Intergenerational Transmission of Financial Distress; The Role of Nature versus Nurture

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Abstract

Motivated by stagnating social mobility in Western countries we ask whether and why children with parents in financial distress are more likely to be worse off themselves. In particular, we explore selection and causation as the leading explanations for any intergenerational persistence of problematic debt. Employing a unique dataset on financial distress and adoption, we disentangle genetic predispositions from environmental influences by analyzing adopted children's outcomes relative to both their biological and adoptive parents. Our findings suggest that nurture—measured by the environment provided by adoptive parents—is 3 times more significant than nature in explaining the persistence of financial distress across generations. This is mainly driven by a transmission of financial behavior. This research contributes to understanding the causal effects of parental financial hardship, highlighting the role of environmental factors in the transmission of financial challenges, and informs policies aimed at minimizing intergenerational debt transmission through, for example, targeted debt relief programs.

JEL classifications: D14, J01, J13, J62
Keywords: Financial Distress, Intergenerational Transmission, Nature versus nurture

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1 Introduction

The global rise in wealth inequality (Piketty, 2014; Zucman, 2019) has directed much attention to the question whether wealth inequality in one generation is transmitted to the next one. And indeed, recent empirical studies on the intergenerational transmission of wealth taken from a variety of western countries find sizable positive associations between the wealth of parents and children (Charles and Hurst, 2003; Boserup et al., 2013; Black et al., 2019; Fagereng et al., 2021). Although debt, which is part of wealth, probably plays a key role in how wealth inequality is transmitted from parents to children, particularly when parents in financial distress cannot repay their debt and eventually go bankrupt (Fay et al., 2002), economists to date have paid little attention to the intergenerational transmission of unsustainable debt and the determinants thereof.[1]

In this study, we ask whether and why children with parents in financial distress are more likely to be worse off themselves. In particular, we explore selection and causation as likely explanations for the intergenerational persistence of financial distress. Selection occurs whenever parents in debt have certain heritable characteristics (extremely impatience, endlesly gullible, financial illiterate) that make them more prone to debt. With debt prone parents having debt prone children, we likely find a strong correlation in debt across generations, even if there is no real effect of parental debt on child outcomes. And causation is at work whenever parental debt actually changes the outcomes of children. We can think of several mechanisms that can generate a causal link running from parental debt to child debt, including inter vivos transfers from children to parents in debt, children inheriting their parents' debt, foregone parental investments that impede the children's human capital accumulation and wealth development, indebt parents as poor role models, or poor decision making of parents, children, or both due to financial distress.

Answers to questions about how financial distress transfers between generations are important to researchers and policy makers alike. Researchers know little, if anything,

[1] Parents in financial distress are considered parents with unsustainable debt levels. Throughout the rest of the paper, we will use financial distress and unsustainable debt interchangeably.

about the causal consequences of parental debt on child outcomes. There are –we think– good reasons for this. Data on unsustainable debt covering multiple generations are mostly unavailable. And distinguishing the causal effect of parental debt (in families at the bottom of the wealth distribution) from the selection effect is empirically very challenging. Also policy makers want to know, as appropriate policies to tackle the intergenerational persistence of wealth, and the intergenerational persistence of unsustainable debt in particular, relies on a deeper understanding of its causes. If it is causation, for instance, debt relief and/or debt reconstruction programs, once effective, may not only help indebted parents recover from their financial distress but also improve the outcomes of their children.

Our empirical strategy relies on a unique administrative data set, which we constructed by linking records on unsustainable debt levels taken from the Swedish Enforcement Agency (SEA) to Swedish adoptees with information on their biological and adoptive parents. We take the adoption design originally developed by Björklund et al. (2006) as our starting point and exploit adoptees to sort out pre- and post-birth influences in the intergenerational transmission of financial distress in two ways. First, we identify pre-birth factors as possible selection channels by linking the unsustainable debt outcomes of adoptees to those of their biological parents. And second, we identify post-birth factors as the causal channel from being raised by parents with financial distress versus parents without financial distress by linking the unsustainable debt outcomes of adoptees to those of their adoptive parents. If assignment of adoptees to adoptive parents is conditionally random, any relationship between the debt outcomes of adoptees and their biological parents can only be driven by parents either passing on their genes (or affecting their children's prenatal environment), and similarly, any relationship between the debt outcomes of adoptees and their adoptive parents can only be driven by the influence parents have on their children's environment.[2] It is important to keep in mind

[2] Comparable adoption designs exploiting the information of biological and adoptive parents have been used to estimate the relative influence of nature and nurture in the intergenerational mobility of education, earnings, income, voting behavior, entrepreneurial activities, health, crime, risk-taking in financial markets, and wealth accumulation (Björklund et al., 2006; Cesarini et al., 2014; Lindquist et al., 2015; Lindahl et al., 2016; Hjalmarsson and Lindquist, 2013; Black et al., 2018, 2020).

that prospective adoptive parents are assessed on the basis of formal criteria (regarding background, age, marital stability, income et cetera) and in-depth interviews (regarding personal history and family relationships) before they are considered qualified to adopt. This implies that the parents in our adoption sample were almost surely adoptive parents without financial distress at the time of adoption. With unforeseen and possibly random shocks in parental debt, the causal effect of being assigned to parents with debt may actually reflect the causal influence of parental debt itself.

While our focus in this study is on unsustainable debt, we recognize that not all debt is bad. Student loans, for example, allow students to access college. Also, mortgage loans and mortgage debt enable most families to buy a house. In our heterogeneity analysis, we allow the effect of parental debt on child outcomes to vary across families with different backgrounds. In particular, we will (try to) distinguish indebted families with and without financial distress and test Becker's prediction that the adverse effects of parental debt are particularly strong in the case of unsustainable debt (Becker and Tomes, 1979, 1986).

To preview our main results, we find that both pre- and post-birth factors matter for the intergenerational transmission of unsustainable debt. In assessing the relative importance of pre- and post-birth factors, we show that most of the intergenerational transmission of unsustainable debt can be attributed to post-birth factors, and more specifically, a transmission of financial behavior.

This study connects three related fields of the literature. The first literature estimates the intergenerational mobility of education, income, risk-taking and wealth using samples of adoptees to account for heritable selection effects.[3] All these studies find that adoptees with more educated, richer, risk loving, and wealthier parents are also more educated, richer, riskier, and wealthier themselves. With education, income and risk attitudes as standard mediators in models of wealth accumulation, we believe that family debt acts as an essential but overlooked intergenerational mediator, which plays a key role in

[3] There are several adoption studies on the intergenerational mobility of skills, education and income (Dearden et al., 1997; Sacerdote, 2002, 2007; Plug and Vijverberg, 2003, 2005; Plug, 2004; Björklund et al., 2006; Holmlund et al., 2011), the intergenerational mobility of risk-taking (Black et al., 2018), and the intergenerational mobility of wealth (Black et al., 2020; Fagereng et al., 2021).

determining the debt outcomes (and some of its mediators) for children. If families in debt fail to invest in their children's education, for instance, we should find that most adoptees with parents in debt are worse off themselves (that is, being less educated, poor, in debt, and as a result less wealthy).

The second literature focuses on the causal effects of income and wealth on child outcomes. While comparable in focus, the related studies we refer to exploit very different sources of exogenous variation in parental income and wealth.[4] These studies typically find that positive and sizable parental income and wealth shocks make children raised in poor families better off. However, they find little for children raised in richer and wealthier families. What this project contributes is our evaluation of a debt reconstruction program that intends to help indebted parents at risk of bankruptcy become solvent and how that impacts the development of their children.

The last literature to which we connect evaluates the effectiveness of debt relief programs among consumers who filed for bankruptcy. Dobbie and Song (2015) exploit the random assignment of consumer bankruptcy filings to judges. Using differences in judge leniency in granting bankruptcy protection, Dobbie and Song find that untreated consumers do significantly worse than treated consumers in terms of earnings, mortality risks, and home foreclosure rates. Our project clearly adds to this small literature. With our intergenerational perspective, we explore whether the parent's participation in debt relief programs affects their children's participation in debt relief programs.

The rest of the paper unfolds as follows. In Section 2 we discuss how the SEA records and handles unpaid debts. In Sections 3 and 4 we describe the administrative data and empirical strategy we use. In Sections 5 and 6 we present descriptives and main results. In Section 7 we focus on debt relief programs, and explore how measurable post-birth factors (such as consumption, divorce, unemployment, and health) affect the intergenerational transmission of financial distress. In Section 8 we end with a few concluding remarks.

[4] Some studies evaluate experimental welfare and conditional cash transfer programs. Examples of studies of each include Duncan et al. (2011); Fernald et al. (2008). Other studies make use of natural experiments to isolate exogenous changes in income and wealth, ranging from changes in welfare policies, changes in child benefit levels, parental job displacements, inheritance, large lottery winnings, and regional changes in booms and busts. Again, example studies of each include Dahl and Lochner (2012); Black et al. (2014); Hilger (2016); Cesarini et al. (2016); Adermon et al. (2018); Løken (2010).

2 Institutional Setting

2.1 Debt Collection in Sweden

Sweden's approach to managing citizen debt obligations is fairly unique, with a dedicated state authority, the Swedish Enforcement Authority (SEA), responsible for collecting all unpaid dues. This contrasts with many other countries where creditors must rely on the general court system or local authorities to recover debts. Sweden's system is also relatively stringent on debtors. Although Sweden offers a debt restructuring process, the qualification criteria are more rigorous compared to many other countries. In contrast, the United States has one of the most lenient bankruptcy systems, offering structured options such as Chapter 7 or Chapter 13. Additionally, certain US states have non-recourse laws, which prevent lenders from pursuing borrowers for remaining balances if the proceeds from selling a defaulted mortgage do not cover the outstanding debt.

The SEA employs several methods to enforce repayment, with foreclosure and wage garnishments being the most common. In wage garnishment cases, the SEA negotiates with the debtor's employer to deduct a portion of their wages for direct payment to the authority. If the debtor has no wage income, foreclosure is implemented, where the SEA seizes all assets except those necessary to maintain a minimum standard of living. Individuals facing long-term debt problems can apply for debt restructuring, which involves entering a five-year repayment plan while living at a minimum level of existence.

People struggling with finances do not immediately find themselves in the SEA. Initially, when a bill remains unpaid, creditors typically engage a collection agency. Although these agencies cannot enforce payment, they can issue reminders that include additional fees. If the debtor does not pay, the debt can be forwarded to the SEA.

If the debtor pays immediately after receiving the SEA claim, no further action is taken. However, if the debtor does not pay, the SEA enforces debt collection, which usually results in a negative credit rating from credit reporting agencies. Negative credit records can significantly impact an individual's ability to access financial services, such

as obtaining loans, signing rental agreements, securing phone and internet contracts, and even employment opportunities.

The SEA handles a variety of unpaid debts, including bills, housing rents, tax debts, and parking tickets, processing more than a million claims annually involving approximately 400,000 individuals. In 2019, only 20% of the claims were from unpaid loans from financial institutions, but these represented 40% of the total debt amount.

Debtors are responsible for the costs associated with the application process, including a small fixed fee for claim verification and an annual fixed fee for ongoing debt collection. In 2024, these fees amounted to 900 SEK (US$90). Among all the cases handled by the SEA, 40% are immediately settled by the debtor without further action, 50% remain unpaid and are registered for debt collection, and 10% are either directly rejected by the SEA or contested in court.

2.2 The Adoption System

The adoption system studied includes children born between 1950 and 1980, a period during which private adoptions were prohibited and all adoptions were monitored and processed by the state. The state collected data on biological and adoptive parents, although in many cases only the biological mother was identified. Typically, 80% of adoptees were placed with adoptive families within their first year of life. Before legal adoption, children were initially placed in nursery homes and then moved to their prospective adoptive families, usually within six months after birth. The legal adoption process was typically completed when the child was about one year old.[5]

As described in Black et al. (2017), the biological parents of adopted children were often unmarried or divorced women who lacked the financial means to care for a child or experienced the social stigma associated with having a child out of wedlock. To qualify as adoptive parents, couples were required to meet specific criteria: they had to be married, at least 25 years old, have adequate housing, and be free of serious illnesses such as tuberculosis or sexually transmitted diseases. The adoptive father needed a stable

[5] See Björklund et al. (2006) and Lindquist et al. (2015) for further details.

income, while the adoptive mother was expected to stay home with the child for a certain period.

Adoptees were subjected to a health examination prior to adoption, and children with visible disabilities, serious health issues, or whose biological parents had severe mental illness, alcoholism, or criminal backgrounds were often not placed with adoptive families. This process resulted in adoptees being generally a positively selected group, despite coming from biological mothers of relatively lower socioeconomic status. Studies show that by age 10, adoptees were similar in health and birth weight to non-adopted children.

Social workers were responsible for matching children with adoptive families. However, evidence from the period suggests that systematic matching based on family and child characteristics was not feasible. Despite this, the process resulted in adopted children being observably similar to non-adopted children on many metrics, a reflection of the state's rigorous selection criteria for adoptive families.

3 Data

To investigate intergenerational transmission of financial distress, we utilize comprehensive administrative data from Sweden. Our primary data sources include records from the Swedish Enforcement Authority (SEA) and Statistics Sweden.

Financial distress is identified using SEA's population-wide dataset, which provides various indicators of financial difficulties, including claims for unpaid debts, decisions on debt collection and debt reconstruction events. The data set contains details on the registration date and the status of each claim between 1999 and 2021. A registered claim indicates that a creditor has initiated a formal process through SEA to recover unpaid debt. We compile this data at the individual-year level to calculate the total number of claims per person.

The main outcome we study is a binary variable that indicates whether an individual was debt collected at least once during our period of study. Additionally, the data allow us to differentiate between claims related to government debt, such as unpaid taxes, and

those related to private debt, including consumption loans or credit card balances.

We identify adoptions through the Multi-Generation Register, with information on all links between children and parents, both adoptive and biological.

These data are further enhanced by linking them to individual-level socioeconomic information from the Longitudinal Integration Database for Labor Market Studies (LISA), which covers the period 1990 to 2020. LISA includes detailed information on household structure and all sources of individual and household income, as well as characteristics such as age, education, and gender. We will focus on disposable income, which represents the sum of all income, both taxable and tax-exempt, after accounting for taxes and other deductions. Taxable income includes earnings and capital income, while taxable transfers consist of social benefits such as pensions and sickness compensation. Non-taxable transfers include child benefits and housing allowances. Disposable income is measured both at the individual and at the household level.

We also incorporate wealth and debt data from the Swedish Wealth Registry (Förmögenhetsregistret, FORM), which contains detailed records on debt and wealth holdings for Swedish residents from 1999 to 2007. Wealth data were collected annually as of December 31st through wealth tax returns, personal tax assessments, and reports from financial institutions. However, after the wealth tax was abolished in 2007, the collection of individual wealth data ceased. Wealth data include disaggregated information on both financial and real estate holdings. Financial wealth consists of bank account balances, stocks, mutual funds, bonds, derivatives, and capital insurance. In particular, bank account balances above 100 SEK were reported until 2005, while balances over 10,000 SEK were reported in 2006 and 2007. Pension wealth and unlisted shares are not included in financial wealth data.

In terms of debt, the data distinguish between two main categories: student loans and all other forms of debt, including mortgages, credit card debt, personal loans, and other types of borrowing. However, within the "all other forms of debt" category, specific types of debt, such as mortgages, cannot be separately identified.

To these data, we add information on interest payments from the Income and Taxation

Registry (Inkomst och Taxeringsregistret, IoT), which contains details from tax returns for all Swedish taxpayers. Interest payments refer to all tax-deductible interest expenses, covering most types of loans, with the exception of interest paid on public student loans.[6] All monetary values are expressed in Swedish Kronor (SEK) and are adjusted to 2021 prices using the consumer price index to account for inflation.

3.1 Sample Selection and Summary Statistics

We study the outcomes of children born between 1950 and 1980 where we can identify all parents. We identify adopted children using information on family links. In our main sample, we study the outcome of parents in 1999-2006 and children in 2014-2021. This means that we require at least one of the parents to be alive in 1999 and the children to be alive at least in 2014. The sample selection criteria are described in more detail in Table A.1. In Table 1 below we look at the occurrence of different types of financial distress in our sample of individuals born between 1950-1980 and their parents. In the first panel, we present outcomes for the children. Comparing the means between own-birth children in column 1 with adopted children in column 3, we find that adopted children are doing worse in terms of financial distress and income. 25% of the adopted children in our sample receive a claim for unpaid bills at least once between 2014 and 2021. The same number is 15% among own-birth children. 16% of the adopted children and 7% of the own-birth children had an unpaid claim being debt collected. However, they are very similar in terms of their wealth ranking in 2006.[7] When we look at the biological parents, we see that parents who give up their children for adoption are more likely to experience financial distress and have lower wealth compared to parents who raise their biological children. 30% of the adopted children in our sample have at least one biological parent who has experienced a claim during this period. The same number for own-birth children is 12%. Adoptive parents are on average three years older than biological parents, more educated and had a higher wealth rank in 1999.

[6] One notable exception is interest paid on public student loans.
[7] We look at within-cohort wealth rankings, made separately for the child cohorts and parent cohorts.

Table 1: Summary Statistics

	Own-birth children		Adopted children	
	Mean	SD	Mean	SD
Children				
Age	51.81	(8.58)	55.04	(6.97)
Higher education	0.26	(0.44)	0.15	(0.36)
Disposable income (SEK)	365,349	(672,445)	318,274	(300,375)
Wealth rank	52.03	(29.35)	53.01	(30.04)
Negative net wealth	0.33	(0.47)	0.33	(0.47)
Have claims	0.15	(0.36)	0.25	(0.43)
Have debt collected claims	0.07	(0.26)	0.16	(0.36)
Number of debt collected claims (if >0)	8.44	(9.53)	9.32	(10.50)
Have more than 1 DC	0.04	(0.19)	0.09	(0.29)
Applied for debt relief	0.01	(0.11)	0.03	(0.16)
Observations	2,905,825		8,932	
Biological parents				
Age	56.12	(14.41)	51.63	(16.00)
Higher education	0.15	(0.36)	0.05	(0.22)
Disposable income (SEK)	354,788	(664,034)	267,323	(166,786)
Wealth rank	42.93	(24.64)	25.72	(19.29)
Negative net wealth	0.28	(0.45)	0.49	(0.50)
Have claims	0.12	(0.33)	0.30	(0.46)
Have debt collected claims	0.08	(0.27)	0.23	(0.42)
Number of debt collected claims (if >0)	5.98	(7.32)	5.71	(6.47)
Have more than 1 DC	0.03	(0.17)	0.09	(0.29)
Applied for debt relief	0.01	(0.10)	0.03	(0.16)
Observations	2,905,825		8,932	
Adoptive parents				
Age			59.12	(16.83)
Higher education			0.15	(0.36)
Disposable income (SEK)			304,671	(259,702)
Wealth rank			43.81	(24.63)
Negative net wealth			0.15	(0.35)
Have claims			0.07	(0.25)
Have debt collected claims			0.03	(0.18)
Number of debt collected claims (if >0)			5.87 (9.26)	
Have more than 1 DC			0.01	(0.10)
Applied for debt relief			0.005	(0.07)
Observations			8,932	

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children in 2014-2021 and for parents in 1999 to 2006. We require that at least one of the parents to be alive for at least one year during the period.

4 Empirical Strategy

Our empirical approach leverages data on adoptees and own-birth children born between 1950 and 1980 to assess the relationship between the financial distress of a child in year t and the financial distress of their biological and adoptive parents in the same year. For

own-birth children, we examine the relationship between the child and their biological parents, while for adopted children, we explore the relationship between the child and both their biological and adoptive parents. Optimally, we would like to observe children and parents at the same age, but due to data restrictions this is not possible. Instead, we study the outcomes of parents and children in different time periods, children in 2014-2021 and parents in 1999-2006, making them more similar in age than studying them year by year. For our main specification, we have only one observation for every individual. The following equation is estimated:

$$F_{ij} = \beta_0 + \beta_1 F_{bp} + \beta_2 F_{ap} + X_{ij} + \epsilon_{ij} \tag{1}$$

where F_{ij} is an indicator for whether individual i in family j has ever been in financial distress between 2014 and 2021. Our main measure of financial distress is an indicator for being debt collected at least once, but we also look at other outcomes: being debt collected more than once, having negative net wealth and applying for debt relief. F_{bp} measure financial distress of the biological parents and F_{ap} for the adoptive parents, measured between 1999-2006. X_{ij} is a vector of control variables, including year-of-birth dummies for both parents and children and a gender dummy for the child; and ϵ_{ij} is the error term clustered at the raising family level.

To account for common geographic factors that may influence financial distress, we control for the county of residence of both parents and children in the relevant year. We report estimates from a linear probability model in Table 2.

5 Results

For own-birth children in the top panel of Table 2, the results demonstrate a significant positive relationship between parental claims and the likelihood that children will receive claims. In column 1 we see that children with at least one parent experiencing debt collection between 1999 and 2006 are 16.2 percentage points more likely to be debt collected themselves. In column 2, we see that the effect of having two parents experiencing debt

collection is almost twice as high as having one parent in debt collection. As shown in Table 1, 7% of own-birth children experienced debt collection between 2014 and 2021. However, having a parent who also faced debt collection increases the likelihood for the child by over 200%."

For adopted children (second panel), the results show a strong intergenerational transmission effect for both biological and adoptive parents. In column 1 we see that adopted children where at least one of the biological parents experienced debt collection are 6 percentage points more likely to experience debt collection themselves. The same number for the adoptive parents, as seen in column 2, is 19.8. In column 3, we see that the effect of nurture is almost 4 times as large as the effect of nature. In particular, the sum of the coefficient for biological and adoptive parents (0.25) which is, considering the confidence intervals, not very different from the effect of biological parents for own-birth children in the first panel, where the coefficient is 0.162. This is reassuring, as the own-birth coefficient is expected to capture the combined effect of both nature and nurture, with biological parents representing nature and adoptive parents representing nurture for adopted children.

In column 4, we find that treatment intensity matters, having two parents experiencing debt collection increases the probability of own debt collection compared to having only one parent in debt collection.

In column 5, the requirement that the biological father is identified is removed, resulting in a larger sample.

Overall, these results show that both genetic factors (nature) and the environment in which a child is raised (nurture) are important, but the results suggest that nurture, such as the resources and behaviors of adoptive parents, has a stronger influence on a child's likelihood of facing financial difficulties.

Table 2: Intergenerational Transmission of Default (DC)

	(1)	(2)	(3)	(4)	(5)
			Own-birth children		
At least one biological parent	0.163***				
	(0.001)				
One biological parent		0.144***			
		(0.001)			
Both biological parents		0.246***			
		(0.003)			
R^2	0.036	0.038			
Observations	2,880,900	2,880,900			
			Adopted children		
At least one biological parent	0.062***		0.059***		0.068***
	(0.010)		(0.010)		(0.009)
At least one adoptive parent		0.201***	0.196***		0.174***
		(0.028)	(0.028)		(0.023)
One biological parent				0.051***	
				(0.011)	
Both biological parents				0.117***	
				(0.028)	
One adoptive parent				0.186***	
				(0.031)	
Both adoptive parents				0.251***	
				(0.070)	
R^2	0.035	0.040	0.044	0.045	0.036
Observations	8,989	8,989	8,989	8,989	14,532

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children in 2014-2021 and for parents in 1999 to 2006. We require that at least one of the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. In column 6 we require only the biological mother to be identified. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

These findings remain consistent when using an alternative approach that compares parents and children year by year throughout the period. Additionally, these results are robust when estimating the year-by-year effect using lagged parent outcomes on the likelihood of children receiving a claim or facing debt collection, as shown in Table A.2. By using lagged parental outcomes, this approach helps mitigate concerns of reverse

causality, ensuring that any observed effects are not driven by the possibility of children's financial behavior influencing their parents.

The results are also robust to a restricted sample in which we only look at children where all parents are alive during our study period, as seen in Table A.3, and to a restricted sample where we only study families with adopted and own-birth siblings, as seen in Table 10, as well as the biological siblings of children given up for adoption.

5.1 Severity

Here, we look at different measures of the severity of the debt. In column 1, the outcome is an indicator for being debt collected more than one time. In column 2, the outcome is an indicator for being debt collected two or more years in a row. In column 3-5 we classify debts into different types. For each claim, we know the source of the debt and have grouped them into categories. In column 3, the outcome is an indicator for having claims for unpaid utility bills or rent. We argue that these bills lead to severe negative consequences for the household if unpaid. In column 4, the outcome is an indicator for having claims for unpaid bills to the government, such as tax debt, alimony, parking tickets, etc.

Table 3: Other Measures of Financial Distress

Dependent variable:	(1) >1 DC	(2) >2 years in DC	(3) Utility & rent claims	(4) Public claims
		Own-birth children		
Biological parents	0.150***	0.111***	0.068***	0.155***
	(0.001)	(0.001)	(0.001)	(0.001)
R^2	0.029	0.018	0.009	0.032
Observations	2,880,900	2,880,900	2,880,900	2,880,900
		Adopted children		
Biological parents	0.066***	0.047***	0.017	0.067***
	(0.011)	(0.012)	(0.012)	(0.011)
Adoptive parents	0.152***	0.125***	0.030	0.121***
	(0.034)	(0.038)	(0.030)	(0.024)
R^2	0.044	0.045	0.028	0.050
Observations	8,926	8,926	8,926	8,926

Note: The consists of all adopted individuals born 1950-1980. The outcome measure is an indicator for at any point between 2014-2021 for the children and 1999-2006 for the parents. We require at least one the parents to be alive for at least one year during the study period. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

5.2 Other outcomes

In this section, we study other measures of financial distress, where data are available between 2014 and 2021. Here, the outcome variables are indicators for experiencing the outcome at any point between 2014 and 2021. The same is true for the measure of parent outcomes. The sample consists of all children born between 1950 and 1980, where at least one of the the parents were alive in in 2014, meaning that we lose a lot of observations compared to our main sample in Table 2.

In column 1, we present our main estimate from Table 2 for comparison. In column 2 we look at the same outcome, now measured during another time period (2014-2021 for both children and parents). In column 3, the outcome is an indicator of having debt in collection that is larger than your monthly disposable income. The variable in column 4 is measured using information on interest payments to different credit institutions, allowing us to identify different types of institutions and credits. In column 4, the outcome is an

indicator for having a short term credit with high interest, defined here as an usury loan. We see that for all outcomes, the intergenerational correlation is large and quite similar to our estimate for debt collection.

Table 4: Other Measures of Financial Distress, 2014-2021

Dependent variable:	(1) DC (main sample)	(2) DC	(3) Annual DC > wage	(4) Usury loans
		Own-birth children		
Biological parents	0.162***	0.199***	0.185***	0.094***
	(0.001)	(0.001)	(0.002)	(0.003)
R^2	0.036	0.037	0.032	0.007
Observations	2,880,900	2,332,015	2,332,015	2,332,015
		Adopted children		
Biological parents	0.059***	0.064***	0.062***	0.034
	(0.010)	(0.017)	(0.019)	(0.039)
Adoptive parents	0.197***	0.241***	0.175***	0.125
	(0.028)	(0.043)	(0.048)	(0.077)
R^2	0.046	0.066	0.053	0.055
Observations	8,926	4,186	4,186	4,186

Note: The consists of all adopted individuals born 1950-1980. The outcome measure is an indicator for at any point between 2014-2021 for the children and the parents. We require that at least one of parents is alive for at least one year in the period. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

In Table A.6 we add two different outcomes - applying for debt relief and having negative net wealth.

6 Mediating Factors

When applying for debt relief, individuals have to state the main reason behind their debt problems. This means that for a subset of our population, we have self-reported causes behind the individuals' debt problems for both parents and children. In Table 5 we see that less than 30% state that their debt problems originate in over-consumption. The majority, state income shocks stemming from health issues, divorce, or unemployment as the main reason. In the diagonal, we see that parents and children report the same reasons more often than not. We are going to explore these mediating factors to understand the

mechanisms behind our main results.

Table 5: **Own-birth children and biological parents cross-relationship matrix**

	Children				
Biological parents	Sickness	Divorce	Consumption	Business/Unemployment	Total
Sickness	**33.0**	9.9	27.1	30.0	100.0
Divorce	31.2	**9.6**	28.3	30.9	100.0
Consumption	29.8	12.1	**32.2**	25.9	100.0
Business/Unemployment	25.9	9.2	26.3	**38.6**	100.0
Total	30.4	10.4	28.6	30.6	100.0

Note: The table presents self-reported causes of over-indebtedness reported by debt relief applicants between 2004 and 2021 where we have information on both applications for children and parents.

6.1 Causes of Over-Indebtedness

In this section, we evaluate whether characteristics of the parents can explain the intergenerational transmission. We focus on our main outcome, which is debt collection. The outcome measure of the parents is an indicator of whether one or both parents were debt collected. Here, we control for characteristics of the parents measured before our study period: income, education, financial behavior and mental health. Income is measured as average disposable income between 1992 and 1998. Education is an indicator for whether the parents have low education (less than high school). Mental health is an indicator for being an inpatient diagnosed with mental illness between 1999 and 1998. Financial behavior is measured by the share of financial assets as a share of disposable income in 1999. In column 1 in Table **??** we measure intergenerational transmission without the controls for pre-characteristics. In column 2-5 when add controls for different pre-characteristics. We find that income, education and mental health do not explain the intergenerational transfer between parents and children. In column 4 we control for financial behavior and find that the intergenerational decreases to 0.36. In column 6 we add the shocks described in section 6.1. Together, these pre-characteristics explain 20% of the intergenerational transmission, where the financial behavior is the most important factor.

Table 6: Understanding the Mechanisms

Dependent variable:	(1)	(2)	(3)	(4)	(5)	(6)
	Debt Collection (DC)					
Own-birth children						
Biological parents	0.162***	0.161***	0.158***	0.136***	0.135***	0.131***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Parental controls:						
Income	No	Yes	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes	Yes
Liquid assets	No	No	No	Yes	Yes	Yes
Mental health	No	No	No	No	Yes	Yes
Shocks*	No	No	No	No	Yes	Yes
Joint F-test for controls		4.47	3,493.45	11,401.11	8587.53	4533.15
P-value for F-test		0.035	0.000	0.000	0.000	0.000
R^2	0.037	0.037	0.039	0.049	0.050	0.051
Observations	2,800,900	2,800,900	2,800,900	2,800,900	2,800,900	2,800,900
Adopted children						
Biological parents	0.059***	0.057***	0.054***	0.043***	0.044***	0.043***
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Adoptive parents	0.197***	0.195***	0.196***	0.182***	0.183***	0.180***
	(0.028)	(0.028)	(0.028)	(0.028)	(0.029)	(0.029)
Income	No	Yes	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes	Yes
Liquid assets	No	No	No	Yes	Yes	Yes
Mental health	No	No	No	No	Yes	Yes
Shocks*	No	No	No	No	Yes	Yes
Joint F-test for controls		8.94	6.61	12.78	9.87	5.14
P-value for F-test		0.000	0.000	0.000	0.000	0.000
R^2	0.046	0.047	0.048	0.053	0.054	0.054
Observations	8,926	8,926	8,926	8,926	8,926	8,926

Note: The sample consists of all adopted individuals born 1950-1980. We require the at least one the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. The specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. *Shocks added in column 6 are unemployment, health shocks, divorce and being self-employed, measured between 1992 and 1998. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

6.2 Role-model theory

In Table 7 we investigate the role-model theory by estimating whether daughters are more affected by their mothers and sons more affected by the fathers. Here, we require that all parents are alive at least one year during our study period, explaining the smaller sample. Our results show that mothers are more important both for sons and daughters.

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Table 7: Role-model theory

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variable:	Debt Collection (DC)								
	All children			Sons			Daughters		
	Own-birth children								
Biological father	0.138***		0.094***	0.144***		0.102***	0.131***		0.085***
	(0.001)		(0.001)	(0.002)		(0.002)	(0.002)		(0.002)
Biological mother		0.199***	0.166***		0.195***	0.159***		0.203***	0.174***
		(0.002)	(0.002)		(0.002)	(0.002)		(0.002)	(0.002)
Observations	2,184,318	2,184,318	2,184,318	1,119,670	1,119,670	1,119,670	1,064,645	1,064,645	1,064,645
	Adoptive children								
Biological father	0.057***		0.049**	0.072***		0.064**	0.027		0.021
	(0.019)		(0.019)	(0.028)		(0.028)	(0.029)		(0.028)
Adoptive father	0.145***		0.114**	0.210***		0.180**	0.123*		0.108
	(0.052)		(0.052)	(0.079)		(0.078)	(0.068)		(0.067)
Biological mother		0.081***	0.076***		0.097***	0.088***		0.055**	0.054*
		(0.018)	(0.018)		(0.026)	(0.026)		(0.028)	(0.028)
Adoptive mother		0.174***	0.128**		0.185*	0.128		0.118	0.065
		(0.064)	(0.065)		(0.103)	(0.104)		(0.091)	(0.089)
R^2	0.109	0.112	0.116	0.189	0.189	0.197	0.228	0.229	0.231
Observations	3,519	3,519	3,519	1,815	1,815	1,815	1,688	1,688	1,688

Note: The sample consists of all adopted individuals born 1950-1980. For this sample, we require at all of the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. The specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

6.3 Wealth transfers

In our sample, we have no adopted children receiving gifts from their biological parents. We also have no parents who receive gifts from their children as seen in Table 8. Table **??** shows the relationship between parental debt collection and the likelihood that they give transfers to their children. This shows that tranfers are negatively related to debt collection.

Table 9: Transfers and Debt Collection

Dependent variable:	(1) Own-birth child received transfer	(2) Adopted child received transfer	(3) Own-birth child gave transfer	(4) Adopted child gave transfer
Biological parent DC	-0.008***	0.005	-0.000***	0.000
	(0.000)	(0.006)	(0.000)	(0.001)
Adoptive parent DC		-0.025***		-0.002**
		(0.008)		(0.001)
R^2	0.006	0.030	0.001	0.020
Observations	2,924,285	8,749	2,924,285	8,749

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children, which is an indicator for receiving a transfer from their raising parents in 2001-2004. The outcome for parents is an indicator for being debt collected between 2001 and 2004. We require at least one of the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. All specifications in include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

6.4 Own-birth Children Growing up With Adopted Siblings

In panel A, we restrict our sample to the biological siblings of the adopted children. That is, children born between 1950 and 1980 by the same mother and father as children who were given up for adoption during the same period. In panel B, we look at the own-birth children in families who adopted these children, and in panel C, the adopted children who grow up in families with own-birth children.

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Table 8: Summary Statistics of Transfers

	(1)	(2)	(3)	(4)
	Own-birth children		Adopted children	
	Daughters	Sons	Daughters	Sons
Biological parent giver, DC	0.00 (0.01)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00)
Biological parent giver, no DC	0.01 (0.12)	0.02 (0.12)	0.00 (0.03)	0.00 (0.00)
Biological parent receiver, DC	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Biological parent receiver, no DC	0.00 (0.01)	0.00 (0.02)	0.00 (0.00)	0.00 (0.00)
Observations	1,432,230	1,511,167	4,184	4,572
Biological parent transfer (SEK), DC	100,309 (145,023)	106,702 (145,073)	. (.)	. (.)
Biological parent transfer (SEK), no DC	121,171 (2,520,268)	130,052 (2,473,441)	. (.)	. (.)
Biological parent received sum, DC	126,785 (173,692)	45,914 (65,240)	. (.)	. (.)
Biological parent received sum, no DC	89,581 (137,625)	85,996 (160,225)	. (.)	. (.)
Observations	20,523	23,681		
Adoptive parent giver, DC			0.00 (0.00)	0.00 (0.01)
Adoptive parent giver, no DC			0.04 (0.19)	0.03 (0.18)
Adoptive parent receiver, DC			0.00 (0.00)	0.00 (0.00)
Adoptive parent receiver, no DC			0.00 (0.02)	0.00 (0.01)
Observations			4,184	4,572
Adoptive parent transfer (SEK), DC			. (.)	64,244 (.)
Adoptive parent transfer (SEK), no DC			125,284 (155,558)	140,154 (235,444)
Adoptive parent received sum, DC			. (.)	. (.)
Adoptive parent received sum, no DC			188,309 (85,770)	49,468 (.)
Observations			160	154

Table 10: Families with both own-birth and adopted children

	(1)	(2)	(3)	(4)
Dependent variable:	Debt Collection (DC)			
Panel A: All own-birth children (main sample)				
Biological parents	0.163***			
	(0.001)			
One biological parent		0.144***		
		(0.001)		
Both biological parents		0.246***		
		(0.003)		
R^2	0.036	0.038		
Observations	2,880,900	2,880,900		
Panel B: Biological siblings of adopted children				
Own-birth children				
Biological parents	0.160***			
	(0.017)			
One biological parent		0.141***		
		(0.018)		
Both biological parents		0.274***		
		(0.039)		
R^2	0.074	0.078		
Observations	5,332	5,332		
Panel C: Families with both own-birth and adopted children				
1. Own-birth children				
Biological parents	0.174***			
	(0.028)			
One biological parent		0.165***		
		(0.031)		
Both biological parents		0.205***		
		(0.064)		
R^2	0.066	0.066		
Observations	4,650	4,650		

Continued on the next page

2. Adopted children				
Biological parents	0.112***		0.109***	
	(0.023)		(0.023)	
Adoptive parents		0.078	0.061	
		(0.053)	(0.052)	
One biological parent				0.101***
				(0.024)
Both biological parents				0.159***
				(0.054)
One adoptive parent				0.065
				(0.058)
Both adoptive parents				0.053
				(0.103)
R^2	0.117	0.105	0.119	0.119
Observations	1,850	1,850	1,850	1,850

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children in 2014-2021 and for parents in 1999 to 2006. We require that at least one of the parents is alive for at least one year during the period. The outcome measure is an indicator for being debt collected. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

7 Conclusion

In this study, we investigate whether and why children of parents in financial distress are more likely to experience similar challenges. To address these challenges, we employ a unique administrative data set that links records on unsustainable debt from the Swedish Enforcement Agency (SEA) to Swedish adoptees, along with information on their biological and adoptive parents. Using the adoption design, we separate genetic influences (pre-birth factors) from environmental ones (post-birth factors). Specifically, we identify pre-birth influences by examining the relationship between adoptees and their biological parents, and post-birth influences by analyzing the link between adoptees and their adoptive parents. Since adoptive parents are carefully selected and screened, we can isolate the effect of being raised by parents in financial distress, ensuring that any observed relationship reflects the causal impact of the environment rather than pre-existing financial problems at the time of adoption. This approach allows us to unravel the complexities of intergenerational debt transmission, providing valuable insights into the roles of nature and nurture in financial distress.

Based on the findings of this study, policymakers should recognize the critical role that environmental factors play in perpetuating financial distress across generations. The evidence that the parental environment is about twice as influential as genetic predispositions in the persistence of financial hardship highlights the need for targeted interventions. Policy efforts should focus on breaking the cycle of debt transmission by addressing the environmental conditions that foster financial instability. This could involve strengthening support systems for families in financial distress, such as providing targeted debt relief programs, improving financial literacy, and providing access to economic opportunities that promote upward mobility. In addition, preventive measures, such as early financial education and counseling for at-risk families, can play a pivotal role in mitigating the long-term impact of financial distress on future generations. By prioritizing policies that address the root causes of financial challenges within families, governments can better promote social mobility and reduce the intergenerational transmission of financial distress.

References

Adermon, A., M. Lindahl, and D. Waldenström (2018). Intergenerational wealth mobility and the role of inheritance: Evidence from multiple generations. *The Economic Journal 128*(612), F482–F513.

Becker, G. and N. Tomes (1979). An equilibrium theory of the distribution of income and intergenerational mobility. *Journal of Political Economy 87*(6), 1153–1189.

Becker, G. and N. Tomes (1986). Human capital and the rise and fall of families. *Journal of Labor Economics 4*(3, Part 2), S1–S39.

Björklund, A., M. Lindahl, and E. Plug (2006). The origins of intergenerational associations: Lessons from swedish adoption data. *The Quarterly Journal of Economics 121*(3), 999–1028.

Black, S., P. Devereux, K. Løken, and K. Salvanes (2014). Care or cash? The effect of child care subsidies on student performance. *Review of Economics and Statistics 96*(5), 824–837.

Black, S., P. Devereux, P. Lundborg, and K. Majlesi (2018). Learning to take risks? The effect of education on risk-taking in financial markets. *Review of Finance 22*(3), 951–975.

Black, S., P. Devereux, P. Lundborg, and K. Majlesi (2020). Poor little rich kids? The role of nature versus nurture in wealth and other economic outcomes and behaviours. *The Review of Economic Studies 87*(4), 1683–1725.

Black, S. E., P. J. Devereux, P. Lundborg, and K. Majlesi (2017). On the Origins of Risk-Taking in Financial Markets. *The Journal of Finance 72*(5), 2229–2278.

Black, S. E., P. J. Devereux, P. Lundborg, and K. Majlesi (2019, 07). Poor Little Rich Kids? The Role of Nature versus Nurture in Wealth and Other Economic Outcomes and Behaviours. *The Review of Economic Studies 87*(4), 1683–1725.

Boserup, S., W. Kopczuk, and C. Kreiner (2013). Intergenerational wealth mobility: Evidence from danish wealth records of three generations. *Univ. of Copenhagen mimeo*.

Cesarini, D., M. Johannesson, and S. Oskarsson (2014). Pre-birth factors, post-birth factors, and voting: Evidence from swedish adoption data. *American Political Science Review 108*(1), 71–87.

Cesarini, D., E. Lindqvist, R. Östling, and B. Wallace (2016). Wealth, health, and child development: Evidence from administrative data on swedish lottery players. *The Quarterly Journal of Economics 131*(2), 687–738.

Charles, K. and E. Hurst (2003). The correlation of wealth across generations. *Journal of Political Economy 111*(6), 1155–1182.

Dahl, G. and L. Lochner (2012). The impact of family income on child achievement: Evidence from the earned income tax credit. *American Economic Review 102*(5), 1927–56.

Dearden, L., S. Machin, and H. Reed (1997). Intergenerational mobility in Britain. *The Economic Journal 107*(440), 47–66.

Dobbie, W. and J. Song (2015). Debt relief and debtor outcomes: Measuring the effects of consumer bankruptcy protection. *American Economic Review 105*(3), 1272–1311.

Duncan, G., P. Morris, and C. Rodrigues (2011). Does money really matter? Estimating impacts of family income on young children's achievement with data from random-assignment experiments. *Developmental Psychology 47*(5), 1263.

Fagereng, A., M. Mogstad, and M. Rønning (2021). Why do wealthy parents have wealthy children? *Journal of Political Economy 129*(3), 703–756.

Fay, S., E. Hurst, and M. White (2002). The household bankruptcy decision. *American Economic Review 92*(3), 706–718.

Fernald, L., P. Gertler, and L. Neufeld (2008). Role of cash in conditional cash transfer programmes for child health, growth, and development: An analysis of mexico's oportunidades. *The Lancet 371*(9615), 828–837.

Hilger, N. G. (2016). Parental job loss and children's long-term outcomes: Evidence from 7 million fathers' layoffs. *American Economic Journal: Applied Economics 8*(3), 247–83.

Hjalmarsson, R. and M. J. Lindquist (2013). The origins of intergenerational associations in crime: Lessons from swedish adoption data. *Labour Economics 20*, 68–81.

Holmlund, H., M. Lindahl, and E. Plug (2011). The causal effect of parents' schooling on children's schooling: A comparison of estimation methods. *Journal of Economic Literature 49*(3), 615–51.

Lindahl, M., E. Lundberg, M. Palme, and E. Simeonova (2016). Parental influences on health and longevity: Lessons from a large sample of adoptees. Working paper, University of Gothenburg.

Lindquist, M. J., J. Sol, and M. Van Praag (2015). Why do entrepreneurial parents have entrepreneurial children? *Journal of Labor Economics 33*(2), 269–296.

Løken, K. V. (2010). Family income and children's education: Using the norwegian oil boom as a natural experiment. *Labour Economics 17*(1), 118–129.

Piketty, T. (2014). Capital in the twenty-first century. In *Capital in the twenty-first century*. Harvard University Press.

Plug, E. (2004). Estimating the effect of mother's schooling on children's schooling using a sample of adoptees. *American Economic Review 94*(1), 358–368.

Plug, E. and W. Vijverberg (2003). Schooling, family background, and adoption: Is it nature or is it nurture? *Journal of Political Economy 111*(3), 611–641.

Plug, E. and W. Vijverberg (2005). Does family income matter for schooling outcomes? Using adoptees as a natural experiment. *The Economic Journal 115*(506), 879–906.

Sacerdote, B. (2002). The nature and nurture of economic outcomes. *American Economic Review 92*(2), 344–348.

Sacerdote, B. (2007). How large are the effects from changes in family environment? A study of korean american adoptees. *The Quarterly Journal of Economics 122*(1), 119–157.

Zucman, G. (2019). Global wealth inequality. *Annual Review of Economics 11*(1), 109–138.

A Appendix

A.1 Robustness

A.1.1 Sample selection

Table A.1: **Own-birth children and biological parents cross-relationship matrix**

Criteria applied	Remaining sample
Adoptees born in Sweden between 1950 and 1980 who are alive and registered in Sweden at any point between 2014-2021 and for whom we can identify both adoptive parents	21,843
Biological mother is identified	20,415
Biological father is identified	11,736
At least one biological parent alive in 1999	10,530
At least one adoptive parent alive in 1999	9,337
Not adopted by a relative*	9,018
Have observations on parent and own county and birth year	8,932

Note: *Relatives are defined as grandparents, uncles and aunts.

A.1.2 Year-by-Year Analysis

In this section, we conduct a robustness check by employing a year-by-year method, where both parents' and children's financial outcomes are measured in the same calendar year. This approach allows us to track how the relationship between parental and children's financial behaviors evolves over time, ensuring that our findings are not driven by isolated trends or specific years. By analyzing parent-child financial outcomes simultaneously across multiple years, we test whether the intergenerational transmission of financial distress holds consistently throughout the study period.

To answer this question, we now use the following specification:

$$F_{ijt} = \beta_0 + \beta_1 F_{bmt} + \beta_2 F_{bft} + \beta_3 F_{amt} + \beta_4 F_{aft} + X_{ijt} + \epsilon_{ijt} \tag{2}$$

where F_{ijt} is an indicator for whether individual i in family j is in financial distress in year t; F_{bmt} and F_{bft} indicate whether the biological mother and father are in financial distress in year t, respectively; F_{amt} and F_{aft} represent whether the adoptive mother and father are in financial distress in year t; X_{ijt} is a vector of control variables, including

year-of-birth dummies for both parents and children, year dummies, and a gender dummy for the child; and ϵ_{ijt} is the error term, clustered at the raising family level.

Table A.2 show that even when we measure the intergenerational relationship year-by-year, both nature and nurture matters. As above, nurture is about 3 times more important than nature.

Table A.2: Intergenerational Transmission of Default (DC)

	(1)	(2)	(3)	(4)	(5)
			Own-birth children		
Biological parents	0.122***				
	(0.001)				
L.Biological parents		0.116***			
		(0.001)			
L2.Biological parents			0.112***		
			(0.001)		
R^2	0.016	0.016	0.015		
Observations	57,878,157	54,792,067	51,766,556		
			Adopted children		
Biological parents	0.040***		0.040***		
	(0.006)		(0.006)		
Adoptive parents		0.173***	0.173***		
		(0.021)	(0.021)		
L.Biological parents				0.041***	
				(0.006)	
L2.Biological parents					0.044***
					(0.007)
L.Adoptive parents				0.161***	
				(0.022)	
L2.Adoptive parents					0.132***
					(0.022)
R^2	0.018	0.021	0.022	0.022	0.022
Observations	130,804	130,804	130,804	121,268	112,088

Note: In Panel A, we present results for own-birth children born in 1950-1980. In Panel B, adopted individuals. We measure childrens' outcomes in 1999-2021, and the parents are measured in t-1. The outcome measure is an indicator for receiving a dc in year t. All specifications in Panel A + B, Column (1)-Column (6) include controls for child gender, year fixed effects, child and parent birth cohort and county FE. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

A.1.3 Restricted Sample

Table A.3: Intergenerational Transmission of Default (DC) - Restricted Sample

	(1)	(2)	(3)	(4)	(5)
			Own-birth children		
At least one biological parent	0.155***				
	(0.001)				
One biological parent		0.129***			
		(0.001)			
Both biological parents		0.249***			
		(0.003)			
R^2	0.038	0.041			
Observations	2,195,539	2,195,539			
			Adopted children		
At least one biological parent	0.067***		0.065***		0.079***
	(0.015)		(0.050)		(0.011)
At least one adoptive parent		0.143***	0.138***		0.106***
		(0.028)	(0.028)		(0.029)
One biological parent				0.051***	
				(0.016)	
Both biological parents				0.138***	
				(0.034)	
One adoptive parent				0.114***	
				(0.045)	
Both adoptive parents				0.253***	
				(0.108)	
R^2	0.063	0.062	0.068	0.071	0.037
Observations	3,581	3,581	3,581	3,581	8,311

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children in 2014-2021 and for parents in 1999 to 2006. We require all of the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. In column 6 we require only the biological mother to be identified. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

A.1.4 Interaction Between Adoptive and Biological Parents

Table A.4: Intergenerational Transmission of Default (DC)

	(1)	(2)
At least one biological parent	0.059***	0.058***
	(0.010)	(0.011)
At least one adoptive parent	0.196***	0.195***
	(0.028)	(0.035)
Interaction term		0.004
		(0.059)
R^2	0.044	0.044
Observations	8,926	8,926

Note: The sample consists of all adopted individuals born 1950-1980. We measure the outcome of the children in 2014-2021 and for parents in 1999 to 2006. We require that at least one of the parents to be alive for at least one year during the period. The outcome measure is an indicator for being debt collected. All specifications include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

A.1.5 Living Close to your Biological Parents

To rule out the possibility that the transmission between adopted children and their biological parents are driven by children who know and spend time with their biological parents, we look only at children who live in a different county than their biological mother and father, and are hence less likely to be in close contact with them. In column 2 and 4, we find that the results for these children are very similar to our main results, indicating that our results are not driven by closeness to biological parents.

Table A.5: Adopted children living close to biological parents

	(1) All children	(2) Live close to bio parent	(3) All children	(4) Live close to to mother	(5) All children	(6) Live close to to father
Biological parents	0.063***	0.060***				
	(0.010)	(0.014)				
Biological mother			0.087***	0.084***		
			(0.013)	(0.019)		
Biological father					0.043***	0.036*
					(0.014)	(0.021)
R^2	0.042	0.062	0.045	0.083	0.049	0.093
Observations	8,926	4,527	7,685	3,508	6,582	2,801

Note: The sample consists of all adopted individuals born 1950-1980. In column 1 and 2 we require the at least one of the parents to be alive for at least one year during the period. In column 3-6 we require the mother/father to be alive for at least one year during the period. Living close to the parent is defined as living in the same county for at least one year between 1999 and 2006. The outcome measure is an indicator for dc. Children are classified as living far from their parents if they live in different counties during the whole study period. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

A.1.6 Other Outcomes

Table A.6: Other Measures of Financial Distress

	(1) Applying for debt relief	(2) Negative net wealth
	Own-birth children	
Biological parents	0.038***	0.174***
	(0.001)	(0.001)
R^2	0.003	0.091
Observations	2,880,900	2,863,218
	Adopted children	
Biological parents	0.017	0.065***
	(0.013)	(0.010)
Adoptive parents	-0.002	0.137***
	(0.024)	(0.016)
R^2	0.050	0.084
Observations	8,989	8,946

Note: The consists of all adopted individuals born 1950-1980. In column 1, the outcome measure is an indicator for applying for debt relief at any point between 2014-2021 for the children and 1999-2010 for the parents. In column 2, the outcome is an indicator for having negative wealth in 1999 for the parents and in 2006 for the children. We require at least one of the parents to be alive for at least one year in the period. All specifications in include controls for child gender, child and parent birth cohort and county FE for the parents in 1999. Standard errors are clustered at the raising family-level, *, ** and *** denote statistical significance at the 10%, 5% and 1%, respectively.

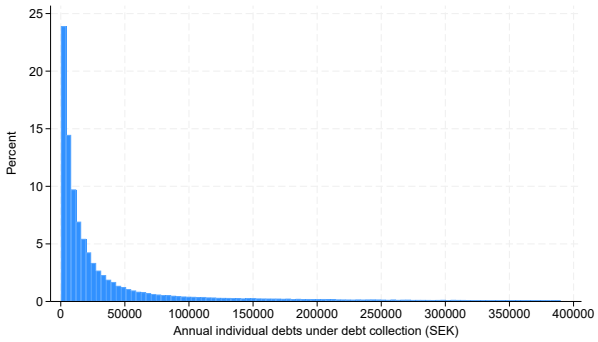


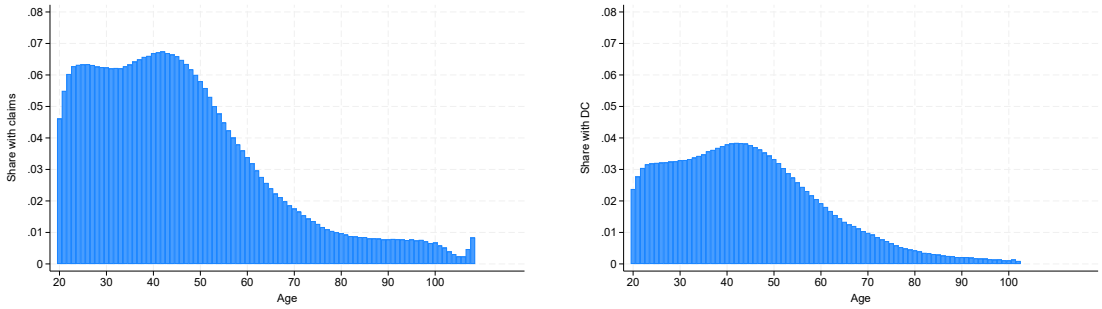
Figure A.1: Distribution of debt collected amounts in our sample

A.2 Distributions

Figure A.2: Age distribution among claim holders

(a) Claims

(b) Debt collection

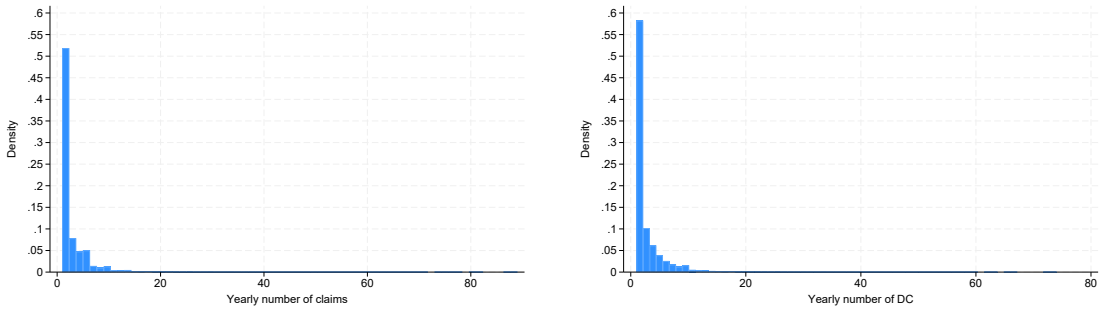


Note: Figure (a) shows the distribution of claims across age groups between 1999 and 2021. Figure (b) shows the distribution for debt collected claims.

Figure A.3: Claim distribution, per year

(a) Claims

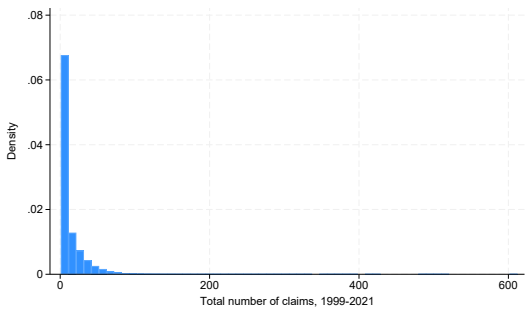
(b) Debt collection



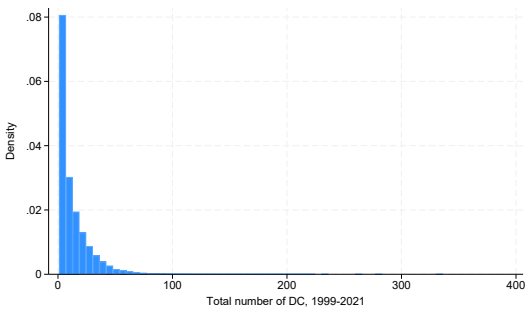
Note: Figure (a) shows the distribution of number of claims received annually. Figure (b) shows the distribution for debt collected claims. More than 50% receive only one claim in a year.

Figure A.4: Claim distribution, accumulated 1999-2021

(a) Claims



(b) Debt collection

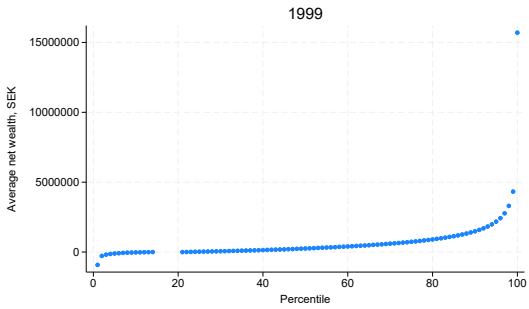


Note: Figure (a) shows the distribution of number of claims received between 1999-2021. Figure (b) shows the distribution for debt collected claims.

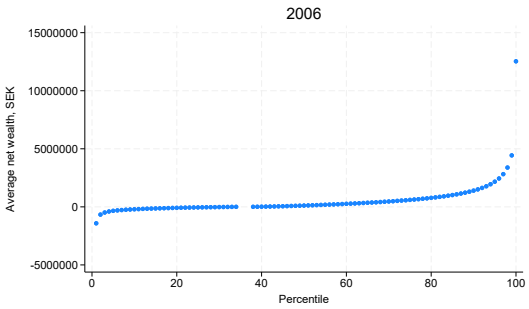
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Figure A.5: Net Wealth Distribution

(a) 1999



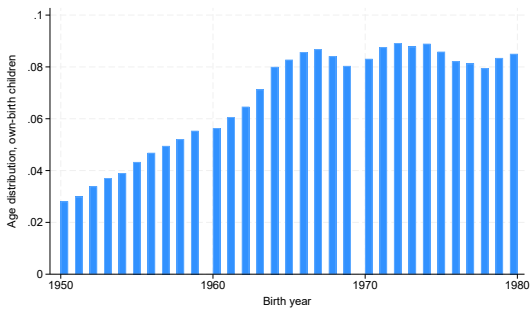
(b) 2006



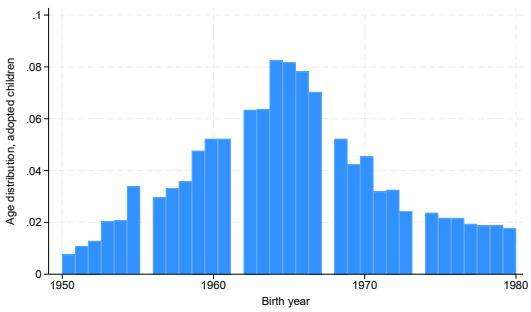
Note: Average net wealth in each percentile, calculated separately for the parent and child cohorts.

Figure A.6: Age distribution

(a) Own-birth children



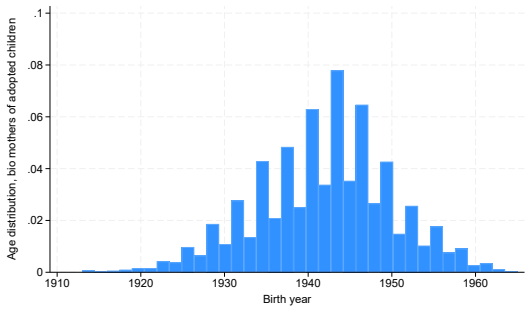
(b) Adopted children



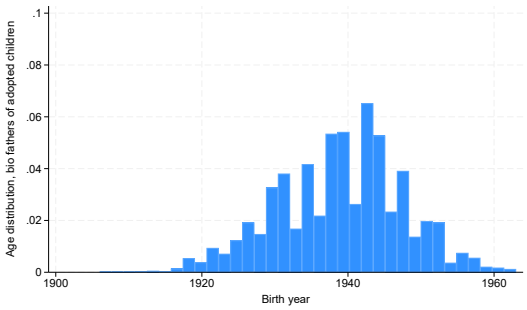
Note: The figure shows the birth year distribution of adopted and own-birth children in our sample.

Figure A.7: Age distribution, biological parents

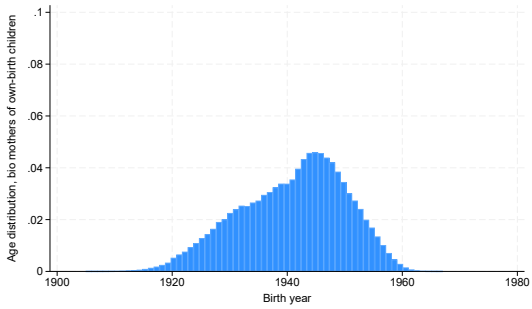
(a) Biological mothers, adopted children



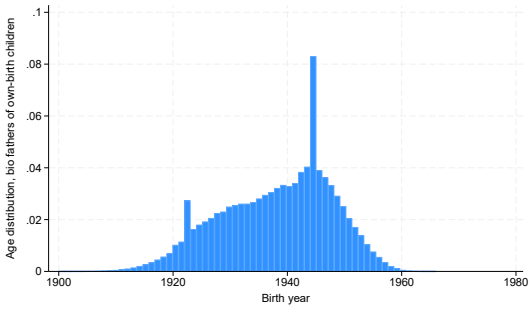
(b) Biological fathers, adopted children



(c) Biological mothers, own-birth children



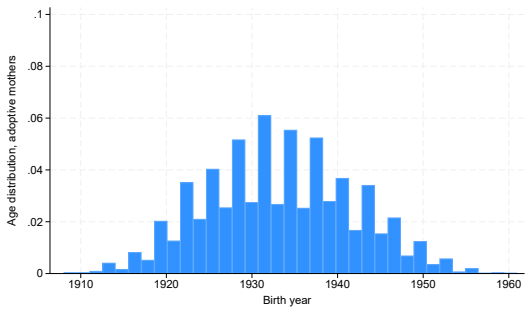
(d) Biological fathers, own-birth children



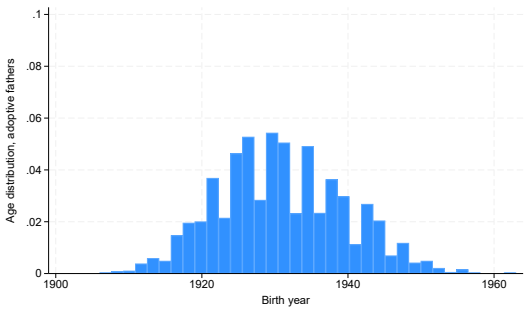
Note: The figure shows the birth year distribution of biological parents in our sample.

Figure A.8: Age distribution, adoptive parents

(a) Adoptive mothers



(b) Adoptive fathers



0(0

Note: The figure shows the birth year distribution of adoptive parents in our sample.