# Childhood Mental Health and Long Run Financial Outcomes*

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**Abstract**

We study how childhood mental health conditions shape financial outcomes later in life. Individuals with these conditions are more financially fragile, as they have thinner wealth buffers and are therefore more exposed to shocks. They hold fewer assets, are less likely to own a home over the life cycle and carry more debt. Using a two-stage approach that predicts childhood mental health with a polygenic score for major depressive disorder, confirms these results. Childhood mental health conditions are also associated with lower overconfidence, shorter life expectancy and financial planning horizons, a more pessimistic economic outlook, and lower cognitive ability.

*Keywords*: Childhood mental health, Long-run financial outcomes, Asset allocation, Homeownership decisions, Gender & racial disparities.

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# 1 Introduction

It is estimated that more than one in five U.S. adults live with a mental illness. Many mental disorders have their origins in childhood and adolescence (Kessler *et al.*, 2007).[1] In 2021, the American Academy of Pediatrics, American Academy of Child and Adolescent Psychiatry, and Children's Hospital Association declared a national emergency in child and adolescent mental health.[2] While a growing body of literature suggests that poor mental health early in life can have significant long lasting effect on health and labor outcomes later in adulthood (e.g. Goodman *et al.*, 2011; Hakulinen *et al.*, 2019), the implications for households' long-run balance sheets and financial vulnerability remain less understood. This paper empirically investigates whether early life mental health conditions have a long lasting impact on financial fragility across both sides of the the household balance sheet, and how these vary across racial and gender groups.

Childhood mental health conditions could affect long term household financial fragility for a variety of reasons. First, having any health shock, physical or mental, can tighten budget constraints by reducing productivity and increasing medical spending, thereby reducing the availability of funds to invest. Second, mental health may affect cognitive and non-cognitive abilities and thereby shape educational attainment and life-time earnings (Abramson *et al.*, 2024; Biasi *et al.*, 2021; Cornaglia *et al.*, 2015; Wang *et al.*, 2023). Third, mental health may affect mood and beliefs relevant for evaluating risks, perceived liquidity needs, and portfolio choice. Finally, mental health may influence risk attitudes and planning horizons, which are central to long-horizon investments such as housing and to the use of credit.

Drawing on these insights, we use detailed micro-level data from the Health and Retirement Survey (HRS), a biennial survey covering the 1998–2020 period with rich measures of household assets, housing, and liabilities, to test whether early life mental health disorders relate to financial choices and outcomes later in adulthood. The HRS also includes retrospective information on childhood conditions through the Aggregated HRS Childhood Family and Health data, including whether respondents were diagnosed with depression or another mental health problem before

[1] The National Alliance on Mental Illness further documents that 16.5% of U.S. youth aged 6-17 experienced a mental health disorder in 2016. 50% of all lifetime mental illness begins by age 14, and 75% by age 24. Among people in the U.S. under age 18, depressive disorders are the most common cause of hospitalization.

[2] See American Academy of Pediatrics (2021) AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health.

the age of 16. We combine these data with restricted-use geographic, race and birth information.

We focus on adult *household financial fragility* as a summary measure of long-run economic vulnerability associated with childhood mental health. We use financial fragility to denote households' *ex ante* exposure to adverse shocks due to limited wealth buffers and collateral and/or reliance on unsecured liabilities. This concept is distinct from realized distress (e.g., delinquency or bankruptcy): households may be financially fragile even in the absence of an observed adverse event if their balance sheet offers limited capacity to smooth shocks.

We define financial fragility in our setting as high ex-ante exposure to economic shocks due to thin wealth buffers and collateral and/or reliance on unsecured liabilities (see Fernández-López *et al.* (2024) for a survey on the multi-faceted term financial fragility). In our setting, fragility maps naturally into three balance-sheet margins. First, *nonhousing assets* capture liquid and financial buffers that can be drawn down when income falls. Second, *home equity* captures housing collateral and, for homeowners, the ability to borrow against collateral and smooth shocks. Third, *non-mortgage (unsecured) debt* captures reliance on short-term or high-cost credit, which may indicate limited self-insurance through assets. Together, these measures capture liquid/financial wealth, housing collateral, and unsecured leverage. We therefore construct a financial fragility index as the first principal component of the three balance-sheet variables.

Our main finding is that childhood mental health conditions are associated with higher adult financial fragility, reflected in weaker balance sheets. On the asset side, individuals with childhood mental health conditions exhibit lower asset accumulation and lower housing wealth, including a lower likelihood of homeownership and lower home equity. The economic magnitude of these effects is substantial. For single household samples, being diagnosed with depression or other psychological problems during childhood is associated with a 60% (98%) reduction in nonhousing assets (home equity) relative to individuals without such diagnoses. In addition, the likelihood of homeownership decreases by 8 percentage points, which represents approximately 13% of the sample mean. On the liability side, childhood mental health conditions are associated with greater reliance on non-mortgage debt, consistent with higher unsecured leverage. Specifically, being diagnosed translates into a 68% increase of non-mortgage debt balances compared to the peers without such diagnosis. In addition, the share of other debt relative to the total debt is 9% higher, which accounts for 42% of the sample mean. Taken together, the evidence indicates thinner buffers and

weaker collateral positions among individuals with childhood mental health conditions.

Estimating the long-run economic consequences of childhood mental health is complicated by the fact that mental health conditions are closely intertwined with family background and other unobserved factors, such as school quality, or early-life environments. To assess the sensitivity of our findings to such confounding, we complement the baseline analysis with a two-stage least squares specification that instruments childhood mental health using a polygenic score for major depressive disorder in the European ancestry sample. Because genetic endowment is fixed at conception and measured without error, this approach mitigates concerns related to reverse causality and classical measurement error. While genetic risk may still be correlated with family environment, we incorporate a rich set of controls for childhood socioeconomic conditions, education, and cohort-by-birthplace fixed effects to absorb much of this confounding variation. This strategy isolates a component of childhood mental health that is predetermined and less entangled with contemporaneous environmental factors (Barth *et al.*, 2020; Papageorge & Thom, 2020).

Our results show that childhood mental health problems have large and persistent effects on adult financial outcomes. Instrumental variable estimates are larger in magnitude than the OLS estimates, suggesting that conventional approaches understate the true economic costs of early-life mental health problems. We find that adverse childhood mental health significantly reduces asset accumulation and increases indebtedness in adulthood, highlighting early mental health as a critical and underappreciated determinant of long-run economic well-being.

Next, to shed light on mechanisms, we examine both financial decision margins and outcomes related to cognition and beliefs. We find that childhood mental health conditions are associated with lower probability of homeownership and stock market participation, and with a higher share of non-mortgage debt pointing to differences in long-horizon investment and unsecured borrowing behavior. We also document that childhood mental health conditions correlate with lower cognitive performance and with non-cognitive measures related to expectations and planning, including a more pessimistic economic outlook and shorter financial planning horizons. These patterns align with channels in which early-life mental health is linked to later financial fragility through decision-making capacity, beliefs, and intertemporal choice.

Lastly, we examine potential mediating and mitigating factors on the observed patterns. The positive association between childhood mental health and financial fragility is present in both

single and coupled households. The estimated association is modestly smaller for coupled households, consistent with risk-sharing and joint decision-making, but the difference is small and statistically insignificant. We also assess heterogeneity by gender and race/ethnicity and find little evidence of systematic differences, indicating that the relationship is broad-based across demographic groups. Finally, we examine the role of financial literacy in mediating some of the observed patterns. Financial literacy, i.e. respondents' knowledge of, and ability to use fundamental financial concepts in their economic decision-making, enables individuals to use their resources to the fullest (Lusardi & Mitchell, 2014, 2023) and may be able to countervail some of the economic consequences of childhood mental health as they equip individuals with tools and knowledge to navigate financial challenges. Using prior work experience in finance industry as a proxy for financial literacy, we find suggestive evidence that financially sophisticated households exhibit a borderline statistically significantly weaker association between childhood mental health and financial fragility.

### 1.1 Related literature

This paper builds on the literature on mental health and its implications for a host of economic outcomes. One strand of literature focuses on the relation between *contemporaneous* mental health conditions and portfolio choice. It has been shown that households with household members, either adults or children, affected by mental health issues contemporaneously decrease risky investments (Bogan & Fernandez, 2017; Bogan & Fertig, 2013). Similarly, existing work looks at the relation between contemporaneous mental health conditions and educational and labor market outcomes. Using detailed data from Denmark, Biasi *et al.* (2021) examine the career effects of mental health, focusing on depression, schizophrenia, and bipolar disorder. They document that mental health issues are associated with earning penalties in the workforce. Wang *et al.* (2023), similarly, document that early adulthood mental health issues can lead to significant earning penalties in the future. Cornaglia *et al.* (2015) study the link between poor mental health and low educational outcomes and find a large negative association between being at risk of poor mental health and educational outcomes. Abramson *et al.* (2024) construct an economic theory of mental illness to study its macroeconomic implications and show that mental health disorders alter consumption, savings, portfolio choice, and labor supply. Our paper, on the other hand, zooms in on the implica-

tions of early life mental health disorders on financial well-being later in life. Bos *et al.* (2023) find that diagnosis of mental health diagnosis has health and economic consequences possibly due to improper treatment.[3]

This paper is also related to literature on health and investment choices. Spaenjers & Spira (2015) examine the empirical relation between subjective life horizon (i.e., the self-reported expectation of remaining life span) and portfolio choice. They find that equity portfolio shares are higher for investors with longer horizons, controlling for gender-specific age effects, socio-economic characteristics, health, and optimism. Rosen & Wu (2004) analyze the role health status plays in household portfolio decisions. They find that health is a significant predictor of both the probability of owning different types of financial assets and the share of financial wealth held in each asset category. Households in poor health are less likely to hold risky financial assets, other things (including the level of total wealth) being the same.

In departure from existing literature that focuses on the contemporaneous relationship between mental health and asset allocation, we examine the role of *early life* mental health conditions and their *long run* implications on both sides of the households' balance sheet: assets and liabilities. Instead of focusing solely on asset allocation, we provide novel evidence on the role of early life mental health condition on debt accumulation over the life cycle. Additionally, by leveraging detailed data on gender and race, we build upon Bogan & Fertig (2013) to show gender and racial differences in how childhood mental health issues impact household portfolio choice and homeownership decisions.

The rest of the paper is organized as follows. In Section 2 we discuss the existing theories of childhood mental illness and how it may affect financial decision making later in life. In Section 3 we describe our data, and in Section 4 we analyze the patterns in childhood mental illness prevalence. In Section 5 we describe our empirical strategy and results. We conclude in Section 6.

[3]Recent work has examined the impact of financial distress on individual's mental health (e.g Iyer *et al.*, 2022; Kárpáti & Renneboog, 2024).

# 2 Background and conceptual framework

## 2.1 Financial fragility as a balance-sheet concept

We focus on adult *household financial fragility* as a summary measure of long-run economic vulnerability associated with childhood mental health. We use financial fragility to denote households' *ex ante* exposure to adverse shocks due to limited wealth buffers and collateral and/or reliance on unsecured liabilities. This concept is distinct from realized distress (e.g., delinquency or bankruptcy): households may be financially fragile even in the absence of an observed adverse event if their balance sheet offers limited capacity to smooth shocks.

In our setting, fragility maps naturally into three balance-sheet margins. First, *nonhousing assets* capture liquid and financial buffers that can be drawn down when income falls. Second, *home equity* captures housing collateral and, for homeowners, the ability to borrow against collateral and smooth shocks. Third, *non-mortgage (unsecured) debt* captures reliance on short-term or high-cost credit, which may indicate limited self-insurance through assets. We therefore construct a household financial fragility index that aggregates information from nonhousing assets, home equity, and other debts (see Section 3.2 for details).

## 2.2 Impact of (mental) health conditions on financial choices

Mental illness may affect financial choices through a variety of channels. We next discuss the different channels and their implications on individuals' financial choices.

**Cognitive abilities**: A substantial body of literature explores the influence of cognitive abilities on financial choices. For instance, Christelis *et al.* (2010) find that, when controlling for other factors, cognitive impairments decrease the likelihood of holding stocks and increase the tendency to invest in less information-intensive assets like bonds. Therefore, mental health issues that limit cognitive capabilities could lead to lower participation in financial markets. However, individuals facing cognitive limitations may opt to seek external financial advice. Elmerick *et al.* (2002) document that 18.5% of US households seek guidance from financial planners for their savings and investment decisions. An alternative pattern of soliciting financial advice might differentially influence the portfolio choices of individuals with mental health challenges.

**Non-cognitive abilities**: Mental health conditions can also affect non-cognitive abilities. Xu

*et al.* (2015) find a simultaneous correlation between non-cognitive abilities and measures of financial distress among a group of young adults. Kuhnen & Melzer (2018) illustrate that self-efficacy, which is belief that their actions can influence the future, can help individuals avoid financial shocks and financial distress. Individuals with high self-efficacy are less likely to default on bills and go into bankruptcy. Donnellan *et al.* (2009) also find a significant relationship between non-cognitive abilities and economic hardship among young adults. Parise & Peijnenburg (2019) find that people in the bottom quintile of noncognitive abilities are 10 times more likely to experience financial distress than those in the top quintile.

**Risk aversion and confidence**: Mental health can also influence an individual's risk aversion. Edwards (2008) shows that health risks can increase risk aversion, as individuals seek to hedge against potential health-related uncertainties by investing their financial wealth in safer assets. Similarly, Berkowitz & Qiu (2006) show that a physical health shock leads households to restructure their portfolios by decreasing stock holdings. Likewise, Rosen & Wu (2004) find that households in poor health are less likely to hold risky financial assets, with smaller proportions of their wealth allocated to riskier investments and greater shares reserved for safer assets. Consequently, similar to the effects of a physical health shock, mental health issues could influence financial decisions, leading to long-term consequences for economic status.

**Time preference**: Mental health can influence an individual's rate of time preference, which in turn affects their willingness to invest in assets with long-term returns. Becker & Mulligan (1997) argue that physical health impacts time preference because poor health shortens one's lifespan, reducing planning horizons and future utility. Similarly, mental health issues can decrease an individual's expected or perceived lifespan, or the quality of their remaining years, leading them to discount future utility more heavily.

**Human capital accumulation and budget constraints**: The previous discussion highlights the effect of mental health on preferences and the ability to optimize. However, health problems can also influence an individual's budget constraint by impacting their earnings and/or medical expenses. Several studies indicate that individuals with mental health illnesses tend to face earnings penalties and lower educational outcomes (Abramson *et al.*, 2024; Biasi *et al.*, 2021; Cornaglia *et al.*, 2015; Wang *et al.*, 2023). Mental health issues are also linked to increased medical expenses, which can erode an individual's wealth. Gianfrancesco *et al.* (2005) show that family members who live

with patients with serious mental disorders incur increased healthcare expenses. As a result, individuals with mental health conditions may invest less than healthier individuals due to limited available funds for investment or a need to maintain liquid assets to cover their medial expenses.

**Mood**: Mental health also affects emotions, which can influence investment evaluations. Those in better moods tend to view risks more optimistically, while those with poorer moods assess risks more pessimistically (Fehr-Duda *et al.*, 2011; Wright & Bower, 1992).

### 2.3 Hypotheses development

Motivated by the channels discussed above, we formulate testable hypotheses linking childhood mental health to adult household balance-sheet fragility. The mechanisms outlined above, namely human capital and medical spending constraints, cognitive and non-cognitive limitations, and shifts in risk-taking and horizons, all imply reduced capacity to accumulate buffers and, potentially, a greater reliance on costly short-term credit. Thus, we hypothesize that:

**Hypothesis 1:** *Early-life mental health conditions are associated with higher adult household financial fragility.*

We next state hypotheses for the balance-sheet margins that underlie this aggregate relationship. Earnings penalties, lower educational attainment, and higher medical expenditures tighten lifetime budget constraints and can reduce the ability to build liquid buffers (Abramson *et al.*, 2024; Biasi *et al.*, 2021; Cornaglia *et al.*, 2015; Wang *et al.*, 2023; Gianfrancesco *et al.*, 2005). In addition, cognitive limitations may reduce participation in financial markets and lower long-run asset accumulation (Christelis *et al.*, 2010), while higher risk aversion and pessimistic beliefs may tilt portfolios toward safer but potentially lower-return assets (Edwards, 2008; Rosen & Wu, 2004; Fehr-Duda *et al.*, 2011; Wright & Bower, 1992). Shorter planning horizons may further reduce incentives to save for long-run objectives (Becker & Mulligan, 1997). These considerations motivate:

**Hypothesis 2:** *Early-life mental health conditions are associated with lower nonhousing asset accumulation and with lower participation in risky financial markets.*

Homeownership and housing equity require upfront liquidity (down payments), long-horizon commitments, and the ability to navigate complex borrowing decisions. Childhood mental health

conditions may therefore be associated with less homeonwership participation and housing wealth accumulation through tighter budget constraints and lower decision-making capacity, which are linked to worse mortgage and credit outcomes (Agarwal & Mazumder, 2013; Gerardi *et al.*, 2013; Grinblatt *et al.*, 2011; Stango & Zinman, 2009), as well as through greater risk aversion toward illiquid leveraged investments (Rosen & Wu, 2004). We therefore hypothesize:

**Hypothesis 3:** *Early-life mental health conditions are associated with a lower likelihood of homeownership and lower housing wealth (home equity).*

Finally, tighter budgets and lower self-efficacy may increase reliance on borrowing to smooth consumption and cover expenses (Abramson *et al.*, 2024; Xu *et al.*, 2015; Kuhnen & Melzer, 2018; Parise & Peijnenburg, 2019). Because mortgage borrowing is typically tied to long-term investment in housing, whereas non-mortgage debt often reflects shorter-term liquidity needs, these channels also suggest potential shifts in debt composition. This motivates:

**Hypothesis 4:** *Early-life mental health conditions are associated with higher non-mortgage debt.*

## 3 Data

We combine data on individuals' childhood mental health diagnosis with detailed household demographic and financial information as well as cognitive and non-cognitive measures from the University of Michigan Health and Retirement Study (HRS). Launched in 1992, HRS is a representative longitudinal panel that tracks approximately 20,000 older adults in the United States. Participants enter the study between the ages of 51 and 56 along with their spouses. They are surveyed biennially and typically continue to participate until they pass away. We use the confidential HRS survey version that additionally includes important covariates such as race, address, and birth information. Our final sample period covers the waves from 1998 to 2020, as waves prior to 1998 missed several questions or phrased them differently, rendering them incompatible. We additionally impute missing demographic values based on information from other survey waves. We split the data set into a single and couple household sample as their underlying situation and therefore decision-making process may be fundamentally different. We further exclude same-sex households from the sample, as they may face distinct societal and financial challenges that could

differentially affect the outcomes of interest. A single household is a household whose member is never married, divorced, or widowed. A couple household is a household whose members are married.

All variable definitions are summarized in Appendix Table A.I. The final data set contains around 77,000 individual-survey year observations for single household sample, and 68,000 household-survey year observations for the couple household sample. The number of observations will be lower for some variables that are not available in each survey year. We split the variable discussion into four sections: the childhood mental health indicator, the financial outcome variables, the polygentic scores, and controls/other variables.

### 3.1 Childhood mental health

The key independent variable of interest identifies individuals with childhood mental health conditions. We construct the indicator variable *CHILDHOOD MENTAL HEALTH (CMH)* equal to 1 if an individual self-reports that she was diagnosed with depression or other psychological problems before the age of 16. Appendix Figure A.I reports the exact questions individuals are asked by HRS. Even though this question has only been introduced in 2006, it is available for all respondents that did not exit the survey before 2006 given the cross-sectional nature of the data point. Table 1 documents that 5.5%(3.7%) of observations have a childhood mental health condition in the single (couple) household sample across all survey waves. A potential concern with this measure is that the childhood mental health condition is self-reported, and due to bias or stigma suffers from under-reporting. Benchmarking our mental illness incidence rate with the Centers for Disease Control and Prevention childhood mental health incidence statistics suggests that our measure is similar to that for depression prevalence, however still lower when considering any mental illness.[4]

[Insert Table 1 about here]

[4] Bitsko (2022) find that 4.4% of children aged 3-17 years have been diagnosed with depression between 2016 and 2019, while the incidence rate of attention-deficit/hyperactivity disorder and anxiety is approximately one in eleven for children aged 3-17 years. The incidence rate of experiencing at least one major depressive episode is one in five for children aged 12–17 years.

### 3.2 Financial Outcomes & Financial Fragility Index

Our main outcomes capture households' long-run balance-sheet positions and, in particular, a composite measure of household financial fragility. We obtain information on households' assets, home ownership, and liabilities information from RAND HRS Detailed Imputation File, which provides harmonized, wave-by-wave measures consistent with the income and wealth aggregates in the RAND HRS Longitudinal File. All the monetary variables are deflated based on the 2008 CPI to account for inflation, and we winsorize all quantitative financial variables at the 1% level to mitigate the impact of outliers.

We conceptualize household financial fragility in our setting as high ex-ante exposure to economic shocks due to thin wealth buffers and collateral. We summarize the household balance sheet using three variables: *NONHOUSING ASSETS*, defined as the value of all assets except the value of primary and secondary residence, *HOME EQUITY*, defined as the self-reported property values of a household's primary and secondary residences net of outstanding mortgage balances, and *OTHER DEBTS*, defined as non-mortgage liabilities, such as credit card balances, medical debt, and loans from relatives. Together, these measures capture liquid/financial wealth, housing collateral, and unsecured leverage. We construct a financial fragility index as the first principal component of the three balance-sheet variables after applying a $\log(1+x)$ transformation. We orient the index so that higher values correspond to greater fragility (i.e., lower nonhousing assets and home equity and/or higher other debts). The first principal component explains 49.09% of the total variation.

Fernández-López *et al.* (2024) highlight the term financial fragility is multifaceted and is also referred to as the inability of household to cope with unexpected expenses (see for instance Hasler *et al.* (2018) and Lusardi *et al.* (2011)). To assess whether our index captures this notion, we correlate it with survey questions on households' perceived financial situation and ability to cover (unexpected) expenses. While these survey questions only exist for one wave and a small number of observations, they serve as important validation exercise. Appendix Table A.II reports the correlations with the financial fragility index and amongst each other. We find that our financial fragility index has a correlation between 0.26 and 0.47 with the other survey questions, which is roughly in line with the correlation between the measures themselves which are between 0.24 and 0.73. We

therefore view the first principal component as a reasonable proxy for household financial fragility in the HRS.

In addition to these main variables we additionally collect the following household asset variables: *FINANCIAL ASSETS*, the net value of stocks, mutual funds, investment trusts, bonds, bond funds, other savings, and balances in checking, savings, or money market accounts, CDs, government savings bonds, and Treasury bills; *SAFE ASSETS*, balances in savings and checking accounts, money market funds, CDs, government bonds, and Treasury bills following Bogan & Fertig (2013); *RISKY ASSETS* the net value of stocks, mutual funds, and investment trusts following Bogan & Fertig (2013), *STOCK MARKET PARTICIPATION*, an indicator equal to one if households invest in the stock market, *HOME-OWNER*, an indicator equal to one if the household responds owning a home during the survey wave. Table 1 shows that mean nonhousing assets (financial assets) amount to $135,805 ($67,689) for single households and $286,928 ($115,213) for coupled households. 18.2% (31.6%) of households participate in the stock market in the single (coupled) household sample. The average share of risky assets relative to total financial assets is 10.6% (17.8%) for single (coupled) households. Regarding housing wealth, 62.7% (88.2%) of households in the single (coupled) sample are homeowners. Coupled households also accumulate substantially more home equity, averaging $164,206, compared to $93,324 for single households.

On the liability side, we also gather information on households' *MORTGAGES*, which include both amounts on the primary residence and secondary residence. Table 1 documents that 37.4% (27.4%) of households in the single household sample have debt, respectively non-mortgage debt. The share is slightly higher in the couple household sample with 47.3% (28.3%) having any debt (any non-mortgage debt).

### 3.3 Control and other variables

We gather a rich set of demographics and household characteristics, including gender, race/ethnicity, age, education, marital status, number of children, employment status, current health, childhood financial circumstances, household income, and financial transfers to and from children.

Across the waves, about 40% of the sample are males and 60% are females, reflecting the fact that females represent a higher share in the older population in the U.S. Race is coded into four categories (White, Black, Asian, and Other), and ethnicity is coded as Hispanic versus non-Hispanic

with respondents being able to report multiple races. Current health is measured using self-reported overall health (excellent to poor). We define *BAD HEALTH* as an indicator equal to one if self-reported health is poor. We also construct an indicator *CHILDHOOD FINANCIAL HARDSHIP* by combining three childhood questions on (i) whether the family was poor, (ii) whether financial difficulties caused a move, and (iii) whether financial difficulties required help from relatives. This indicator equals one if any of these conditions hold. About 25% of respondents report childhood financial hardship. Household income (*INCOME*) is defined as the sum of respondent and spouse earnings, pensions/annuities, Social Security and disability benefits, unemployment and workers' compensation, other government transfers, capital income, and other income sources. *TRANSFER FROM (TO) CHILDREN* captures monetary amounts received from (given to) children during the survey year. Table 1 reports summary statistics for all controls.

## 4 Patterns in childhood mental illness prevalence

We begin by documenting how childhood mental health conditions vary with observable child and family characteristics. This descriptive exercise is helps understand the extent of socioeconomic and demographic concentration and provides context relative to other samples and for the subsequent analysis of financial outcomes.

We operationalize this by collapsing the panel data to the child level and restricting attention to non-time-varying covariates. We then estimate a linear probability model in which the dependent variable ($ChildMentalHealth_i$). Our most saturated specification is:

$$\begin{aligned} ChildMentalHealth_i =& \alpha + \beta^G Gender_i + \sum_{r=1}^{3} \beta_r^R Race_i + \beta^E Ethnicity_i + \beta^C ChildhoodFinHardship_i + \\ & \sum_{r=1}^{3} \beta_r^{GR} Race_i \times Gender_i + \beta^{GE} Ethnicity_i \times Gender_i + \tau_i + \kappa_i + \varepsilon_i \end{aligned} \tag{1}$$

where $Race_i$, $Ethnicity_i$, and $ChildhoodFinHardship_i$ are the race, ethnicity, and childhood financial situation of individual $i$. To account for potential differences among the respondents entering the surveys in different waves, as well as for systematic differences across generations, we

include the cohort fixed effect $\tau_i$. $\kappa_i$ is the birth state-birth year fixed effect used to control for the local economic conditions at the time of the respondent's birth.

Table 2 shows the results of estimating Equation 1. We find that females are 3% more likely to report childhood mental health conditions. This is economically large, given that only 4.3% of individuals report childhood mental health issues. Moreover, the magnitude of this coefficient is stable across specifications. This finding is in line with medical literature, which also finds that females are significantly more likely to report depression symptoms with odds ratio between 2.4 and 3.1 (Salk *et al.*, 2017). We also observe that the black race and Hispanic ethnicity coefficient is negative and statistically significant, while the coefficient on other race is positive and significant relative to the white and non-Hispanic omitted categories. These differences may reflect differences in underlying prevalence, but may also be related to differences in diagnosis, reporting, or access to care.

In column 2, we add the *Childhood Financial Hardship* indicator. In line with our expectations, we find that children that experienced financial hardship during childhood are statistically and economically significantly more likely to report mental health diagnoses. Considering that children are unlikely to be working and generating income, it is likely that financial hardship drives mental health issues rather than the other way around.

We next control for unobserved variation in childhood mental health conditions. Column 3 adds cohort fixed effects, i.e. the cohort through which a family entered into the survey, to account for unobserved differences between survey cohorts, such as attention to certain topics in one-off survey questions. Column 4 further includes birth state-birth year fixed effects to account for unobserved variation in local conditions around the time and place of birth and upbringing, such as local economic situation. These fixed effects absorb variation in the likelihood of being exposed to childhood adversities that have been found to be strongly associated with mental health occurrences (McLaughlin *et al.*, 2012). Indeed, we find that the explanatory power of the regression increases multifold. The estimated associations for female and childhood financial hardship remain highly stable in both magnitude and statistical significance across specifications, indicating that these gradients are not driven by cohort-level or local birth-environment differences captured by the fixed effects.The positive association between the female gender and individual childhood financial situation are robust in size and significance, while the magnitude on the coefficients of

black race and Hispanic ethnicity become slightly larger. In column 5, we additionally interact with the female dummy with the race and ethnicity dummies, but do not find any further economic or statistical difference in the likelihood of reporting mental health issues. Individuals' gender is not associated differently with mental health across different races and ethnicity.

[Insert Table 2 about here]

# 5 Long-term implications of childhood mental health conditions

## 5.1 Baseline results with single households

To investigate the relationship between childhood mental health conditions and financial fragility, we use the fixed-effect OLS (Ordinary Least Square) regression model and employ the full panel data. We conduct this analysis separately for single and couple household as their underlying situation and therefore decision-making process may be fundamentally different. For single and couple households analyses, the unit of observation is the given household, i.e the given individual or full household, respectively. We begin by estimating the impact of childhood mental health on financial outcomes within single households. Within single households, the match between decision taker, outcome variable and mental health diagnosis is the most clean.

The baseline specification for single family analysis is the following:

$$y_{i,t} = \alpha + \beta ChildMentalHealth_i + \boldsymbol{X_i'}\boldsymbol{\delta} + \boldsymbol{Y_{i,t}'}\boldsymbol{\lambda} + \tau_i + \kappa_i + \theta_{i,t} + \varepsilon_{i,t} \tag{2}$$

where $ChildMentalHealth_i$ is the variable of interest indicating whether individual $i$ has a childhood mental health condition or not. $\boldsymbol{X_i'}$ is the matrix of the fixed control variables, including gender, race, education, number of children, and childhood financial situation. $\boldsymbol{Y_{i,t}'}$ is the matrix of the time-varying control variables, including age, working status, health status, household income, transfer from children, transfer to children in all specifications. $\tau_i$ is the cohort fixed effect used to account for any potential differences among the respondents entering the surveys in different waves, whereas $\kappa_i$ is the birth state-birth year fixed effect, which we use to account for variation in the childhood economic conditions that may have an impact on the future financial outcomes through its influence on the childhood mental health condition. Finally, $\theta_{i,t}$ is the county-survey

year fixed effect which is used to control for the local economic conditions that may contemporaneously affect the outcome variables of interest. $\varepsilon_{i,t}$ is the error term for individual $i$ in the survey year $t$.

Childhood and adolescent mental health conditions may affect later-life productivity, exposure to subsistence-cost shocks, cognitive skills, risk preferences, and perceived discounting, as discussed in Section 2. Through these channels, early-life mental health can translate into persistent differences in adult financial outcomes and greater financial fragility.

Table 4 shows that childhood mental health conditions are associated with statistically and economically meaningful increases in financial fragility. In our baseline specification, the indicator for childhood mental health illness is associated with a 0.251 higher value of the financial fragility index, which is statistically and economically significant. Since the index is standardized to have a standard deviation of one, individuals with childhood mental health illness are roughly a quarter of a standard deviation more financially fragile than otherwise similar individuals. Columns 2 to 4 report the relationship with the components of the financial fragility index. Across all dimensions, childhood mental health is associated with greater financial fragility, i.e. lower non-housing assets, lower home equity and higher other debt. This baseline correlation suggests that individuals with childhood mental health conditions build up substantially thinner wealth buffers and are more financially vulnerable.

[Insert Table 4 about here]

### 5.2 Long-term magnitude implications exploiting genetic variations

A fundamental concern in our analysis is that childhood mental health conditions may be correlated with unobserved factors not captured by our OLS model with controls and fixed effects. In particular, individual-level characteristics like parental support and local school quality are not fully absorbed by the fixed-effects specification, raising the possibility of omitted variable bias. To better identify the impact of childhood mental health and move toward a causal interpretation, we seek an exogenous source of variation in childhood mental health conditions. While establishing truly exogenous variation is challenging in this context, we leverage genetic differences that predict the likelihood of latent mental health conditions to push towards causality.

Our genetic proxy is a polygenic score (PGS) for major depressive disorder. A PGS is a linear index of genetic markers associated with a given trait (see Barth *et al.* (2020) for a detailed discussion). Most human DNA is identical across individuals, but a small fraction of the genome varies at specific locations known as single-nucleotide polymorphisms (SNPs). In a genome-wide association study (GWAS), researchers regress an outcome (here, MDD) on each SNP (controlling for relevant covariates) to estimate SNP-specific effect sizes. A polygenic score is then constructed by taking a weighted sum of individuals' SNP, using these GWAS effect sizes as weights. We use GWAS results from the Psychiatric Genomics Consortium (2013) for major depressive disorder to calculate each respondent's score. All estimation uses out-of-sample GWAS weights (no HRS data enter the GWAS discovery stage). The PGS is standardized to have mean 0 and standard deviation 1 in our sample. We restrict the analysis to respondents of European ancestry, as GWAS results tend to best replicate in samples with a similar ancestral composition as the GWAS discovery sample.

The validity of this genetic instrument rests on the key assumption that genetic variants affect adult economic outcomes only through their influence on childhood mental health (the exclusion restriction). Although the PGS is based on DNA (which is fixed at conception), it may still correlate with family environment and parental investments. This correlation may exist because parents transmit both genes and environment to their children. As a result, a high PGS for MDD could be associated with advantageous family circumstances (for example, more supportive parenting or higher socioeconomic status), meaning the score might proxy not only genetic predisposition but also correlated environmental factors. A clean causal interpretation of the PGS effect would require accounting for such family background influences. While we cannot include family-level fixed effects (e.g., parent fixed effects) in our design, we incorporate several proxies for childhood environment: the individual's childhood financial situation (a proxy for early socioeconomic status), the individual's education attainment, and fixed effects for birth state × birth year (which capture broad cohort and regional background). These controls help absorb some of the unobserved family-level variation, pushing our estimates closer to a causal interpretation by isolating the variation in mental health linked to genetic factors rather than to upbringing.

Thus, although we employ the PGS in a 2SLS framework, we acknowledge that it only satisfies the criteria for a valid instrument hinges on stringent assumptions. Nevertheless, using genetically predicted variation in mental health offers a valuable robustness check. The genetic

instrument mitigates attenuation bias from measurement error in mental health and reduces bias from unobserved confounders that correlate with both mental health and economic outcomes. In essence, the PGS approach moves our estimates in the direction of a causal effect by isolating a component of mental health that is pre-determined (at birth) and arguably less entangled with environmental noise. While it cannot completely purge all confounding influences, this strategy provides suggestive evidence that strengthens the interpretation of our findings and our assessment of magnitudes.

We implement a two-stage least squares (2SLS) regression framework to estimate the effect of childhood mental health on adult outcomes using the PGS as an instrument. While our base-line regression is at the single household $\times$ survey wave, variation at the polygenetic scores is at the individual level. We therefore run the first stage at single household level and use predicted childhood mental health condition in the second stage. Specifically, We run the following two-stage least squares regression:

$$ChildMentalHealth_i = \alpha + \beta + \boldsymbol{X_i'}\delta + \tau_i + \kappa_i + \varepsilon_{i,t} \tag{3}$$

$$y_{i,t} = \alpha + \beta PredChildMentalHealth_i + \boldsymbol{X_{i,t}'}\delta + \boldsymbol{Y_{i,t}'}\boldsymbol{\lambda} + \tau_i + \kappa_i + \theta_{i,t} + \varepsilon_{i,t} \tag{4}$$

We use the same fixed effects and controls as in the base-line regression in the second stage, but restrict first-stage level controls and fixed effects to those with variation at the individual level, i.e. the birth state-birth year fixed effect ($\kappa_i$), the cohort fixed effect ($\tau_i$), and the matrix of the fixed control variables ($\boldsymbol{X_i'}$), including gender, race, education, number of children, and childhood financial situation. Additionally, following Barth *et al.* (2020), we include the first 10 principal components of the full matrix of SNP data in the GWAS control set as controls. Price *et al.* (2006) has shown that the principal components capture geographic variation. Including these controls can alleviate the concerns that the polygenetic scores are only linked to historical ancestry groups rather than biology at the individual level. Standard errors are clustered at the state of birth level in the first stage regression and at the county-by-year level in the second stage.

The first-stage regression confirms that the major depressive disorder polygenic score is a

strong predictor of childhood mental health problems in Table 5. Individuals with higher genetic risk for depression are significantly more likely to have experienced mental health issues in childhood. The F-statistic is well above conventional thresholds, alleviating weak-instrument concerns. This validates the premise that the polygenic index captures a relevant latent component of early mental health.

[Insert Table 5 about here]

Using the predicted childhood mental health condition, we find that the relationships are directionally consistent, but the magnitudes are 10 to 30 times larger, i.e. more negative for assets and more positive for debt than corresponding OLS estimates for European ancestry only (see Appendix Table A.III). The fact that the IV estimates exceed the OLS estimates in absolute value by such margins is unlikely only explained by attenuation bias in the OLS results from measurement error in the childhood mental health variable. Instead, it suggests that it may also reflect that OLS was biased toward zero by positive covariance with unobservables. Any mechanism that makes diagnosis/recorded childhood mental health more common in advantaged childhood environments will push OLS upward. For instance, families with greater resources may be more likely to obtain a diagnosis in childhood and their children may accumulate more assets as adults.

In sum, the evidence indicates that childhood mental health problems have a large, lasting, and economically significant impact on an individual's balance sheet: They substantially weaken asset accumulation, contribute to greater indebtedness in adulthood and thus financially fragility overall.

# 6 Mechanisms linking childhood mental health to financial outcomes

## 6.1 Differences in financial choices

To shed more light onto what accumulates to greater financial fragility of individuals with childhood mental health, we next examine household portfolio composition and borrowing patterns in more detail. On the asset side, Table 6 shows that childhood mental health conditions are associated with lower financial asset holdings. We also find a statistically significant negative association with stock market participation. While statistically insignificant at conventional levels, we also ob-

serve directionally that individuals with childhood mental health conditions exhibit a higher share of safe assets and a lower share of risky assets. Panel A column 5 further indicates that individuals with childhood mental health conditions are on average 7.6% less likely to be a home-owner. The effect on home-ownership is statistically significant and economically large. Lower (financial) capabilities to afford home-ownership, a lower preference for home-ownership and the financial, emotional and locational burdens and restrictions associated with home-ownership may all contribute to the observed difference in home-ownership for individuals with childhood mental health conditions.

Next, we turn to liabilities and distinguish between mortgage and non-mortgage borrowing (e.g., credit card balances, personal loans, and auto loans). Panel B of Table 6 restricts the sample to debt holders. Conditional on holding debt, individuals with childhood mental health issues are associated with less total debt. Strikingly, the composition of debt reveals that the lower amount of debt is driven by mortgage debt. While individuals with childhood mental health conditions are associated with statistically significantly less mortgage debt, they are associated with statistically significantly more other debt. These observations suggest that the difference in debt accumulation is likely driven by debt used to cover short-term consumption needs rather than long-term investments. Taken together, the asset and liability patterns are consistent with lower exposure to housing-related leveraged investment and greater reliance on unsecured borrowing, which may contribute to higher balance-sheet fragility among individuals with childhood mental health conditions.

[Insert Table 6 about here]

### 6.2 Differences in cognitive and non-cognitive abilities

Childhood mental health conditions may affect individuals on multiple cognitive and non-cognitive dimensions, which may contribute to the differences that we document (see Section 2). Specifically, these may affect individuals productivity / earnings, cognitive ability, economic expectations, confidence and discount rate perception. In this Section we explore how childhood mental health conditions correlate with measures of cognitive and non-cognitive abilities.

First, we construct a measure of individuals' cognitive ability based on a word recall test. The

interviewer reads a set of 10 words and asks the interviewee to recall as many words as possible. The measure of cognitive ability, *No. of Words Recalled*, is the number of correctly recalled words. Table 1 documents that individuals recalled on average 5.3 (5.6) words in the single (couple) household sample.

Next, we construct a set of non-cognitive measures. Non-cognitive measures include depression expectation, stock expectation, life span expectation, financial planning horizon and overconfidence. The first three are about individuals' expectations: HRS asks individuals the following three questions: [1] What do you think are the chances that the U.S. economy will experience a major depression sometime during the next 10 years or so? [2] By next year at this time, what is the percent chance that mutual fund shares invested in blue chip stocks like those in the Dow Jones Industrial Average will be worth more than they are today?, and [3] What is the percent chance that you will live to be 85 or more? Respondents answers are reported in percentages, which we recode into decimals. We define these as measures of individuals' [1] *US DEPRESSION EXPECTATION*, [2] *US STOCK EXPECTATION*, and [3] *LIFE SPAN EXPECTATION*. These questions were inconsistently included across survey years and only available for the periods 1998–2008, 2002–2020, and 1998–2020, with 2012 missing.

Related to individuals' life span expectation and investment horizon, HRS also asks individuals about their financial planning horizon. Specifically, respondents were asked about the households' planned saving and spending horizon with the following options: next few months, next year, next few years, next 5-10 years, or longer than 10 years. We create an indicator variable *LONG FINANCIAL PLAN HORIZON* equal to one if respondent's planning horizon is 5-10 years or longer than 10 years and zero otherwise. 39.1% (46.9%) of the single (couple) household sample has a "long financial planning horizon". This variable is asked every survey year from 1998 to 2020 except for 2008 and 2010.

Finally to measure overconfidence, we follow Ke (2021) and compare respondents word recall score to their subjective memory rating. Survey respondents are asked to rate their memory at the survey time as excellent, very good, good, fair or poor. Simultaneously, they execute a memory test, the word recall test as mentioned as a measure of cognitive ability. We seek to identify individuals who incorrectly rate their memory as "better-than-average effect", which is a measure of overconfidence caused by an irrational shift in the perceived mean (Grinblatt & Keloharju, 2009).

We first calculate the average number of correct words recalled by survey year and age group. We consider a within survey year and age group average to rule out any changes in difficulty level across survey years and the impact of age on memory. The age groups are the following: $(0, 50)$, $[50, 65)$, $[65, 70)$, $[70, 75)$, $[75, 80)$, $[80, 85)$, $[85, 90)$, and $[90, +\infty)$. *OVERCONFIDENCE* is an indicator variable equal to 1 for those who rated their memory as excellent or very good but performed worse than their survey-year and age-group average in the word recall test. It is zero otherwise. In short, overconfidence measures whether a respondent overrates his or her memory compared to its peer-benchmarked actual performance. Notably, overconfidence has been shown to relate to risk-taking, as overconfident people are more likely to be risk-seeking holding for instance more risky assets (e.g. Barber & Odean, 2001; Scheinkman & Xiong, 2003).

Our results paint an interesting picture. First, we observe that childhood mental health conditions are associated with lower cognitive abilities in column 1 of Table 7. Individuals with childhood mental health conditions are associated with a lesser ability to recall worlds. Lower cognitive abilities, possibly driven by the impact of individuals' mental health on their educational experience, may directly translate into lower earnings potential and thus may explain some of the differences in total assets/ home-ownership. Further lower cognitive abilities may also explain the reduced participation in riskier asset classes that may be perceived as more complex.

[Insert Table 7 about here]

Second, we also document that childhood mental illness is associated with more pessimistic economic outlook. Column 2 in Table 7 shows that childhood mental health conditions are associated with a statistically and economically significantly higher perceived likelihood of expecting a US depression. Similarly, childhood mental illness is also associated with a lower perceived likelihood of experiencing positive stock market performance, although insignificant. The relationship between childhood mental illness and more pessimistic economic outlooks may partially explain why we observe a higher proportion in safe assets. Such structural allocational differences may also translate into differences in total asset accumulation.

Third, childhood mental health conditions are associated with a shorter planing horizon. We observe that childhood mental illness is associated both with shorter life expectations and shorter financial planning horizons. Shorter planning horizon also align with a shift towards safer as-

sets and possibly less saving. This result may thus also contribute towards why individuals with childhood mental illness are significantly less likely to be home -owners, as home-ownership is a long-term investment.

Lastly, we also observe that childhood mental illness is associated with a statistically significantly lower likelihood of being overconfident (compare column 6 in Table 7). Overconfidence, often modeled as an overestimation of the precision of private information signals, results in investors holding more risky assets (e.g. Barber & Odean, 2001; Scheinkman & Xiong, 2003). In line with these findings, the lower likelihood of being overconfident of individuals with childhood mental health conditions may also explain the shift towards safer assets.

Taken together childhood mental health seems to affect long-term financial outcomes through a variety of factors. Individuals with childhood mental health conditions are economically and statistically significantly associated with lower cognitive abilities, more pessimistic economic outlooks, shorter planning horizons across both single and couple households. We also observe that individuals with childhood mental health conditions within the single household are associated with being less overconfident. The directional effects observed on the cognitive and non-cognitive abilities for individuals with childhood mental health conditions line up with the observed long-term financial outcome differences, specifically having fewer assets, a lower probability of being a home-owner, a lower likelihood of stock market participation and a higher likelihood of holding debt. These may jointly again contribute to the observed higher financial fragility of individuals with childhood mental health conditions.

# 7 Mediating factors: social support, coping-mechanisms and financial literacy

We examine heterogeneity in the association between childhood mental health and adult household financial fragility. Differences in coping strategies and access to support may shape how early-life mental health correlates with later financial behavior. We focus on four dimensions : gender, race/ethnicity, financial literacy, and household structure (single versus coupled households). Empirically, we augment our baseline specification with interaction terms between Childhood mental health and each heterogeneity indicator while maintaining the same fixed effects and

control set as in the baseline model. Table 8 reports results for single households in Panel A and coupled households in Panel B. For coupled households, all variables are defined at the household level; $ChildMentalHealth_i$ equals one if at least one household member reports a childhood mental health condition. Because spouses may differ in birth state and birth year, we include both partners' birth state $\times$ birth year fixed effects.

First, male and female children and adults experience mental health challenges differently and may employ different coping strategies. While women are more likely to internalize problems (e.g., anxiety disorders), men are more likely to externalize problems (Herrmann *et al.*, 2024; Martin & Hadwin, 2022). These differences could, in principle, translate into differential associations with wealth accumulation, housing, and borrowing decisions, given documented gender differences in household finance outcomes such as housing (Goldsmith-Pinkham & Shue, 2023), macro-financial expectations (D'Acunto *et al.*, 2020), and investing (Barber & Odean, 2001). However, Table 8 provides little evidence of gender heterogeneity in the childhood mental health and financial fragility association. For both single households (Panel A) and coupled households (Panel B), the CMH$\times$Female interaction term is close to zero and statistically insignificant.

The financial consequences associated with mental health may also vary across racial and ethnic groups due to cultural differences in diagnosis and treatment, unequal access to mental health care, and differing socioeconomic starting points. We therefore allow the childhood mental health association to differ by race and ethnicity. Across single households (Panel A), the childhood mental health interaction terms with race and Hispanic ethnicity are statistically insignificant at conventional levels. In coupled households (Panel B), we similarly find limited evidence of systematic heterogeneity by race/ethnicity. One except is the interaction term between childhood mental health and Asian, which is negative and marginally statistically significant. Given that the share of All-Asian couples in our sample is only 1%, we interpret this isolated finding cautiously and do not view it as a robust pattern. Overall, the interaction estimates suggest that the positive association between childhood mental health and financial fragility exist across race and ethnicity.

Another factor which may mitigate the impact of childhood mental health is financial literacy, i.e. people's knowledge of and ability to use fundamental financial concepts in their economic decision-making, enables individuals to use their resources to the fullest (Lusardi & Mitchell, 2014, 2023). Financial literacy may thus be able to mitigate some of the economic consequences

of childhood mental health as they equip individuals with tools and knowledge to navigate financial challenges. First, it may directly help individuals to make the most of available resources and build resilience against financial stress, as individuals with better financial literacy better know how to manage limited resources and plan for the future. Second, it may also foster confidence and thereby mitigate the impact of mental health, as individuals gain control over one's financial situation.

Following Ke (2021), who uses previous work experience in finance as a measure of financial sophistication, we construct an indicator variable *Work In Finance*, which is equal to one for individuals who have worked in finance, to capture individuals with a higher degree of financial literacy, acknowledging that this measure may capture both knowledge and selection into finance-related occupations. Survey respondents report their current or last work before retirement. We classify respondents who report Finance, Insurance, or Real Estate as having worked in the finance industry. As we only know individuals' last industry of work and not the entire employment history of the respondents, this measure is a lower bound, as some respondents might have switched industries over their working life. Table 1 documents that 6.2% (7.2 %) of the single (couple) household sample has worked in finance. Table 8 shows that working in finance is associated with lower financial fragility for both single and coupled households. Moreover, the CMH$\times$Finance interaction term is negative in both samples, consistent with the idea that financial literacy may attenuate the CMH–fragility gradient. That said, the interaction term is borderline insignificant at conventional levels. Appendix Table A.VIII zooms into the components of the financial fragility index and documents that the interaction term for the couple household is positive and statistically significant for home equity and negative and statistically significant for other debt.

Finally, we compare single and coupled households as a proxy for social support and joint decision-making. Partners may provide informational and emotional support, pool risk, and help smooth adverse shocks, potentially weakening the association between childhood mental health and later financial fragility. Comparing Panels A and B, the baseline childhood mental health coefficient is modestly smaller for coupled households than for single households. While this pattern is consistent with a buffering role of partnership, the difference is small and a two-estimate z-test would reject differences in mean.

Taken together, the heterogeneity analysis suggests that the positive association between child-

hood mental health and financial fragility is broad-based. We find little evidence that it differs systematically by gender or race/ethnicity, while financial literacy may be able to help to attenuate some of the effects of childhood mental health conditions.

# 8 Conclusion

In this paper, we empirically investigate the long-lasting impact of early life mental disorders on asset ownership decisions and debt accumulation. Individuals who experienced childhood mental health challenges are significantly more likely to be financially fragile, accumulating fewer assets, less home equity and more non-mortgage debt. These patterns jointly imply thinner buffers and weaker collateral positions in adulthood.

To address concerns that childhood mental health may be correlated with other unobserved early-life factors, we complement the baseline analysis with a two-stage specification that instruments childhood mental health using a polygenic score for major depressive disorder. The estimates are directionally consistent, but substantially larger than the corresponding OLS estimates, suggesting that conventional estimates may understate the magnitude of the long-run economic consequences associated with early-life mental health.

We also explore factors that may help rationalize the balance-sheet patterns. Childhood mental health is associated with lower cognitive performance and with non-cognitive correlates consistent with shorter horizons and more pessimistic beliefs as well as a lower likelihood of overconfidence. The heterogeneity analysis indicates that the positive association between childhood mental health and financial fragility is broad-based, with limited evidence of systematic differences by gender or race/ethnicity.

Understanding how childhood mental health conditions influence financial outcomes later in life is valuable, as these conditions can be addressed through treatment and interventions. Our findings underscore the importance of understanding the long run impact of early life mental health conditions not only by health care professionals, but also by financial regulators and social insurance policy makers.

# 9 Figures & Tables

## TABLE 1: SUMMARY STATISTICS

This table reports the summary statistics (mean, standard deviation, and the number of observations) for the Health Retirement Survey (HRS) sample from 1998 to 2020. We report the summary statistics separately by single households and couple households. A single household is a household whose member is never married, divorced, or widowed. A couple household is a household whose members are married. Panel A reports summary statistics at the household member level, i.e. we include all individuals within a household as separate observation. Summary statistics reported at the household member level include demographics in Panel A.1 and cognitive and non-cognitive abilities in Panel A.2. Panel B documents summary statistics at the household level, i.e. we aggregate individual information at the household level. We report summary statistics for income, assets, and debts at the household level in Panel B.1, Panel B.2, and Panel B.3, respectively.

| | Single Household Sample | | | Coupled Household Sample | | |
|---|---|---|---|---|---|---|
| | Mean | Standard Deviation | Observations | Mean | Standard Deviation | Observations |
| **Panel A: Household member as unit of observation** | | | | | | |
| *Panel A.1: Demographic* | | | | | | |
| Childhood Mental Health (CMH) | 0.055 | 0.228 | 77,390 | 0.037 | 0.189 | 136,002 |
| Female | 0.729 | 0.444 | 77,390 | 0.525 | 0.499 | 136,002 |
| Race: White | 0.702 | 0.458 | 77,390 | 0.823 | 0.382 | 136,002 |
| Race: Black | 0.253 | 0.435 | 77,390 | 0.124 | 0.330 | 136,002 |
| Race: Asian | 0.011 | 0.104 | 77,390 | 0.015 | 0.123 | 136,002 |
| Race: Other | 0.099 | 0.299 | 77,390 | 0.091 | 0.287 | 136,002 |
| Ethnicity: Hispanic | 0.119 | 0.324 | 77,390 | 0.124 | 0.330 | 136,002 |
| Age | 68.753 | 13.522 | 77,390 | 63.957 | 10.197 | 136,002 |
| Years of Education | 12.354 | 3.191 | 77,390 | 12.798 | 3.158 | 136,002 |
| No. of Children | 2.966 | 2.257 | 77,390 | 3.336 | 2.112 | 136,002 |
| Work For Pay | 0.320 | 0.466 | 77,390 | 0.439 | 0.496 | 136,002 |
| Work in Finance | 0.062 | 0.240 | 62,551 | 0.072 | 0.258 | 117,510 |
| Bad Health | 0.091 | 0.288 | 77,390 | 0.053 | 0.224 | 136,002 |
| Childhood Financial Hardship | 0.259 | 0.438 | 77,390 | 0.248 | 0.432 | 136,002 |
| *Panel A.2: Noncoginitive and Cognitive Abilities* | | | | | | |
| US Depression Expectation | 0.501 | 0.308 | 16,987 | 0.453 | 0.292 | 35,841 |
| US Stock Expectation | 0.449 | 0.270 | 46,170 | 0.482 | 0.258 | 77,056 |
| Life Span Expectation | 0.470 | 0.331 | 61,092 | 0.488 | 0.306 | 108,836 |
| Plan Horizon | 0.390 | 0.488 | 30,045 | 0.458 | 0.498 | 56,494 |
| Risk Aversion | 0.766 | 0.424 | 6,756 | 0.781 | 0.414 | 20,179 |
| Overconfidence | 0.113 | 0.317 | 73,541 | 0.110 | 0.313 | 128,600 |
| No. of Correct Words Recalled | 5.374 | 1.903 | 73,714 | 5.822 | 1.992 | 129,868 |
| **Panel B: Household as unit of observation** | | | | | | |
| *Panel B.1: Income* | | | | | | |
| Income ($, in thousands) | 36.831 | 48.581 | 77,390 | 79.858 | 73.352 | 68,389 |
| Transfer from Children ($, in thousands) | 0.202 | 1.971 | 77,390 | 0.132 | 2.224 | 68,389 |
| Transfer to Children ($, in thousands) | 2.262 | 17.653 | 77,390 | 3.420 | 19.906 | 68,389 |
| *Panel B.2: Assets* | | | | | | |
| Nonhousing Assets ($, in thousands) | 135.805 | 306.556 | 77,390 | 286.928 | 457.607 | 68,389 |
| Participate in Stock Market | 0.182 | 0.386 | 77,390 | 0.316 | 0.465 | 68,389 |
| % Safe Assets | 0.577 | 0.456 | 77,390 | 0.587 | 0.428 | 68,389 |
| % Risky Assets | 0.106 | 0.265 | 77,390 | 0.178 | 0.315 | 68,389 |
| Financial Assets ($, in thousands) | 67.689 | 184.250 | 77,390 | 115.213 | 238.902 | 68,389 |
| Own Home | 0.627 | 0.484 | 77,390 | 0.882 | 0.322 | 68,389 |
| Home Equity ($, in thousands) | 93.324 | 153.724 | 77,390 | 164.206 | 193.439 | 68,389 |
| *Panel B.3: Debts* | | | | | | |
| Any Other Debts | 0.310 | 0.463 | 77,390 | 0.342 | 0.474 | 68,389 |
| Mortgages ($, in thousands) | 20.134 | 53.133 | 77,390 | 42.873 | 76.814 | 68,389 |
| Other Debts ($, in thousands) | 2.922 | 8.807 | 77,390 | 4.093 | 10.685 | 68,389 |
| Total Debts ($, in thousands) | 24.315 | 56.188 | 77,390 | 50.406 | 81.806 | 68,389 |
| % Other Debts | 0.217 | 0.399 | 77,390 | 0.172 | 0.350 | 68,389 |

## TABLE 2: PREVALENCE OF CHILDHOOD MENTAL HEALTH

The unit of observations is survey respondent. The sample includes all individuals surveyed biennially from 1998 to 2020. The dependent variable is *CMH*, which is an indicator variable equal to 1 if the individual was diagnosed with mental health conditions in childhood (before the age of 16). The independent variables are defined as follows: *Female* is an indicator variable equal to 1 if the individual is female; *Race: Black* is an indicator variable equal to 1 if the individual's race is Black; *Race: Asian* is an indicator variable equal to 1 if the individual's race is Asian or Pacific Islander; *Race: Other* is an indicator variable equal to 1 if the individual's race is Hawaiian, Native American, or Alaskan; *Ethnicity: Hispanic* is an indicator variable equal to 1 if the individual's ethnicity is Hispanic; *Childhood Financial Hardship* is an indicator equal to 1 if the individual experienced financial hardship in childhood. The model is estimated using a linear probability model. In column 3, we include cohort fixed effect. In columns 4 and 5, we include cohort and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | Dependent Variable: Childhood Mental Health (CMH) | | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Female | 0.027*** | 0.027*** | 0.031*** | 0.030*** | 0.029*** |
| | (0.003) | (0.003) | (0.003) | (0.003) | (0.004) |
| Race: Black | −0.007** | −0.010*** | −0.025*** | −0.022*** | −0.023*** |
| | (0.003) | (0.003) | (0.003) | (0.004) | (0.005) |
| Race: Asian | −0.012 | −0.010 | −0.025*** | −0.012 | −0.004 |
| | (0.010) | (0.010) | (0.010) | (0.011) | (0.016) |
| Race: Other | 0.033*** | 0.029*** | 0.019*** | 0.018*** | 0.012 |
| | (0.006) | (0.006) | (0.006) | (0.006) | (0.008) |
| Ethnicity: Hispanic | −0.008* | −0.010** | −0.022*** | −0.015** | −0.014* |
| | (0.005) | (0.005) | (0.005) | (0.006) | (0.008) |
| Female x Black | | | | | 0.002 |
| | | | | | (0.007) |
| Female x Asian | | | | | −0.014 |
| | | | | | (0.021) |
| Female x Other | | | | | 0.011 |
| | | | | | (0.011) |
| Female x Hispanic | | | | | −0.001 |
| | | | | | (0.009) |
| Childhood Financial Situation | | 0.058*** | 0.056*** | 0.055*** | 0.055*** |
| | | (0.004) | (0.004) | (0.004) | (0.004) |
| Adj. R2 | 0.005 | 0.018 | 0.032 | 0.117 | 0.117 |
| N | 27,472 | 27,442 | 27,442 | 26,860 | 26,860 |
| Cohort F.E. | No | No | Yes | Yes | Yes |
| Birth State x Year F.E. | No | No | No | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual |

## TABLE 3: FINANCIAL FRAGILITY INDEX AND CONSTRUCTED COMPONENTS

The unit of observation in this table is survey respondent $\times$ survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020. The table reports the pairwise correlation coefficients between the constructed financial fragility index and the three components used to constructed the index. *Fin. Frag. Index* is the index constructed based on the first principal component among the log form of nonhousing assets, home equity, and other debts. *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | Fin. Frag. Index | Ln(Nonhousing Assets) | Ln(Home Equity) | Ln(Other Debts) |
|---|---|---|---|---|
| Fin. Frag. Index | 1 | | | |
| Ln(Nonhousing Assets) | -0.86*** | 1 | | |
| Ln(Home Equity) | -0.86*** | 0.47*** | 1 | |
| Ln(Other Debts) | 0.08*** | -0.01*** | -0.04*** | 1 |

## TABLE 4: LONG-TERM IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY FOR SINGLE HOUSEHOLDS

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020. A single household is a household whose member is never married, divorced, or widowed. The independent variable is *CMH*, which is an indicator variable equal to 1 if the individual was diagnosed with mental health conditions in childhood (before the age of 16). The dependent variables are defined as follows: *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. *Financial Frag. Index* is the constructed measure of household financial fragility, defined as the first principal component of the three variables listed above. All specification include the following controls: Gender, race, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | (1) Financial Frag. Index | (2) Ln(Nonhousing Assets) | (3) Ln(Home Equity) | (4) Ln(Other Debts) |
|---|---|---|---|---|
| CMH | $0.251^{***}$ | $-0.597^{***}$ | $-0.979^{***}$ | $0.677^{***}$ |
| | $(0.038)$ | $(0.112)$ | $(0.198)$ | $(0.124)$ |
| Adj. R2 | 0.478 | 0.505 | 0.311 | 0.221 |
| N | 73,149 | 73,149 | 73,149 | 73,149 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual |

## TABLE 5: LONG-TERM IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY WITH POLYGENETIC SCORE IV

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020 with European Ancestry. A single household is a household whose member is never married, divorced, or widowed. The instrument variable (IV) is *Polygenetic Score*, which is the standardized score of Major Depressive Disorder (MDD) created using results from a 2013 genome-wide association study (GWAS) conducted by the MDD working group of the Psychiatric Genomics Consortium (PGC). The dependent variables are defined as follows: *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. *Financial Frag. Index* is the constructed measure of household financial fragility, defined as the first principal component of the three variables listed above. The key independent variable is *CMH*, an indicator variable equal to 1 if the solo household member has a childhood mental health condition. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | First Stage | Second Stage | | | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | CMH | Financial Frag. Index | Ln(Nonhousing Assets) | Ln(Home Equity) | Ln(Other Debts) |
| CMH | | $4.783^{**}$ | $-14.013^{***}$ | $-13.466$ | $21.989^{***}$ |
| | | (1.901) | (4.737) | (10.201) | (5.982) |
| Polygenetic Score | $0.009^{***}$ | | | | |
| | (0.002) | | | | |
| Adj. R2 | 0.182 | 0.468 | 0.485 | 0.375 | 0.346 |
| N | 11,029 | 32,641 | 32,641 | 32,641 | 32,641 |
| Cragg-Donald Wald F-statistics | 16.109 | | | | |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | No | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes |
| Controls | Childhood | All | All | All | All |
| Principal Components | Yes | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual |

## TABLE 6: LONG-TERM FINANCIAL IMPACT OF CHILDHOOD MENTAL HEALTH FOR SINGLE HOUSEHOLDS

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020. A single household is a household whose member is never married, divorced, or widowed. In Panel A, the dependent variables are asset-related measures. *Ln(Fin. Assets)* is the logarithm of the household's total financial asset value; *%Safe Assets* is the share of safe assets relative to total financial assets; *%Risky Assets* is the share of risky assets relative to total financial assets; *Stock Market Participation* is an indicator variable equal to 1 if the household invests in the stock market; and *Own Home* is a dummy variable equal to 1 if the household owns a primary or secondary residence. Columns 1 to 4 include single households with positive nonhousing assets, while Column 5 includes the full sample. In Panel B, the dependent variables are debt-related measures. *Ln(Total Debt)* is the logarithm of the household's total debt value; *Ln(Mortgage)* is the logarithm of outstanding mortgage balances; *Any Other Debts* is an indicator variable equal to 1 if the household holds non-mortgage debt; *Ln(Other Debts)* is the logarithm of non-mortgage debt balances; and *% Other Debts* is the share of non-mortgage debt relative to total household debt. Columns 1 to 5 include single households with positive total debt. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. The key independent variable is *CMH*, an indicator variable equal to 1 if the solo household member has a childhood mental health condition. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | Nonhousing Asset Holders | | | | All |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Ln(Fin. Assets) | %Safe Assets | %Risky Assets | Stock Market Participation | Own Home |
| **Panel A: Asset Allocation** | | | | | |
| CMH | $-0.462^{***}$ | 0.006 | $-0.014$ | $-0.032^{**}$ | $-0.076^{***}$ |
| | (0.107) | (0.013) | (0.009) | (0.013) | (0.170) |
| Adj. R2 | 0.440 | 0.184 | 0.284 | 0.332 | 0.258 |
| N | 62,411 | 62,411 | 62,411 | 62,411 | 73,149 |
| | | | Debt Holders | | |
| | Ln(Total Debts) | Ln(Mortgage) | Any Other Debts | Ln(Other Debts) | % Other Debts |
| **Panel B: Debt Composition** | | | | | |
| CMH | $-0.261^{***}$ | $-1.008^{***}$ | $0.088^{***}$ | $0.747^{***}$ | $0.093^{***}$ |
| | (0.077) | (0.242) | (0.017) | (0.156) | (0.021) |
| Adj. R2 | 0.387 | 0.249 | 0.285 | 0.281 | 0.369 |
| N | 31,729 | 31,729 | 31,729 | 31,729 | 31,729 |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual |

## TABLE 7: CHILDHOOD MENTAL HEALTH AND COGNITIVE AND NONCOGNITIVE ABILITIES

The unit of observation is individuals (within households) × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020. Panel A analyzes the single household sample, while Panel B analyzes the couple household sample. The dependent variables in columns 1 to 5 are measures of non-cognitive abilities and include: *US Depression Expectation*, *US Stock Expectation*, *Life Span Expectation*, *Financial Plan Horizon*, and *Overconfidence*. The dependent variable in column 6 *No. of Words Recalled* measures individuals cognitive abilities. All dependent variables are defined in Table 7. The key independent variable, *CMH*, is an indicator variable equal to 1 if the individual has childhood mental health conditions. The variable is interacted with *Female*, an indicator variable equal to 1 if the individual with childhood mental health conditions is female. Controls include race, ethnicity, age, education, number of children, current health status, working status, household income, household asset, household debt, transfer from children, transfer to children, home-ownership, and childhood financial hardship. Dollar values are all deflated to 2008 dollars. All the specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the county-by-year level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | (1) No. of Words Recalled | (2) US Depression Expectation | (3) Life Span Expectation | (4) US Stock Expectation | (5) Financial Plan Horizon | (6) Overconfidence |
|---|---|---|---|---|---|---|
| **Panel A: Single Household** | | | | | | |
| CMH | $-0.186^{***}$ | $0.049^{***}$ | $-0.026^{**}$ | $-0.002$ | $-0.054^{***}$ | $-0.021^{***}$ |
| | (0.048) | (0.017) | (0.011) | (0.008) | (0.016) | (0.007) |
| Adj. R2 | 0.390 | 0.280 | 0.279 | 0.181 | 0.203 | 0.151 |
| N | 69,562 | 15,758 | 57,284 | 42,971 | 27,916 | 69,396 |
| **Panel B: Coupled Household** | | | | | | |
| CMH | $-0.059$ | $0.055^{***}$ | $-0.033^{***}$ | $-0.014^{**}$ | $-0.023^{*}$ | $-0.001$ |
| | (0.048) | (0.012) | (0.010) | (0.007) | (0.014) | (0.007) |
| Adj. R2 | 0.372 | 0.248 | 0.237 | 0.180 | 0.167 | 0.124 |
| N | 128,637 | 35,169 | 107,469 | 75,555 | 55,487 | 127,316 |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual | Individual |

## TABLE 8: HETEROGENEITY OF LONG-TERM IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY

The unit of observation in this table is household × survey wave. The sample includes all households surveyed biennially from 1998 to 2020. Panel A analyzes the single household sample, while Panel B analyzes the couple household sample. The dependent variable is *Fin. Frag. Index*, which is constructed based on the first principal component among the log form of nonhousing assets, home equity, and other debts. The key independent variable is *CMH*, defined as an indicator variable equal to 1 if the single household member has a childhood mental health condition for Panel A and an indicator variable equal to 1 if at least one of the household members has a childhood mental health condition in Panel B. The dependent variable, *Fin. Frag. Index*, is interacted with gender (Column 1), race and ethnicity (Column 2), and financial literacy (Column 3) indicators. In Panel A, *Female* is an indicator variable equal to 1 if the individual is female; *Race: Black* is an indicator variable equal to 1 if the individual's race is Black; *Race: Asian* is an indicator variable equal to 1 if the individual's race is Asian or Pacific Islander; *Race: Other* is an indicator variable equal to 1 if the individual's race is Hawaiian, Native American, or Alaskan; *Ethnicity: Hispanic* is an indicator variable equal to 1 if the individual's ethnicity is Hispanic; *Finance* is an indicator variable equal to 1 if the individual has ever worked in finance industry. In Panel B, *Black* is an indicator variable equal to 1 if both household members are black; *Race: Asian* is an indicator variable equal to 1 if both household members are Asian or Pacific Islander; *Mix Other* is an indicator variable equal to 1 if both household members are Hawaiian, Native American, or Alaskan, or if the household members belong to different racial groups; *Hispanic* is an indicator variable equal to 1 if both household members are Hispanic; *Finance* is an indicator variable equal to 1 if one of the household members has ever worked in finance industry. All specification include the following controls: Race, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual (Panel A) and household (Panel B) level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | Dependent Variable: Financial Fragility Index | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | Baseline | Gender | Race | Financial Literacy |
| **Panel A: Single Households** | | | | |
| CMH | 0.251*** | 0.256*** | 0.287*** | 0.239*** |
| | (0.038) | (0.080) | (0.050) | (0.046) |
| Female | 0.083*** | 0.083*** | 0.083*** | 0.078*** |
| | (0.020) | (0.021) | (0.020) | (0.021) |
| CMH x Female | | −0.007 | | |
| | | (0.089) | | |
| Race: Black | 0.677*** | 0.677*** | 0.681*** | 0.634*** |
| | (0.028) | (0.028) | (0.028) | (0.030) |
| Race: Asian | 0.087 | 0.087 | 0.091 | −0.008 |
| | (0.090) | (0.090) | (0.092) | (0.090) |
| Race: Other | 0.094*** | 0.094*** | 0.094*** | 0.114*** |
| | (0.034) | (0.034) | (0.035) | (0.037) |
| Ethnicity: Hispanic | 0.468*** | 0.468*** | 0.477*** | 0.396*** |
| | (0.045) | (0.045) | (0.046) | (0.049) |
| CMH x Black | | | −0.063 | |
| | | | (0.088) | |
| CMH x Asian | | | −0.082 | |
| | | | (0.308) | |
| CMH x Other | | | 0.014 | |
| | | | (0.115) | |
| CMH x Hispanic | | | −0.136 | |
| | | | (0.116) | |
| Finance | | | | −0.190*** |
| | | | | (0.038) |
| CMH x Finance | | | | −0.215 |
| | | | | (0.136) |
| Adj. R2 | 0.478 | 0.478 | 0.478 | 0.471 |
| N | 73,149 | 73,149 | 73,149 | 58,685 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual |

| | Dependent Variable: Financial Fragility Index | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | Baseline | Gender | Race | Financial Literacy |
| **Panel B: Coupled Households** | | | | |
| CMH | 0.230*** | 0.207*** | 0.223*** | 0.187*** |
| | (0.034) | (0.065) | (0.040) | (0.039) |
| CMH x Female | | 0.025 | | |
| | | (0.073) | | |
| Black | 0.509*** | 0.510*** | 0.503*** | 0.493*** |
| | (0.033) | (0.033) | (0.033) | (0.037) |
| Asian | 0.280*** | 0.281*** | 0.327*** | 0.241** |
| | (0.094) | (0.093) | (0.091) | (0.098) |
| Mix & Other | 0.165*** | 0.166*** | 0.166*** | 0.189*** |
| | (0.026) | (0.026) | (0.027) | (0.031) |
| Hispanic | 0.323*** | 0.325*** | 0.314*** | 0.308*** |
| | (0.049) | (0.049) | (0.049) | (0.056) |
| CMH x Black | | | 0.076 | |
| | | | (0.105) | |
| CMH x Asian | | | −0.872* | |
| | | | (0.455) | |
| CMH x Mixed & Other | | | 0.001 | |
| | | | (0.085) | |
| CMH x Hispanic | | | 0.066 | |
| | | | (0.123) | |
| Finance | | | | −0.064** |
| | | | | (0.027) |
| CMH x Finance | | | | −0.175 |
| | | | | (0.119) |
| Adj. R2 | 0.569 | 0.569 | 0.569 | 0.574 |
| N | 63,933 | 63,876 | 63,933 | 48,854 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes |
| StdError | Household | Household | Household | Household |

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# A Appendix

## TABLE A.I: VARIABLE DEFINITIONS

We report the variable definitions for demographic, financial, cognitive and noncognitive, and other variables here.

| Variable Name | Variable Definition |
|---|---|
| **Panel A:** Demographic variables | |
| Gender | Gender of the respondents: Male or Female. |
| Race | Race of the respondents: White, Black, Asian or Pacific Islanders, or Others, including Native American, Native Alaskan, and other races. |
| Ethnicity | Ethnicity of the respondents: Hispanic or Non-Hispanic. |
| Age | Age of the respondents: Below 65 years, 65 years, or above 65 years. |
| Education | Education level of the respondents: Less than 12 years, 12 years, between 13 and 15 years, or more than 15 years. |
| Number of Children | The number of children a household has. |
| Childhood Mental Health | Takes value of 1 if the respondent was diagnosed with depression or other psychological problems before age 16, and 0 otherwise. |
| Health Status | Takes value of 1 if the respondent rated overall health as poor, and 0 otherwise. |
| Working Status | Takes value of 1 if the respondent was working for pay in the given survey year, and 0 otherwise. |
| Work in Finance | Takes value of 1 if the respondent has ever worked in the finance industry (either in the survey year or in the last job), and 0 otherwise. |
| Childhood Financial Hardship | Takes value of 1 if the respondent regarded themselves as poor financially, moved to different places, or received help from relatives due to financial difficulties before age 16, and 0 otherwise. |
| **Panel B:** Financial variables | |
| Nonhousing Assets | Dollar value of all assets except the value of primary and secondary residence. |
| Home Equity | Self-reported property values of a household's primary and secondary residences net of outstanding mortgage balances. |
| Other Debts | Dollar Value of non-mortgage liabilities, such as credit card balances, medical debt, and loans from relatives. |
| Financial Assets | Net dollar value of stocks, mutual funds, investment trusts, bonds, bond funds, other savings, and balances in checking, savings, or money market accounts, CDs, government savings bonds, and Treasury bills. |
| Risky Assets | Net dollar value of stocks, mutual funds, and investment trusts. |
| Safe Assets | Dollar value of the balances in savings and checking accounts, money market funds, CDs, government bonds, and Treasury bills. |
| Mortgages | Dollar value of the mortgage balances on the primary residence and secondary residence. |
| Stock Market Participation | Takes value of 1 if if households invest in the stock market. |
| Own Home | Takes value of 1 if the household responds owning a primary or secondary residence during the survey wave, and 0 otherwise. |
| Household Income | Dollar value of earnings, pensions and annuities, Supplemental Security Income (SSI) and Social Security Disability benefits, Social Security retirement benefits, unemployment insurance and workers' compensation, other government transfers, household capital income, and other income sources in a given survey year. |
| Transfer From Children | Dollar value of money received from children in a given survey year. |
| Transfer To Children | Dollar value of money provided to children in a given survey year. |
| **Panel C:** Cognitive and Noncognitive variables | |
| No. of Words Recalled | Number of words recalled correctly from a word memory test with 10 words. |
| US Depression Expectation | The chance that the U.S. economy will experience a major depression sometime during the next 10 years or so, ranging from 0 to 1. |
| US Stock Expectation | The chance that mutual fund shares invested in blue chip stocks (e.g., those in the Dow Jones Industrial Average) will be worth more than they are today, ranging from 0 to 1. |
| Life Span Expectation | The chance the respondent will live to be 85 or more, ranging from 0 to 1. |
| Financial Plan Horizon | Takes value of 1 if the respondent planned the family's saving and spending for the next 5–10 years or longer than 10 years, and 0 otherwise. |
| Overconfidence | Takes value of 1 if the respondent overrated their memory level, and 0 otherwise. |

## TABLE A.II: FINANCIAL FRAGILITY INDEX AND DIRECT FINANCIAL FRAGILITY MEASURES

The unit of observations is survey respondent. The sample includes all individuals surveyed in 2020, in which direct financial fragility measures are available. The table reports the pairwise correlation coefficients between the constructed financial fragility index and other direct financial fragility measures. *Fin. Frag. Index* is the index constructed based on the first principal component among the log form of nonhousing assets, home equity, and other debts. All other variables are ordinal measures ranging from 1 ("Not at all fragile") to 5 ("Completely fragile"), corresponding to a series of questions directly related to household financial fragility. *Pay Bills* measures the difficulty of meeting monthly household bills. *Unexp. Expense* measures the ability to handle a major unexpected expense. *Fin. Future* measures confidence in securing one's financial future. *Get By Fin.* measures the extent to which the household is just getting by financially. *Concern Money* measures the level of concern regarding the family's financial situation. *Fin. Strain* measures how often the household experiences financial strain in a given month. *Money Left Over* measures how often the household has money left over at the end of the month. *Behind in Fin.* measures how often the household falls behind on its financial obligations. ***1% significance, **5% significance, *10% significance.

| | Fin. Frag. Index | Pay Bills | Unexp. Expense | Fin. Future | Get By Fin. | Concern Money | Fin. Strain | Money Left Over | Behind in Fin. |
|---|---|---|---|---|---|---|---|---|---|
| Fin. Frag. Index | 1 | | | | | | | | |
| Pay Bills | 0.37*** | 1 | | | | | | | |
| Unexp. Expense | 0.44*** | 0.55*** | 1 | | | | | | |
| Fin. Future | 0.47*** | 0.54*** | 0.73*** | 1 | | | | | |
| Get By Fin. | 0.32*** | 0.28*** | 0.34*** | 0.34*** | 1 | | | | |
| Concern Money | 0.26*** | 0.46*** | 0.44*** | 0.46*** | 0.40*** | 1 | | | |
| Fin. Strain | 0.35*** | 0.52*** | 0.48*** | 0.47*** | 0.35*** | 0.43*** | 1 | | |
| Money Left Over | 0.42*** | 0.60*** | 0.58*** | 0.58*** | 0.31*** | 0.46*** | 0.53*** | 1 | |
| Behind in Fin. | 0.34*** | 0.59*** | 0.45*** | 0.43*** | 0.24*** | 0.40*** | 0.48*** | 0.51*** | 1 |

## TABLE A.III: LONG-TERM IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY FOR SINGLE HOUSEHOLDS WITH EUROPEAN ANCESTRY

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020 with European ancestry. A single household is a household whose member is never married, divorced, or widowed. The independent variable is *CMH*, which is an indicator variable equal to 1 if the individual was diagnosed with mental health conditions in childhood (before the age of 16). The dependent variables are defined as follows: *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. *Financial Frag Index* is the constructed measure of household financial fragility, defined as the first principal component of the three variables listed above. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | (1) Financial Frag. Index | (2) Ln(Nonhousing Assets) | (3) Ln(Home Equity) | (4) Ln(Other Debts) |
|---|---|---|---|---|
| CMH | $0.282^{***}$ | $-0.567^{***}$ | $-1.216^{***}$ | $1.077^{***}$ |
| | (0.069) | (0.166) | (0.370) | (0.218) |
| Adj. R2 | 0.471 | 0.488 | 0.379 | 0.349 |
| N | 31,857 | 31,857 | 31,857 | 31,857 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes |
| Principal Components | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual |

## TABLE A.IV: LONG-TERM FINANCIAL IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY
### FOR COUPLE HOUSEHOLDS

The unit of observation in this table is couple households × survey wave. The sample includes all the households surveyed biennially from 1998 to 2020. A couple household is a household whose members are married. The independent variable is *CMH*, which is an indicator variable equal to 1 if at least one of the household members has a childhood mental health condition. The dependent variables are defined as follows: *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. *Financial Frag Index* is the constructed measure of household financial fragility, defined as the first principal component of the three variables listed above. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the household level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | (1) Financial Frag. Index | (2) Ln(Nonhousing Assets) | (3) Ln(Home Equity) | (4) Ln(Other Debts) |
|---|---|---|---|---|
| CMH | $0.230^{***}$ | $-0.470^{***}$ | $-1.068^{***}$ | 0.231 |
| | (0.034) | (0.093) | (0.178) | (0.142) |
| Adj. R2 | 0.569 | 0.593 | 0.402 | 0.310 |
| N | 63,933 | 63,933 | 63,933 | 63,933 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes |
| StdError | Household | Household | Household | Household |

## TABLE A.V: LONG-TERM FINANCIAL IMPACT OF CHILDHOOD MENTAL HEALTH WITH POLYGENETIC SCORE IV

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020 with European Ancestry. A single household is a household whose member is never married, divorced, or widowed. The instrument variable (IV) is *Polygenetic Score*, which is the standardized score of Major Depressive Disorder (MDD) created using results from a 2013 genome-wide association study (GWAS) conducted by the MDD working group of the Psychiatric Genomics Consortium (PGC). In Panel A, the dependent variables are asset-related measures. *Ln(Fin. Assets)* is the logarithm of the household's total financial asset value; *%Safe Assets* is the share of safe assets relative to total financial assets; *%Risky Assets* is the share of risky assets relative to total financial assets; *Stock Market Participation* is an indicator variable equal to 1 if the household invests in the stock market; and *Own Home* is a dummy variable equal to 1 if the household owns a primary or secondary residence. Columns 1 to 4 include single households with positive nonhousing assets, while Column 5 includes the full sample. In Panel B, the dependent variables are debt-related measures. *Ln(Total Debt)* is the logarithm of the household's total debt value; *Ln(Mortgage)* is the logarithm of outstanding mortgage balances; *Any Other Debts* is an indicator variable equal to 1 if the household holds non-mortgage debt; *Ln(Other Debts)* is the logarithm of non-mortgage debt balances; and *% Other Debts* is the share of non-mortgage debt relative to total household debt. Columns 1 to 5 include single households with positive total debt. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. The key independent variable is *CMH*, an indicator variable equal to 1 if the solo household member has a childhood mental health condition. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the individual level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | First Stage | Second Stage: Nonhousing Asset Holders | | | | Second Stage: All |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | CMH | Ln(Fin. Assets) | %Safe Assets | %Risky Assets | Stock Market Participation | Own Home |
| **Panel A: Asset Allocation** | | | | | | |
| CMH | | $-13.260^{**}$ | $1.222^{*}$ | $-1.146^{**}$ | $-2.004^{**}$ | $-0.929$ |
| | | (5.290) | (0.649) | (0.550) | (0.789) | (0.839) |
| Polygenetic Score | $0.009^{***}$ | | | | | |
| | (0.002) | | | | | |
| Adj. R2 | 0.182 | 0.462 | 0.291 | 0.360 | 0.403 | 0.395 |
| N | 11,029 | 31,229 | 31,229 | 31,229 | 31,229 | 32,641 |
| | First Stage | Second Stage: Debt Holders | | | | |
| | CMH | Ln(Total Debts) | Ln(Mortgage) | Any Other Debts | Ln(Other Debts) | % Other Debts |
| **Panel B: Debt Composition** | | | | | | |
| CMH | | 4.283 | $-1.726$ | 1.975 | $26.078^{**}$ | 1.002 |
| | | (5.518) | (17.297) | (1.374) | (11.968) | (1.453) |
| Polygenetic Score | $0.009^{***}$ | | | | | |
| | (0.002) | | | | | |
| Adj. R2 | 0.182 | 0.529 | 0.525 | 0.445 | 0.441 | 0.513 |
| N | 11,029 | 12,940 | 12,940 | 12,940 | 12,940 | 12,940 |
| Cragg-Donald Wald F-statistics | 16.109 | | | | | |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | No | Yes | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Childhood | Yes | Yes | Yes | Yes | Yes |
| Principal Components | Yes | Yes | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual | Individual |

## TABLE A.VI: LONG-TERM FINANCIAL IMPACT OF CHILDHOOD MENTAL HEALTH FOR COUPLE HOUSEHOLDS

The unit of observation in this table is couple households × survey wave. The sample includes all the households surveyed biennially from 1998 to 2020. A couple household is a household whose members are married. In Panel A, the dependent variables are asset-related measures. *Ln(Fin. Assets)* is the logarithm of the household's total financial asset value; *%Safe Assets* is the share of safe assets relative to total financial assets; *%Risky Assets* is the share of risky assets relative to total financial assets; *Stock Market Participation* is an indicator variable equal to 1 if the household invests in the stock market; and *Own Home* is a dummy variable equal to 1 if the household owns a primary or secondary residence. Columns 1 to 4 include single households with positive nonhousing assets, while Column 5 includes the full sample. In Panel B, the dependent variables are debt-related measures. *Ln(Total Debt)* is the logarithm of the household's total debt value; *Ln(Mortgage)* is the logarithm of outstanding mortgage balances; *Any Other Debts* is an indicator variable equal to 1 if the household holds non-mortgage debt; *Ln(Other Debts)* is the logarithm of non-mortgage debt balances; and *% Other Debts* is the share of non-mortgage debt relative to total household debt. Columns 1 to 5 include single households with positive total debt. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. The key independent variable is *CMH*, an indicator variable equal to 1 if at least one of the household members has a childhood mental health condition. All specification include the following controls: Gender, race, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the household level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | Nonhousing Asset Holders | | | | All |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | Ln(Fin. Assets) | %Safe Assets | %Risky Assets | Stock Market Participation | Own Home |
| **Panel A: Asset Allocation** | | | | | |
| CMH | $-0.360^{***}$ | 0.015 | $-0.029^{***}$ | $-0.052^{***}$ | $-0.800^{***}$ |
| | (0.106) | (0.013) | (0.010) | (0.014) | (0.014) |
| Adj. R2 | 0.552 | 0.281 | 0.382 | 0.434 | 0.457 |
| N | 61,391 | 61,392 | 61,392 | 61,392 | 63,933 |
| | | | Debt Holders | | |
| | Ln(Total Debts) | Ln(Mortgage) | Any Other Debts | Ln(Other Debts) | % Other Debts |
| **Panel B: Debt Composition** | | | | | |
| CMH | $-0.104$ | $-0.508^{**}$ | $0.065^{***}$ | $0.568^{***}$ | $0.062^{***}$ |
| | (0.067) | (0.215) | (0.019) | (0.172) | (0.017) |
| Adj. R2 | 0.499 | 0.328 | 0.356 | 0.360 | 0.438 |
| N | 37,161 | 37,161 | 37,161 | 37,161 | 37,161 |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes |
| Full Controls | Yes | Yes | Yes | Yes | Yes |
| StdError | Household | Household | Household | Household | Household |

## TABLE A.VII: CHILDHOOD MENTAL HEALTH AND COGNITIVE AND NONCOGNITIVE ABILITIES WITH POLYGENETIC SCORE IV

The unit of observation in this table is single household × survey wave. The sample includes all the individuals surveyed biennially from 1998 to 2020 with European Ancestry. A single household is a household whose member is never married, divorced, or widowed. The instrument variable (IV) is *Polygenetic Score*, which is score of Major Depressive Disorder (MDD) created using results from a 2013 genome-wide association study (GWAS) conducted by the MDD working group of the Psychiatric Genomics Consortium (PGC). The dependent variables in columns 2 to 6 are measures of non-cognitive abilities and include: *US Depression Expectation*, which is the probability (in decimals) that an individual believes the U.S. economy will experience a major depression within the next 10 years; *US Stock Expectation*, which is the probability (in decimals) that an individual believes mutual fund shares invested in blue chip stocks will be worth more in one year than today; *Life Span Expectation* is the probability (in decimals) that an individual expects to live to age 85 or more; *Financial Plan Horizon* is an indicator variable equal to 1 if the individual's planned family's saving and spending horizon is 5 years or longer; and *Overconfidence* is an indicator variable equal to 1 if an individual rated his memory as very good or excellent, but performed below the age-survey year average in the word-recall test. The dependent variable in column 7 *No. of Words Recalled* is the number of words recalled in a word recall test and measures individuals cognitive abilities. The key independent variable, *CMH*, is an indicator variable equal to 1 if the individual has childhood mental health conditions. Controls include gender, race, ethnicity, age, education, number of children, current health status, working status, household income, household asset, household debt, transfer from children, transfer to children, home-ownership, and childhood financial hardship. Dollar values are all deflated to 2008 dollars. All the specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the county-by-year level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | First Stage | Second Stage | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| | CMH | No. of Words Recalled | US Depression Expectation | Life Span Expectation | US Stock Expectation | Financial Plan Horizon | Overconfidence |
| CMH | | −1.150 | 1.260 | −0.113 | 0.332 | −0.349 | −0.035 |
| | | (2.683) | (0.771) | (0.567) | (0.421) | (1.028) | (0.396) |
| Polygenetic Score | 0.009*** | | | | | | |
| | (0.002) | | | | | | |
| Adj. R2 | 0.182 | 0.484 | 0.395 | 0.402 | 0.301 | 0.338 | 0.237 |
| N | 11,029 | 30,866 | 8,341 | 26,218 | 19,446 | 11,534 | 30,807 |
| Cragg-Donald Wald F-statistics | 16.109 | | | | | | |
| Cohort F.E. | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| County x Year F.E. | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Controls | Childhood | All | All | All | All | All | All |
| Principal Components | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| StdError | Individual | Individual | Individual | Individual | Individual | Individual | Individual |

## TABLE A.VIII: LONG-TERM FINANCIAL IMPACT OF CHILDHOOD MENTAL HEALTH ON FINANCIAL FRAGILITY
### BY FINANCIAL LITERACY

The unit of observation in this table is households × survey wave. The sample includes all the households surveyed biennially from 1998 to 2020. Panel A exhibits the results for single household sample whereas Panel B presents the results for coupled household. A single household is a household whose member is never married, divorced, or widowed. A couple household is a household whose members are married. The independent variable is *CMH*, which is an indicator variable equal to 1 if if the individual has childhood mental health conditions for single household or if at least one of the household members has a childhood mental health condition for couple household. The dependent variables are defined as follows: *Ln(Nonhousing Assets)* is the logarithm of total household asset value excluding home equity. *Ln(Home Equity)* is the logarithm of household home equity, defined as the self-reported home value net of the outstanding mortgage balance. *Ln(Other Debts)* is the logarithm of the total dollar value of all non-mortgage debts. All monetary variables are transformed as $\log(1+x)$ to accommodate zero values. *Financial Frag Index* is the constructed measure of household financial fragility, defined as the first principal component of the three variables listed above. *Finance* is an indicator variable equal to 1 if the individual has ever worked in finance industry for single household or if one of the household members has ever worked in finance industry for coupled household. All specification include the following controls: Gender, ethnicity, age, education, current health status, number of children, working status, household income, transfer from children, transfer to children, and childhood financial situation. All financial variables are deflated to 2008 dollars. All specifications include cohort fixed effect, county-by-year fixed effect, and birth-state-by-birth-year fixed effect. Standard errors are clustered at the household level. $^{***}$1% significance, $^{**}$5% significance, $^{*}$10% significance.

| | (1) Financial Frag. Index | (2) Ln(Nonhousing Assets) | (3) Ln(Home Equity) | (4) Ln(Other Debts) |
|---|---|---|---|---|
| **Panel A: Single Household** | | | | |
| CMH | $0.239^{***}$ | $-0.479^{***}$ | $-1.053^{***}$ | $0.733^{***}$ |
| | (0.046) | (0.128) | (0.241) | (0.155) |
| Finance | $-0.190^{***}$ | $0.588^{***}$ | $0.632^{***}$ | $0.213^{*}$ |
| | (0.038) | (0.101) | (0.197) | (0.120) |
| CMH x Finance | $-0.215$ | 0.441 | 0.994 | $-0.229$ |
| | (0.136) | (0.421) | (0.684) | (0.542) |
| Adj. R2 | 0.471 | 0.496 | 0.316 | 0.229 |
| N | 58,685 | 58,685 | 58,685 | 58,685 |
| **Panel B: Coupled Household** | | | | |
| CMH | $0.187^{***}$ | $-0.283^{***}$ | $-0.988^{***}$ | $0.391^{**}$ |
| | (0.039) | (0.108) | (0.220) | (0.185) |
| Finance | $-0.064^{**}$ | $0.447^{***}$ | $-0.190$ | $-0.101$ |
| | (0.027) | (0.069) | (0.142) | (0.124) |
| CMH x Finance | $-0.175$ | $-0.052$ | $1.270^{**}$ | $-1.406^{**}$ |
| | (0.119) | (0.340) | (0.621) | (0.563) |
| Adj. R2 | 0.574 | 0.597 | 0.419 | 0.336 |
| N | 48,854 | 48,854 | 48,854 | 48,854 |
| Cohort F.E. | Yes | Yes | Yes | Yes |
| County x Year F.E. | Yes | Yes | Yes | Yes |
| Birth State x Year F.E. | Yes | Yes | Yes | Yes |
| Controls | Yes | Yes | Yes | Yes |
| StdError | Household | Household | Household | Household |

## FIGURE A.I: CHILDHOOD MENTAL HEALTH PROBLEM QUESTIONS IN HRS CODEBOOK

We construct the core variable of interest *CHILDHOOD MENTAL HEALTH* equal to 1 if an individual self-reports that he or she was diagnosed with depression or other psychological problems before the age of 16. The snapshots of the two questions asked in the surveys—depression and other psychological problems—are exhibited below.

```
DEPRESS            DEPRESSION BEFORE AGE 16
         Section: A     Level: Respondent      Type: Numeric    Width: 1   Decimals: 0

         Before you were 16 years old, did you have any of the following childhood
         diseases:

         Depression?

         Variables used from HRS 2006 or 2007 Internet through HRS 2016.
```

### (A) CHILDHOOD MENTAL HEALTH CONDITION: DEPRESSION

```
OTPSY              OTHER PSYCH PROBLEMS BEFORE AGE 16
         Section: A     Level: Respondent      Type: Numeric    Width: 1   Decimals: 0

         Before you were 16 years old, did you have any of the following childhood
         diseases:

         Any other emotional or psychological problems?

         Variables used from HRS 2006 or 2007 Internet through HRS 2016.
```

### (B) CHILDHOOD MENTAL HEALTH CONDITION: OTHER PSYCHOLOGICAL PROBLEMS