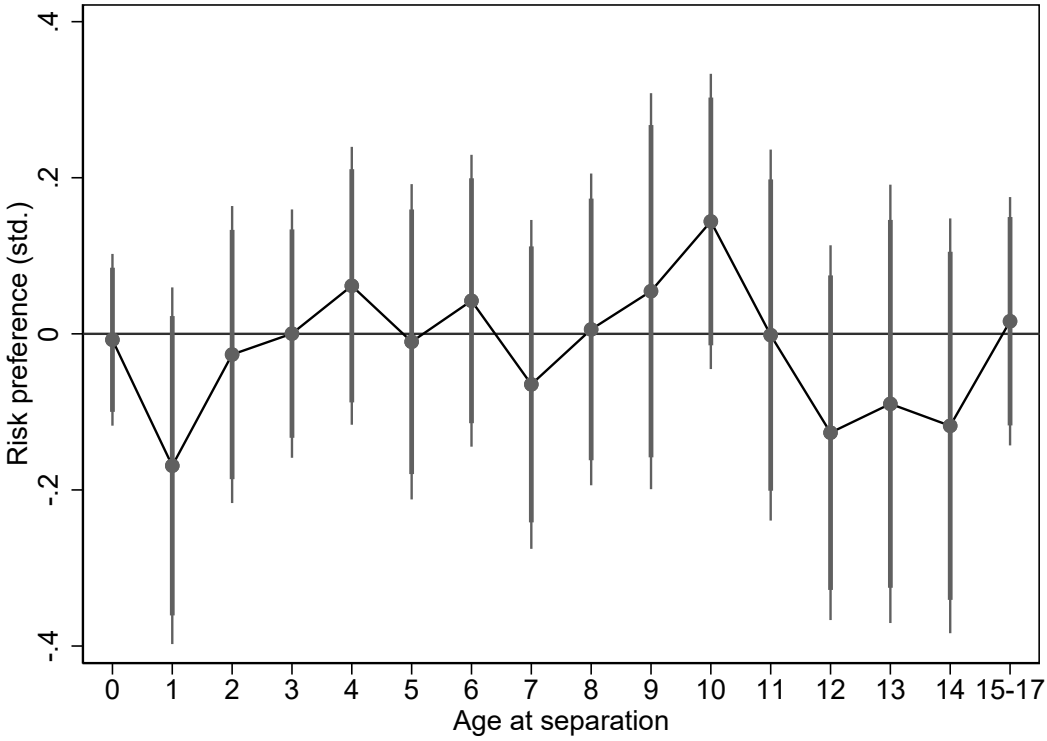
Given that we observe siblings in our dataset, we now consider the value of including sibling fixed effects in our estimation models. Sibling fixed effects would control for unobserved factors common across siblings, including shared genes and common elements of upbringing. They would also absorb parental preferences, which we observe, but potentially with error.

However, there are also important caveats to this approach. With sibling fixed effects, older siblings in families destined for separation are essentially controls for younger siblings who experience the separation before age 17. Variation therefore comes from this very narrow group. As Miller et al. (2021) discuss, the average treatment effect for this group may be quite different from the average treatment effect on all treated. A more practical concern is statistical power—we need a sufficiently large number of 'switchers' for our estimates to be precise. In our case there are only 190 individuals (from 79 families) with within-family variation in parental separation. This means a siblings fixed effects approach has low statistical power, particularly as preferences are likely measured with error. Because of these limitations, our selection on observables estimates in the previous section are our preferred estimates. However, we present estimates using sibling fixed effect in this section as a robustness exercise.

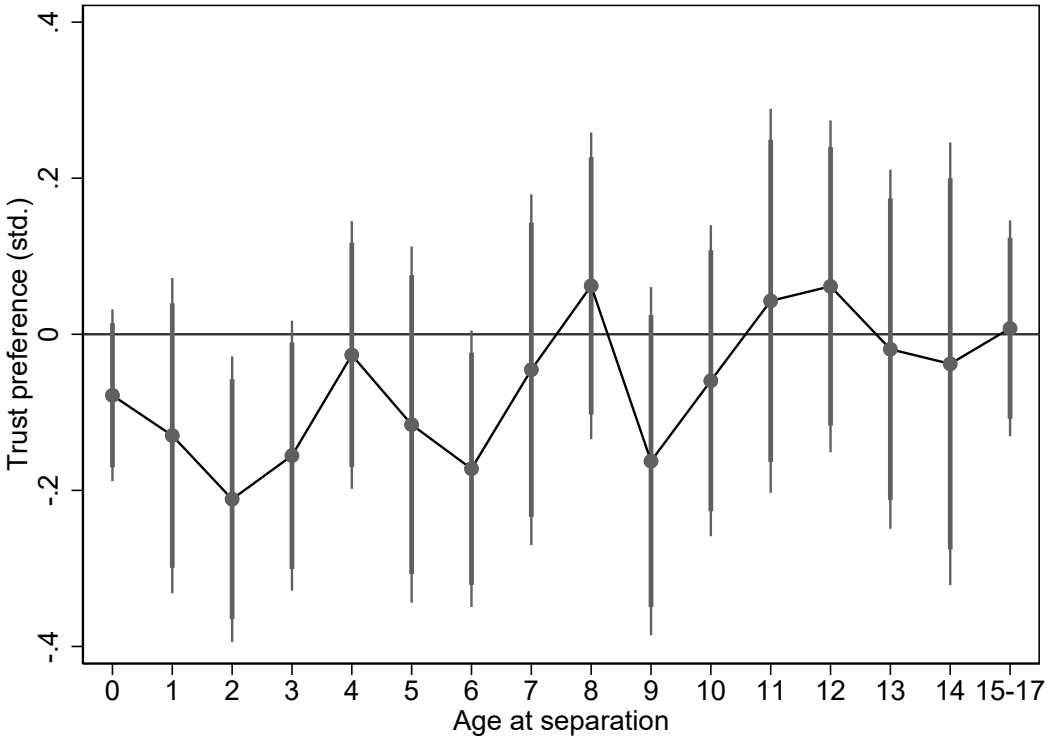
In columns 1-4 of Table 5 we show how our main estimates change with the inclusion of sibling fixed effects. We continue to find no significant effects for risk (the point estimates are large and in the direction of greater risk willingness, but are imprecisely estimated). For trust, we no longer find a significant negative effect—in fact, the point estimate is positive, but imprecisely estimated. As discussed above, rather than indicating omitted variable bias, these results could be due to heterogeneous treatment effects. To explore this, in columns 5-8 we restrict the sample to only include people with within-sibling variation in parental separation (columns 5-6) or in age at separation (columns 7-8). This time, the point estimates are similar

Figure 3: Effect of Separation by Age at Separation

(a) Risk



(b) Trust



Note: SOEPv35i. Full analysis sample. Based on OLS regressions with multiple imputation with chained equations for missing parents' risk (linear) and education (logit) using 20 imputed datasets. Displayed are coefficients of each age at separation dummy (reference category is no parental separation) together with 90% and 95% confidence intervals. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel (a): risk, panel (b): trust), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors are clustered at the family level.

whether we include sibling fixed effects or not, particularly for trust, where they all now have the same sign and similar magnitude. This is consistent with treatment effect heterogeneity and is also suggestive that, conditional on our other controls, omitted variable bias from unobserved factors constant across siblings is small. This adds weight to a causal interpretation for our estimates in the previous section.

Table 5: Sibling Fixed Effects

	Outcome variable: preference measure (in std.)							
	Full sample				Restricted sample			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Risk								
Separation	-0.008	0.156	-0.009	0.147	0.059	0.130	-0.048	0.100
	(0.031)	(0.154)	(0.042)	(0.192)	(0.172)	(0.160)	(0.143)	(0.202)
Separation*			0.000	0.001			0.007	0.008
Age at sep.			(0.005)	(0.014)			(0.010)	(0.015)
Panel B: Trust								
Separation	-0.069**	0.229	-0.126***	0.155	0.255	0.322*	0.110	0.148
	(0.030)	(0.152)	(0.042)	(0.187)	(0.178)	(0.176)	(0.137)	(0.192)
Separation*			0.009*	0.008			0.013	0.009
Age at sep.			(0.005)	(0.015)			(0.011)	(0.015)
Sibling FE	No	Yes	No	Yes	No	Yes	No	Yes
Obs.	5192	5192	5192	5192	190	190	625	625
Families	3848	3848	3848	3848	79	79	282	282

Note: SOEPv35i. Full analysis sample (columns 1-4), sample restricted to families with variation in separation (columns 5-6) and to families with variation in age at separation (columns 7-8). Columns 1, 3, 4, and 7: OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets; columns 2, 4, 6, 8: OLS regressions including sibling fixed effects. All estimations control for female, deceased mother, deceased father, later-born, mother's and father's age at birth, and a maximum set of survey year dummies and a constant. Additionally, estimations not including sibling fixed effects control for immigration background, siblings, mother's and father's education, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of state dummies. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

As an additional robustness exercise, we follow the approach suggested in Miller et al. (2021) to recover the average treatment effect for the full sample of adolescents by using the ratio of the propensity to be in the sample and the propensity to be in a 'switcher family' as group level weights in a sibling fixed effects regression (see Table A.6).[9] When we use this approach,

[9]An important assumption for this approach is that the heterogeneity is due to different responses to parental separation, rather than parental separation being a different experience for the switcher group than non-switchers. To construct the weights we use an extensive set of controls to enhance predictive power of the propensity score estimates: the average within the family of female, deceased mother, deceased father, immigration background, mother's and father's education, mother's and father's risk and trust preferences, mother's and father's non-German nationality, and mother's and father's religion, as well as the minimum age

our point estimate for trust is -0.11 std., which is fairly close to our baseline estimate of -0.07. Again, this is suggestive that, for trust, treatment effect heterogeneity, rather than omitted variables, explains why our estimates change with sibling fixed effects included (although we note the weighted estimates are very imprecise).

3.1.3 Persistence Into Early Adulthood

We have established that parental separation is associated with lower trust at age 17. Several studies show that trust increases with age (e.g., Robinson and Jackson, 2001; Alesina and La Ferrara, 2002; Li and Fung, 2012; Clark and Eisenstein, 2013), which could mean this gap shrinks over time if low-trust people 'catch up'. Moreover, the consequences for lower trust are also likely to evolve as people transition to adulthood and make more independent choices. It is therefore worthwhile knowing whether effects persist beyond adolescence.

To explore persistence, we exploit the panel character of the SOEP and use the children's most recent observations of risk and of trust that are available up until 2018 (the most recent year available). Their age at that point ranges between 18 and 29, with average age being 20.8 years. Even though children are thus not substantially older than at age 17, the few years difference marks an important period: children will have completed secondary schooling by that point and many will have moved out of the parental household.

We continue to find a significant reduction in trust of 0.08 std. in children of parental separation as they enter adulthood (see Table 6). Thus, the reduction in trust in adolescence following parental separation appears more than just a temporary deterioration.

3.2 Intergenerational Transmission of Preferences

We now turn to studying how parental separation may affect the intergenerational transmission of preferences. Preferences are known to be strongly linked between parents and their children (Dohmen et al., 2012; Alan et al., 2017) and this link appears to be partly due to parental involvement (Zumbuehl et al., 2021). Parental separation could thus affect the transmission of preferences due to the reduced time that one or both parents spend with their children given sole or shared custody arrangements.

at birth within the family for mother and for father, the minimum and the maximum survey year within the family, and a maximum set of dummies for the modal state where the three city states are included in their larger neighboring state.

Table 6: Effect of Separation into Early Adulthood

	Outcome variable: preference measure at oldest age available (between 18 and 29; in std.)			
	Risk		Trust	
	(1)	(2)	(3)	(4)
Separation	0.022	0.032	-0.078**	-0.095*
	(0.035)	(0.050)	(0.038)	(0.055)
Separation*Age at separation		-0.002		0.003
		(0.005)		(0.006)
Obs.	3991	3991	3065	3065
Families	3004	3004	2396	2396

Note: SOEPv35i. Sample in each estimation restricted to at least one adult observation available. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of age (at the early adulthood observation in years) dummies, state dummies, survey year dummies, and a constant are controlled for. Average age at early adulthood observation is 20.84 (risk) and 20.77 (trust). Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

We therefore investigate the dissimilarity between the parent's and the child's preferences, measured by the absolute difference between the parent's and the child's preference measures. We present results from regressing this dissimilarity as outcome on parental separation, separately for risk and trust and for mothers and fathers, in Table 7. Results continue to be based on our preferred specification that includes the full set of control variables; however, we no longer impute parental preferences. Instead, we restrict the sample to include only children whose respective parental preference measure is available to calculate the outcome. The sample sizes are therefore smaller in these analyses. This choice also introduces potential selectivity as observing parents' preferences—particularly those of non-resident fathers—could be linked to greater involvement in their children's life. However, greater involvement is likely to attenuate any potential dissimilarity effects, such that we expect to estimate lower bound effects.

For mothers we find that there is no effect of separation on their transmission of risk preferences. Their trust levels, however, are significantly more different from those of their children, when separated. For fathers we observe even stronger dissimilarity effects; fathers who separated from their children's mother have preferences that deviate significantly more from their children's preferences than do non-separated fathers. The effects are sizeable for both risk (0.10

Table 7: Absolute Differences Between Parent and Child Preferences

	Outcome variable: absolute difference (in std.)			
	Mother		Father	
	(1)	(2)	(3)	(4)
Panel A: Risk				
Separation	0.039	-0.003	0.103***	0.115**
	(0.032)	(0.044)	(0.039)	(0.059)
Separation*Age at separation		0.006		-0.002
		(0.005)		(0.006)
Obs.	5074	5074	4229	4229
Families	3738	3738	3027	3027
Panel B: Trust				
Separation	0.060*	0.023	0.073*	0.157**
	(0.034)	(0.046)	(0.042)	(0.068)
Separation*Age at separation		0.006		-0.012*
		(0.005)		(0.007)
Obs.	4786	4786	3932	3932
Families	3475	3475	2765	2765

Note: SOEPv35i. Sample in each estimation restricted to respective parental preference measure available without imputation to calculate the difference. OLS regressions with multiple imputation with chained equations for missing parents' education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

std.) and trust (0.07 std.).[10] Moreover, we find that particularly for trust, this effect diminishes with the child's age at separation. This finding implies that particularly children whose parents separated early on greatly differ in their trust preference from that of their fathers (up to 0.16 std.) and suggests that the extended period of the father's presence in the child's life may be a key driver of the intergenerational transmission of trust.

Overall, these results align with Zumbuehl et al. (2021) who find that the transmission of risk and trust attitudes is stronger the greater the parental involvement. More broadly, our findings emphasize the potentially important role of nurture beyond that of nature (genes) in the intergenerational transmission of preferences.

[10]In Table A.7 we present results for each trust item separately. Parental separation is associated with greater dissimilarity with fathers across all the items, though the age interaction is largest and only significant for the first item ("People can generally be trusted").

3.3 Potential Mechanisms

We find that parental separation is associated with a reduction in trust among adolescents as well as an attenuated transmission of both risk and trust attitudes from their fathers. These effects weaken the later in the children's life parental separation occurs. To investigate potential mechanisms, we make use of the rich SOEP data that is based on the tailored youth questionnaire. These data allow us to investigate how parental separation and age at separation affect the children's relationships with both their mother and their father, and each parent's involvement in their life. Specifically, we construct five variables based on the children's self-report and separately for each parent: (i) an indicator of whether the parent is absent in their life; (ii) a standardized measure of parental involvement following the approach by Zumbuehl et al. (2021) that is based on principal component analysis of an item battery of questions around parenting practices and their engagement with the child's school; (iii) the frequency of the parent giving the impression of trusting the child on a scale from 1 (never) to 5 (very often); (iv) the importance of the parent for the child on a scale from 1 (unimportant) to 4 (very important); and (v) the frequency of the child arguing or fighting with the parent on a scale from 1 (never) to 5 (very often). In addition, we investigate whether the parent, when separated and non-resident, living in the same city as the child varies with the child's age at parental separation.

We present the results in Table 8, separately for mothers (panel A) and fathers (panel B). We find strong associations of parental separation with almost all mechanisms for both parents. They are more likely to be absent from their children's life when separated; for fathers, the association weakens the later separation occurs. Both mothers and fathers are also significantly less involved in their children's life, show less trust towards their child, and are less important for the child according to the child's self-report. A key difference between the two parents is, however, the role that the child's age at separation plays for these outcomes. For fathers the reductions in involvement, showing trust, and importance are particularly driven by early separation whereas later separation offsets these effects. For mothers, in contrast, later separation is associated with larger effects for these measures. These opposite findings appear to suggest that parents whose children are older when separating are likely to share custody and time spent with the children more equally than are those whose children are younger at

Table 8: Mechanisms

	Absent		Involvement		Showing trust		Importance		Fights		Same city
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Panel A: Mother											
Separation	0.007***	0.007**	-0.145***	-0.055	-0.146***	-0.073*	-0.059***	-0.002	0.103***	0.113***	
	(0.002)	(0.003)	(0.032)	(0.046)	(0.029)	(0.041)	(0.016)	(0.021)	(0.030)	(0.041)	
Separation*		-0.000		-0.014***		-0.011**		-0.009***		-0.002	-0.002
Age at sep.		(0.000)		(0.005)		(0.005)		(0.003)		(0.005)	(0.009)
Obs.	5192	5192	5018	5018	5126	5126	5136	5136	5138	5138	202
Families	3848	3848	3759	3759	3809	3809	3812	3812	3814	3814	190
Panel B: Father											
Separation	0.058***	0.111***	-0.744***	-1.026***	-0.687***	-0.951***	-0.687***	-0.949***	-0.416***	-0.538***	
	(0.006)	(0.013)	(0.032)	(0.052)	(0.041)	(0.067)	(0.029)	(0.047)	(0.035)	(0.053)	
Separation*		-0.008***		0.043***		0.038***		0.039***		0.018***	0.019***
Age at sep.		(0.001)		(0.006)		(0.007)		(0.005)		(0.005)	(0.003)
Obs.	5192	5192	4886	4886	4832	4832	4949	4949	4869	4869	1429
Families	3848	3848	3664	3664	3579	3579	3662	3662	3604	3604	1210

Note: SOEPv35i. Full analysis sample, restricted to outcome measure available. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's risk and trust preferences (in both panels), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

separation. As a result, mothers get to spend less and fathers more time with their children than they would otherwise have if separating when the child was younger, in which case mothers often are the sole custodian. Similarly, results on the frequency of the child fighting with each parent also point in opposite directions for mothers and fathers; while separation is associated with an increased frequency of fighting with the mother, it is associated with a decrease in the frequency of fighting with the father. A potential explanation could be the lower presence of the father in the child's daily life and with it the reduced opportunities for situations of conflict to arise. In line with this explanation, we also observe that the frequency of fights with the father rises, the later in the child's separation occurs—and, as suggested by the other findings, the more involved fathers remain. Finally, we observe an increase in the likelihood of the (non-resident) father living in the same city with every year of the child's age at separation.

Taken together, these results emphasize that the child's relationship with both parents is likely to suffer following parental separation. It is not only that the relationship with the (often non-resident) father deteriorates but also the relationship with the (often resident) mother, compared to children whose parents did not separate. Importantly, all these findings are conditional on both parents' risk and trust preferences, such that it is not lower maternal trust, for example, that is driving the less trusting or more conflicting relationship with the child. The reduced trust levels in children whose parents are separated may thus stem from lower parental involvement and a less trusting relationship between the child and both parents when parents are separated. At the same time, the later in life children experience parental separation, the better, in most cases, their relationship with their father remains. This finding may explain why later separation mitigates the reduction in trust.

A key difference between mothers and fathers is, however, that effects are substantially larger in magnitude for fathers than for mothers across all mechanisms considered. Overall, these results thus suggest that the child's relationship with the father is more strongly affected by separation than is the relationship with the mother. This is unsurprising as most children of separated parents live with their mothers. However, the later in their children's life parents separate, the less the relationship with the father suffers. These findings help to explain the lower intergenerational transmission of preferences that we find for fathers when separated, which attenuates the later in the child's life separation occurs. They also re-emphasize the im-

portance of parental involvement for the transmission of preferences, consistent with Zumbuehl et al. (2021).

4 Conclusion

We find that parental separation is associated with lower trust (but not risk aversion) in adolescence and early adulthood. The reduction in trust is strongest when parental separation occurs between the ages of 0-6, which supports arguments that this is a critical period for the formation of trust, where disruptive events might be particularly influential (Conzo and Salustri, 2019).

Our findings are important given the extensive empirical evidence linking trust to socio-economic outcomes (Ho, 2021), and the fact that parental separation is common. The strong intergenerational transmission of trust (e.g., Dohmen et al., 2012; Alan et al., 2017) also implies that adverse effects may extend beyond a single generation. Nevertheless, there are important caveats to consider. First, while we have argued that our estimation approach deals with many potential threats to exogeneity (in particular by controlling for parental preferences), we cannot completely rule out that our estimates are driven by omitted factors. Second, our estimates speak to the average effects—we recognize that separation, and the counterfactual family situation to separation, will differ greatly across households. While we are able to rule out heterogeneous effects by gender and family structure, there are likely other drivers of heterogeneity we have not identified.

Our second major finding is that parental separation disrupts the transmission of preferences (both risk aversion and trust) between parent and child, particularly paternal transmission, such that parents are more dissimilar to their children. This suggests that parents do influence their children's preferences beyond genes, but the ability to shape preferences appears to depend on the quality and quantity of parent/child interactions. Again, the effects are stronger if the separation occurs at a younger age.

What do our results imply for parenting and policy? We argue that lower trust is a possible risk factor associated with parental separation, especially for young children. Parents, and other prominent people in the lives of children, should be mindful of this, and take actions to foster trust following a separation. The results in Zumbuehl et al. (2021) imply that one

way parents can influence their children's trust is by having strong involvement and maintaining good relationships with their child—a finding supported by our analysis of mechanisms. Another benefit to this is that it may reduce dissimilarity in preferences between parents and children. We do not know the cost of this dissimilarity, but there is evidence that people select romantic partners on the basis of economic preferences (Bacon et al., 2014), which suggests a revealed preference for similarity in close relationships. Moreover, heterogeneity in risk preferences predicts greater instability within marriages (Serra-Garcia, 2021). Dissimilarity may therefore be harmful to the relationships between parents and their children.

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Appendix

Table A.1: Variable Descriptions

Variable	Description
Parental Separation	
Separation	=1 if not having lived with both (biological) parents for the full first 15 years of life or if currently living with only one parent (unless one parent deceased prior to or at calculated age at separation) and where adoptive count as biological parents; 0 otherwise
Age at separation	=Number of years having lived with both (biological) parents (only defined for children of separation)
Preference Measures	
Risk	Standardized (separately by gender) measure of answer to question "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?" answered on scale from 0 (risk averse) to 10 (fully prepared to take risks)
Trust	Standardized (separately by gender) measure of average calculated across three items surveying to what degree respondent agrees with "People can generally be trusted", "Nowadays you can't rely on anyone" (reversed), and "If you are dealing with strangers, it is better to be careful before trusting them" (reversed) answered on scale from 1 (disagree completely) to 7 (agree completely)
Mother: risk	Based on same survey question as above, but average of age-gender-specific standardized measure is taken across all available years and standardized again
Father: risk	Same as for mother
Mother: trust	Based on same survey questions as above (answered on reversed scale from 1 to 4), but average of age-gender-specific standardized measure is taken across all available years and standardized again
Father: trust	Same as for mother
Risk in early adulthood	Based on same survey question as above, but taking observation at oldest age (between 18 and 29) available in adult questionnaire and standardized
Trust in early adulthood	Based on same survey questions as above (answered on reversed scale from 1 to 4), but taking observation at oldest age (between 18 and 29) available in adult questionnaire and standardized
Abs. diff. in risk to mother	Standardized measure of absolute difference between mother's and child's risk preference
Abs. diff. in risk to father	Standardized measure of absolute difference between father's and child's risk preference
Abs. diff. in trust to mother	Standardized measure of absolute difference between mother's and child's trust preference

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Abs. diff. in trust to father	Standardized measure of absolute difference between father's and child's trust preference
Demographics	
Survey year	Survey year of interview (corresponds to calendar year of turning 17 years old); enters estimations through fixed effects
State of residence	Current state of residence; enters estimations through fixed effects
Female	=1 if female; 0 otherwise
Mother: deceased	=1 if mother deceased; 0 otherwise
Father: deceased	=1 if father deceased; 0 otherwise
Immigration background	=1 if direct or indirect immigration background; 0 otherwise
Siblings	=1 if has one or more siblings; 0 otherwise
Later-born	=1 if has one or more older siblings; 0 otherwise
Mother: education	=1 if mother has obtained upper secondary degree; 0 otherwise
Father: education	=1 if father has obtained upper secondary degree; 0 otherwise
Mother: age at birth	Mother's age at the child's birth (in full years)
Father: age at birth	Father's age at the child's birth (in full years)
Mechanisms	
Absent mother	=1 if answers to questions about importance of mother with "No such person in my life"; 0 otherwise
Mother's involvement	Standardized measure obtained via principal component analysis of questions surveying whether parents care about educational achievement, attend parent evenings at school, see teachers in or outside of office hours, mother helps with homework, and frequency of mother talking with child about experiences and worries, asking for child's opinion before decisions, showing appreciation, solving problems together, asking opinion on family matters, and explaining her decisions; input variables have minimum value when mother is absent
Mother showing trust	Frequency of mother giving the impression that she really trusts the child on scale from 1 (never) to 5 (very often)
Importance of mother	Importance of mother on scale from 1 (unimportant) to 4 (very important)
Fights with mother	Frequency of arguing or fighting with mother on scale from 1 (never) to 5 (very often)
Absent father	=1 if answers to questions about importance of father with "No such person in my life"; 0 otherwise
Father's involvement	Standardized measure obtained via principal component analysis of questions surveying whether parents care about educational achievement, attend parent evenings at school, see teachers in or outside of office hours, father helps with homework, and frequency of father talking with child about experiences and worries, asking for child's opinion before making decisions, showing appreciation, solving problems together, asking opinion on family matters, and explaining his decisions; input variables have minimum value when father is absent

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Father showing trust	Frequency of father giving the impression that he really trusts the child on scale from 1 (never) to 5 (very often)
Importance of father	Importance of father on scale from 1 (unimportant) to 4 (very important)
Fights with father	Frequency of arguing or fighting with father on scale from 1 (never) to 5 (very often)
Step-family	=1 if having lived with either mother and her partner or father and his partner at any time in the first 15 years of life; 0 otherwise
Characteristics for Children of Separation	
Lives only with mother	=1 if currently living only with mother; 0 otherwise
Lives only with father	=1 if currently living only with father; 0 otherwise
Mother: lives in same city	=1 if mother lives in same city; 0 otherwise. Missing if currently living with mother
Father: lives in same city	=1 if father lives in same city; 0 otherwise. Missing if currently living with father

Note: SOEPv35i. Main source: youth questionnaires (years 2006-2018); supplemented by parental preferences (years 2003-2018).

Table A.2: Summary Statistics by Parental Separation

	Non-separation		Separation		Difference
	Mean (1)	Obs. (2)	Mean (3)	Obs. (4)	p-value (5)
Preference Measures					
Risk	-0.016	3369	0.029	1823	0.129
Trust	0.052	3369	-0.095	1823	0.000
Mother: risk	-0.098	3331	0.187	1743	0.000
Father: risk	-0.041	3218	0.131	1011	0.000
Mother: trust	0.088	3151	-0.169	1635	0.000
Father: trust	0.051	3025	-0.171	907	0.000
Absolute difference in risk to mother	-0.011	3331	0.021	1743	0.286
Absolute difference in risk to father	-0.020	3218	0.064	1011	0.020
Absolute difference in trust to mother	-0.025	3151	0.048	1635	0.017
Absolute difference in trust to father	-0.021	3025	0.070	907	0.016
Demographics					
Female	0.494	3369	0.500	1823	0.662
Mother: deceased	0.008	3369	0.005	1823	0.202
Father: deceased	0.027	3369	0.026	1823	0.885
Immigration background	0.272	3369	0.230	1823	0.001
Siblings	0.934	3369	0.848	1823	0.000
Later-born	0.517	3369	0.386	1823	0.000
Mother: education	0.287	3326	0.248	1801	0.003
Father: education	0.305	3254	0.237	1678	0.000
Mother: age at birth	29.023	3369	28.213	1823	0.000
Father: age at birth	32.056	3369	31.058	1823	0.000
Mechanisms					
Absent mother	0.007	3369	0.010	1823	0.260
Mother's involvement	0.042	3253	-0.077	1765	0.000
Mother showing trust	4.269	3326	4.137	1800	0.000
Importance of mother	3.783	3338	3.739	1798	0.002
Fights with mother	2.708	3339	2.829	1799	0.000
Absent father	0.021	3369	0.083	1823	0.000
Father's involvement	0.257	3242	-0.507	1644	0.000
Father showing trust	4.080	3269	3.354	1563	0.000
Importance of father	3.682	3287	2.992	1662	0.000
Fights with father	2.615	3284	2.217	1585	0.000
Step-family	0.007	3369	0.384	1823	0.000
Characteristics for Children of Separation					
Age at separation			6.315	1823	0.000
Lives only with mother			0.816	1823	0.000
Lives only with father			0.100	1823	0.000
Mother: lives in same city			0.475	202	0.000
Father: lives in same city			0.416	1429	0.000

Note: SOEPv35i. Full analysis sample. Mean and number of observations displayed by parental separation (columns 1-4), together with p-value corresponding to two-sided t-test for equality of means (column 5). When not available, variables are missing and not imputed.

Table A.3: Sensitivity Analyses—Excluding Age at Separation Equal to Zero

	Outcome variable: preference measure (in std.)			
	Risk		Trust	
	(1)	(2)	(3)	(4)
Separation	-0.011	-0.019	-0.067**	-0.169***
	(0.033)	(0.057)	(0.032)	(0.055)
Separation*Age at separation		0.001		0.013**
		(0.006)		(0.006)
Obs.	4846	4846	4846	4846
Families	3563	3563	3563	3563

Note: SOEPv35i. Sample excludes children with age at separation equal to zero. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

Table A.4: Sensitivity Analyses—Delta Adjustments for Father's Preference Measures when Imputed

	Outcome variable: preference measure (in std.)											
	-0.5		-0.3		-0.1		+0.1		+0.3		+0.5	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Risk												
Sep.	0.014	0.017	0.005	0.007	-0.003	-0.004	-0.012	-0.014	-0.020	-0.024	-0.028	-0.033
	(0.031)	(0.042)	(0.031)	(0.042)	(0.031)	(0.042)	(0.031)	(0.042)	(0.031)	(0.042)	(0.031)	(0.042)
Sep.*		-0.000		-0.000		0.000		0.000		0.001		0.001
Age at sep.		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)
Panel B: Trust												
Sep.	-0.044	-0.098**	-0.054*	-0.109***	-0.064**	-0.120***	-0.074**	-0.131***	-0.083***	-0.142***	-0.092***	-0.152***
	(0.030)	(0.042)	(0.030)	(0.042)	(0.030)	(0.042)	(0.030)	(0.042)	(0.030)	(0.042)	(0.030)	(0.042)
Sep.*		0.008*		0.009*		0.009*		0.009*		0.009**		0.009**
Age at sep.		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)		(0.005)
Obs.	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192	5192
Families	3848	3848	3848	3848	3848	3848	3848	3848	3848	3848	3848	3848

Note: SOEPv35i. Full analysis sample. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. Columns indicate varying absolute shifts to father's respective preference (panel A: risk, panel B: trust) when imputed. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preference (panel A: risk, panel B: trust), and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01.

Table A.5: Effect of Separation—Individual Trust Items

	Outcome variable: individual trust item (in std.)					
	Trust item 1		Trust item 2		Trust item 3	
	(1)	(2)	(3)	(4)	(5)	(6)
Separation	-0.092***	-0.135***	-0.069**	-0.099**	-0.011	-0.065
	(0.031)	(0.044)	(0.031)	(0.044)	(0.030)	(0.042)
Separation*		0.007		0.005		0.008*
Age at separation		(0.005)		(0.005)		(0.005)
Obs.	5192	5192	5192	5192	5192	5192
Families	3848	3848	3848	3848	3848	3848

Note: SOEPv35i. Full analysis sample. OLS regressions with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective trust item, and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01. Trust items are: (1) "People can generally be trusted"; (2) "Nowadays you can't rely on anyone" (reversed); and (3) "If you are dealing with strangers, it is better to be careful before trusting them" (reversed).

Table A.6: Sibling Fixed Effects based on Miller et al. (2021)

	Outcome variable: preference measure (in std.)			
	Risk		Trust	
	(1)	(2)	(3)	(4)
Separation	-0.008	0.313	-0.069**	-0.109
	(0.031)	(0.210)	(0.030)	(0.256)
Sibling FE	No	Yes	No	Yes
Obs.	5192	5192 (190)	5192	5192 (190)
Families	3848	3848 (79)	3848	3848 (79)

Note: SOEPv35i. Full analysis sample; number of observations/families that identifies sibling fixed effects is given in parentheses. OLS regressions without (columns 1 and 3) and with sibling fixed effects based on Miller et al. (2021) (columns 2 and 4) with multiple imputation with chained equations for missing parents' risk and trust (linear) and education (logit) using 20 imputed datasets. Estimations in columns 1 and 3 control for female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective preferences (column 1: risk, column 3: trust), and a maximum set of state dummies, survey year dummies, and a constant. Sibling fixed effects estimations based on Miller et al. (2021) in columns 2 and 4 require control variables that are constant within family; hence, estimations control for the average within the family of female, deceased mother, deceased father, immigration background, mother's and father's education, mother's and father's risk and trust preferences, mother's and father's non-German nationality, and mother's and father's religion, as well as the minimum age at birth within the family for mother and for father, the minimum and the maximum survey year within the family, a maximum set of dummies for the modal state where the three city states are included in their larger neighboring state, and a constant. These variables are used to estimate (via logit regression) the family-level propensity to be in the 'switcher' group (i.e., have within-variation in separation). The ratio between the propensity to be in the sample (=1 for everyone) and this propensity is used to construct weights used in a standard sibling fixed effects regression (with no other controls) to recover an estimated average treatment effect for the sample. See Miller et al. (2021) Section 4.2 for further details. Standard errors, reported in parentheses, are clustered at the family level. Standard errors for the estimates including sibling fixed effects do not take into account estimation of the weights so may be downward biased. *p<0.1, **p<0.05, ***p<0.01.

Table A.7: Absolute Differences Between Parent and Child Preferences—Individual Trust Items

	Outcome variable: absolute difference (in std.)					
	Trust item 1		Trust item 2		Trust item 3	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Mother						
Separation	0.008	0.043	0.054	0.004	0.057*	0.053
	(0.033)	(0.047)	(0.034)	(0.048)	(0.032)	(0.045)
Separation*		-0.005		0.008		0.001
Age at separation		(0.005)		(0.005)		(0.005)
Obs.	4795	4795	4794	4794	4794	4794
Families	3481	3481	3480	3480	3481	3481
Panel B: Father						
Separation	0.055	0.167**	0.100**	0.157**	0.081**	0.112*
	(0.041)	(0.068)	(0.043)	(0.069)	(0.040)	(0.063)
Separation*		-0.016**		-0.008		-0.004
Age at separation		(0.006)		(0.007)		(0.007)
Obs.	3934	3934	3939	3939	3940	3940
Families	2767	2767	2769	2769	2770	2770

Note: SOEPv35i. Sample in each estimation restricted to respective parental preference measure available without imputation to calculate the difference. OLS regressions with multiple imputation with chained equations for missing parents' education (logit) using 20 imputed datasets. In addition, female, deceased mother, deceased father, immigration background, siblings, later-born, mother's and father's education, mother's and father's age at birth, mother's and father's respective trust item, and a maximum set of state dummies, survey year dummies, and a constant are controlled for. Standard errors, reported in parentheses, are clustered at the family level. *p<0.1, **p<0.05, ***p<0.01. Trust items are: (1) "People can generally be trusted"; (2) "Nowadays you can't rely on anyone" (reversed); and (3) "If you are dealing with strangers, it is better to be careful before trusting them" (reversed).