The Unsecured Consequence: Youth Mental Health and Financial Distress

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Abstract

This paper examines the long-term impact of youth mental health on financial distress using nationally representative survey data. I find that individuals with a higher propensity for youth mental health problems are significantly more likely to experience unsecured debt distress. To mitigate endogeneity concerns, I instrument youth mental health propensity with prenatal exposure to alcohol or cigarettes. Results further show that the non-Hispanic, non-Black population is particularly vulnerable to the adverse effects of youth mental health on unsecured debt distress. Differences in borrowing behavior, credit access, perceived cost of default, financial planning, and noncognitive abilities help explain these patterns. Overall, the findings highlight the macroeconomic significance of youth mental health and provide empirical evidence to guide policy design.

Keywords: Mental Health, Household Finance, Financial Distress

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1 Introduction

Mental health issues among children and adolescents in the United States have become increasingly urgent. According to the Centers for Disease Control and Prevention (CDC), three out of five children aged 6 to 17 exhibit signs of mental health problems, while one in seven children aged 3 to 17 has received a formal diagnosis. Approximately 5.0 million adolescents aged 12 to 17 experienced at least one major depressive episode in 2021, accounting for 20.1% of the U.S. adolescent population. In 2023, a striking 40% of U.S. high school students reported persistent feelings of sadness or hopelessness.[1] In response, major medical organizations–including the American Academy of Pediatrics and the American Academy of Child and Adolescent Psychiatry–declared a national emergency in youth mental health in 2021.[2]

Household financial insecurity has long been a persistent challenge for U.S. families. Credit card and auto loan delinquency rates have reached levels comparable to those seen during the Great Recession of 2008 (Mori and Sanchez, 2023). According to the Federal Reserve's Report on the Economic Well-Being of U.S. Households in 2023[3], 37% of survey participants reported that they would need to borrow or sell assets to cover a $400 emergency expense. Recent research also shows that financial distress is persistent among a subset of households (Athreya et al., 2019), underscoring the need for targeted policy interventions. Moreover, household finance plays a significant role in shaping aggregate welfare outcomes in macroeconomics (Bhamra and Uppal, 2019).

Despite the urgency of both issues, the relationship between youth mental health and long-term financial distress remains underexplored. Currie et al. (2010) posit that early mental health problem has more predictive power than physical health does in predicting young adult outcomes. While a large body of research examines how early physical health affects adult economic outcomes (e.g., Almond, 2006; Black et al., 2007), fewer studies address the long-term economic consequences of mental health problems originating in childhood or adolescence. This gap motivates the core question of this paper: How do youth mental health conditions affect financial distress in adulthood, and through which mechanisms do these effects operate?

In this paper, I examine how youth mental health problems–distinguishing between internalizing and externalizing disorders–affect adult financial distress. The internalizing disorders captures anxiety, depression, and dependency while the externalizing ones reflects antisocial behavior, headstrong tendencies, peer conflict, and hyperactivity. I consider both secured and unsecured debt distress to provide a comprehensive picture. Secured debt includes mortgage, car loans, and rent whereas unsecured debt comprises of credit card bill, utility bill, and other loans and bills. To address endogeneity concerns and identify causal effects, I implement

[1] See more detailed statistics on CDC website.
[2] See AAP-AACAP-CHA Declaration.
[3] See Economic Well-Being of U.S. Households in 2023 for the full report.

an instrumental variable (IV) strategy, in which I instrument youth mental health with prenatal exposure to alcohol or cigarettes. I further validate the results using a comparable data set. I also identify the racial heterogeneity in the relationship between youth mental health and financial distress. Finally, I explore the underlying mechanisms through which youth mental health influences financial behavior, guided by a stylized model of household financial decision-making.

A simple stylized two-period household financial decision-making model with heterogeneous time preference, risk preference, and cost of default reveals that individuals with youth mental health tend to be in both secured and unsecured debt distress. However, they are more likely to be in unsecured debt distress than secured one, especially when they borrow more unsecured debts to compensate their impaired earning ability.

Using data from the NLSY79 Children and Young Adults (NLSCYA), I construct a continuous measure of youth mental health propensity based on the mother-reported Behavioral Problem Index (BPI), calculated as the respondent's average percentile ranking across youth period relative to a nationally representative sample. This percentile-based approach provides a more inclusive and continuous measure of mental health variation than clinical diagnosis alone. Results from the baseline linear probability model indicate that individuals with higher youth mental health propensity–reflected in a higher percentile rank–are significantly more likely to experience unsecured, but not secured, debt distress. Minor difference is observed between internalizing and externalizing mental health problems in this regard. For example, moving from the bottom to the top of the internalizing (externalizing) behavior distribution is associated with a 4.9 (5.9) percentage point increase in the probability of late payments on unsecured debts, equivalent to 30% (35%) of the sample mean (17%) for this outcome. These results are robust to controlling for a range of cognitive-behavioral and family support variables.

Although the empirical setting minimizes concerns about reverse causality, it remains vulnerable to other identification challenges, including omitted variable bias and measurement error. To mitigate the omitted variable concern, I employ an instrumental variable (IV) strategy to isolate the causal effect of youth mental health on financial distress, using prenatal exposure to alcohol or cigarettes as an instrument for youth mental health propensity. The key identifying assumption is that prenatal exposure affects future financial distress solely through its impact on youth mental health propensity.

I provide several pieces of evidence supporting the validity of this instrument. First, prenatal exposure is not significantly associated with children's developmental traits, including general health, cognitive ability, and risk preferences. Second, I find no effect of pre-pregnancy exposure on youth mental health propensity, alleviating concerns about family background confounding. Third, the estimated effect of the instrument increases with exposure intensity, consistent with a dose–response relationship. Finally, the instrument's

coefficient remains significant even after controlling for mother fixed effects, despite the expected loss of within-family variation.

The IV regression results indicate that, while the findings are robust under this approach, the estimated effect of youth mental health on unsecured debt distress is nearly ten times larger than in the baseline model, suggesting that the baseline estimates may be substantially downward-biased.

To further alleviate the impact of measurement error, I conduct a validation study using data from the National Longitudinal Survey of Youth 1997 (NLSY97), applying alternative constructs of youth mental health. I replicate both the baseline and instrumental variable analyses and find consistent results across both datasets. These findings provide additional support for the robustness and credibility of the identification strategy employed in this study.

I examine gender and racial heterogeneity in the relationship between youth mental health and financial distress. First, I document systematic differences in youth mental health propensity: boys are more prone to externalizing problems, whereas girls are more likely to experience internalizing problems. Second, I find that non-Hispanic, non-Black individuals are more vulnerable to the adverse effects of youth mental health on unsecured debt distress. Specifically, relative to their Hispanic and Black peers, they are significantly more likely to be late on unsecured debt payments and to have accounts in collections as youth mental health propensity increases. By contrast, I do not find evidence of gender heterogeneity in this relationship—boys and girls are equally affected by youth mental health problems in this context.

Besides the widely studied income and education channels (Currie and Stabile, 2006; Fletcher, 2010; Goodman et al., 2011; Smith and Smith, 2010), this paper identifies several novel channels that help explain the relationship between youth mental health and adult financial distress: borrowing decisions, financial planning, noncoginitive abilities, and perceived cost of default.

First, individuals with a higher propensity for youth mental health problems are significantly more likely to hold unsecured debt—particularly rolled-over credit card balances and miscellaneous debts owed to small businesses. By contrast, there is little evidence that they are more likely to hold secured debt (such as mortgages or car loans), conditional on homeownership or car ownership. These findings align with the predictions of a stylized financial decision model, in which individuals facing mental health challenges rely more heavily on unsecured debt to compensate for reduced earnings capacity.

Second, the negative consequences of excessive unsecured borrowing are exacerbated by limited credit access among individuals with higher youth mental health propensities. Those affected are less likely to hold formal credit instruments, such as credit cards, and are more likely to rely on informal ones, such as payday loans. The high cost of these informal credit products increases the risk of default, further amplifying financial vulnerability.

Third, I provide evidence that individuals with greater youth mental health vulnerability perceive the cost of default on unsecured debt to be lower than that on secured debt. To assess this, I leverage a survey question on respondents' payment prioritization behavior. Those with higher youth mental health scores are more likely to report forgoing essential consumption due to budget constraints. However, this pattern is observed only among individuals with no secured debt delinquency, suggesting that they prioritize secured debt repayment over other obligations. This behavior supports a key assumption in the theoretical model: that the cost of default is perceived to be higher for secured than for unsecured debt. This perception helps explain the disproportionate borrowing and default behavior observed with unsecured debt for the affected individuals.

Fourth, individuals with youth mental health issues are more prone to suboptimal financial planning. They are less likely to report having an emergency fund, maintaining balances in checking or savings accounts, or contributing to retirement savings. However, this financial planning deficit is most pronounced for externalizing mental health conditions. Although the estimated coefficients for internalizing mental health problems are consistently negative across all financial planning outcomes, they are statistically insignificant–suggesting a similar but weaker directional effect.

Finally, youth mental health problems are associated with diminished noncognitive abilities, which have been shown to influence financial decision-making and distress (Kuhnen and Melzer, 2018; Parise and Peijnenburg, 2019). Individuals with higher mental health risk scores exhibit lower self-efficacy, emotional stability, and conscientiousness–key traits linked to better financial outcomes in prior work. Importantly, while controlling for noncognitive ability attenuates the relationship between youth mental health and financial distress, it does not fully account for it, indicating that other channels remain operative.

Literature Review. Existing work primarily focuses on contemporaneous mental health and economic outcomes. Poor mental health is associated with lower earnings, reduced labor market participation, and lower educational attainment (Biasi et al., 2021; Dobson et al., 2021; Cornaglia et al., 2015; Wang et al., 2023), contributing to long-run disadvantage. It also influences financial decision-making. Households with physical or mental health challenges are less likely to participate in risky asset markets, instead favoring safer investments (Bogan and Fertig, 2013; Rosen and Wu, 2004). Yet research that directly links childhood or adolescent mental health to later-life economic or financial outcomes remains scarce. Notable exceptions include Fletcher (2014) and Liao (2021), who show that childhood ADHD predicts worse labor market outcomes and heightened financial distress, and Hale et al. (2015), who document lower educational and employment attainment associated with adolescent mental health disorders. More recently, Cvijanovic et al. (2025) examines the long-term effects of childhood mental health on household balance sheets.

Financial distress–a key outcome in household finance—is multifaceted. It includes debt delinquency,

difficulties managing cash flow, housing-related hardship, and extreme cases like bankruptcy and foreclosure. A growing literature emphasizes that individual-level traits, more than local or policy environments (e.g., Mazumder and Miller, 2016), are primary drivers of financial distress (Keys et al., 2023). Among these traits, cognitive skills–such as numeracy and financial literacy—play a protective role (Agarwal and Mazumder, 2013; Gerardi et al., 2013). Noncognitive traits, including conscientiousness, emotional stability, and self-efficacy, also shape financial behaviors and outcomes (Guiso et al., 2013; Kuhnen and Melzer, 2018; Parise and Peijnenburg, 2019). Financial distress can also be triggered by unexpected personal shocks (Low, 2023).

Despite growing interest in the economics of mental health, the causal effect of childhood mental health on long-term financial outcomes remains largely unestablished. A substantial body of research documents a strong association between mental health and financial distress (e.g., see Archuleta et al., 2013; Borrescio-Higa et al., 2022; Ryu and Fan, 2023; Starkey et al., 2013; Stevenson and Wakefield, 2021), particularly during periods of economic stress such as the COVID-19 pandemic. However, establishing causality is challenging because mental health conditions are themselves endogenous, shaped by a range of unobserved family, social, and environmental factors.

This paper contributes to the growing literature on the relationship between mental health and household finance. Bogan and Fertig (2013) and Rosen and Wu (2004) provide evidence that contemporaneous depression symptoms negatively influence household portfolio choices, leading to underinvestment in risky assets. Cvijanovic et al. (2025) extends this work by documenting the long-term effects of childhood mental health, largely measured by depression, on household financial decisions, including both asset allocation and debt composition. Richardson et al. (2013); Zurlo et al. (2014) reveal the relationship between personal unsecured debt and contemporaneous mental health outcomes. Liao (2021) examines the long-term role of a specific mental health condition–ADHD–in shaping overall financial distress. Building on this literature, I construct a more comprehensive measure of youth mental health propensity and examine its heterogeneous effects on secured and unsecured financial distress, providing a complete picture of the long-term relationship between mental health and financial outcomes.

This paper also contributes to research on the determinants of household financial distress. Kuhnen and Melzer (2018) and Parise and Peijnenburg (2019) highlight the critical role of noncognitive traits, such as self-efficacy, conscientiousness, and emotional stability, in explaining variation in financial distress, with Parise and Peijnenburg (2019) providing causal evidence. Agarwal and Mazumder (2013) and Gerardi et al. (2013) emphasize the importance of cognitive ability for financial decision-making and mortgage default. I propose youth mental health as a powerful predictor of financial distress and demonstrate that neither cognitive nor noncognitive measures fully account for its effects. Moreover, I identify additional novel mechanisms that help explain the link between youth mental health and adult financial outcomes.

Lastly, this paper contributes to the literature by providing new insights into the causal impact of mental health on economic outcomes. While there is well-established research on causal determinants of mental health—such as social media use (Braghieri et al., 2022), early-life economic condition (Adhvaryu et al., 2019), and utero exposure to maternal stress (Persson and Rossin-Slater, 2018)–there is little work mitigating the endogeneity concerns of mental health on later outcomes. Some studies employ sibling fixed-effects frameworks (Currie et al., 2010; Fletcher and Wolfe, 2009; Fletcher, 2010) to mitigate family-level confounding, but these approaches cannot fully account for time-varying maternal preferences or changes in family background across siblings. I address this gap by proposing an instrumental variables strategy, leveraging readily available survey data, to credibly mitigate the endogeneity concerns between youth mental health and financial distress for a causal interpretation.

To sum, this paper contributes to the literature in several important ways. First, it examines the long-term impact of youth mental health on financial outcomes using rich measures that distinguish between internalizing and externalizing disorders and further disaggregates financial distress into secured and unsecured components to capture outcome heterogeneity. Second, it identifies several novel mechanisms—borrowing behavior, financial planning, noncognitive traits, and perceived cost of default—that help explain how early mental health conditions translate into financial distress in adulthood. Third, it establishes a credible causal relationship between youth mental health and financial distress through an instrumental variable strategy, revealing that baseline estimates suffer from downward bias due to omitted family-level factors.

This paper proceeds as follows. In Section 2, I present a model and propose hypothesis. In Section 3, I describe the data and discuss the measurements. In Section 4, I develop an empirical strategy and present the results with details. I identify the channels and mitigating factors as well as perform additional robustness checks in Section 5, and conclude in Section 6.

2 Conceptual Framework

This section presents a stylized two-period model with youth mental health shocks to illustrate the hypothesis that youth mental health conditions affect future borrowing and default behavior on both secured and unsecured debt differently.

2.1 Set Up

Time is indexed by $t = 1, 2$. In period 1, individuals make borrowing and consumption decisions; in period 2, they realize income shocks and decide whether to repay or default on their debt. Let $\mathrm{Y} \in [0, 1]$ denote the intensity of youth mental health problems, normalized to lie in the unit interval. Utilities are represented by

a constant relative risk aversion (CRRA) utility function. The individual's objective is to maximize lifetime utility:

$$U = \frac{c_1^{1-\sigma}}{1-\sigma} + \beta \mathbb{E}\left(\frac{c_2^{1-\sigma}}{1-\sigma}\right) \tag{1}$$

where $\beta \in (0, 1]$ is the discount factor and $\sigma > 0$ is the constant curvature of the utility function.

The following lists several key assumptions of the model, each either supported by prior research or validated through the empirical analysis in this paper.

Income Penalty. Individuals with higher level of childhood mental health (YMH) problems face lower earning potential in the second period, due to adverse long-term impacts on education and labor market outcomes (Biasi et al., 2021; Cornaglia et al., 2015; Dobson et al., 2021; Wang et al., 2023). Therefore, income in the second period is defined as:

$$y_2(Y, \varepsilon) = \bar{y}_2 - \gamma Y + \varepsilon$$

where $\bar{y}_2$ is baseline income in period 2, $\gamma > 0$ represent the income penalties associated with youth mental health, and ε denotes the exogenous income shock with $\mathbb{E}(\varepsilon) = 0$.

Credit Access and Pricing. Consider two types of unsecured credit products. The first is a formal, lower-cost product with borrowing limit $L_f(Y)$, which depends on the state of youth mental health Y, and an interest rate $r_f(Y)$. The second is a high-cost product (e.g., payday loan) with borrowing limit $L_h(Y)$ and a constant interest rate $r_h > 0$, which is used when formal credit cannot fully satisfy borrowing needs. By construction, the borrowing cost of the formal product is lower than that of the high-cost product, such that $r_h > r_f(Y)$.

I assume that access to both types of credit worsens with youth mental health problems, and that the cost of formal credit also rises with such problems:

$$L_f'(Y) \leq 0, \qquad r_f'(Y) \geq 0, \qquad L_h'(Y) \leq 0.$$

Therefore, the aggregate unsecured debt limit declines with youth mental health problems:

$$L_u'(Y) \leq 0.$$

For secured debt access ($\bar{L}_s$) and pricing (r_s), I assume that youth mental health problems do not affect borrowing limits or interest rates. Moreover, the cost of secured debt is lower than that of unsecured debt

products:

$$r_s \leq r_f(Y) \leq r_h.$$

Default Costs. I distinguish between the default costs of secured debt, $\Delta(Y)$, and unsecured debt, $\Theta(Y)$, for individuals with youth mental health propensities. I assume that $\Delta(Y) > \Theta(Y)$, since the consequences of losing collateral are more severe than the costs associated with temporary stigma or social exclusion. This assumption will be examined in the empirical analysis.

Borrowing Caps. Borrowing is subject to finite caps, continuous in Y (except for unsecured debt, which is constant), defined as follows:

$$0 \leq b_f \leq L_f(Y), \quad 0 \leq b_h \leq L_h(Y), \quad 0 \leq b_s \leq \bar{L}_s, \quad b_f + b_h \leq L_u(Y),$$

where b_i denotes the borrowing amount in period 1, with $i \in \{f, h, s, u\}$ corresponding to formal unsecured debt, high-cost unsecured debt, secured debt, and total unsecured debt, respectively.

Budget Constraints. Based on the assumptions outlined above, the period-t budget constraints for individuals who maximize Equation 1 are given by:

$$c_1 = y_1 + b_f + b_h + b_s,$$

$$c_2 = y_2 - (1 - d_u) \underbrace{\left[(1 + r_f(Y))b_f + (1 + r_h)b_h\right]}_{R_u(Y; b_f, b_h)} - (1 - d_s) \underbrace{(1 + r_s)b_s}_{R_s(b_s)} - d_u\Theta(Y) - d_s\Delta(Y),$$

where default decisions are denoted by $d_u, d_s \in \{0, 1\}$ for unsecured and secured debt, respectively. $R_u(Y; b_f, b_h)$ and $R_s(b_s)$ represent the repayment burdens of unsecured and secured debt.

2.2 Default Decision

Because the utility function $u(\cdot)$ is strictly increasing in consumption c, the default decisions (d_u, d_s) minimize the total repayment burden in $t = 2$:

$$\mathcal{R}(d_u, d_s) = (1 - d_u)R_u(Y; b_f, b_h) + (1 - d_s)R_s(b_s) + d_u\Theta(Y) + d_s\Delta(Y),$$

which yields separable default rules:

$$d_u^*(Y; b_f, b_h) = \mathbf{1}\{R_u(Y; b_f, b_h) > \Theta(Y)\}, \qquad d_s^*(Y; b_s) = \mathbf{1}\{R_s(b_s) > \Delta(Y)\}. \tag{2}$$

The solutions imply that individuals default on unsecured (secured) debt whenever the repayment burden exceeds the corresponding default cost. To illustrate the priority of default between the two types of debt, I define three regions in terms of (R_u, R_s):

$$\begin{aligned}
&\text{(A) } R_u \leq \Theta(Y), \quad R_s \leq \Delta(Y) && \text{(No default)} \\
&\text{(B) } R_u > \Theta(Y), \quad R_s \leq \Delta(Y) && \text{(Unsecured default only)} \\
&\text{(C) } R_u > \Theta(Y), \quad R_s > \Delta(Y) && \text{(Unsecured and secured default)}
\end{aligned}$$

Since $r_s \leq r_f(Y) \leq r_h$ and $\Delta(Y) > \Theta(Y)$, there exists a nonempty open set of (b_f, b_h, b_s) such that Equation 2 yields $d_u^* = 1$ and $d_s^* = 0$. In other words, unsecured debt default can occur without secured debt default over a wide range of exposures, whereas secured debt default requires surpassing the stricter threshold $R_s > \Delta(Y)$. Therefore, unsecured debt default precedes secured debt default in the hierarchy of default decisions.

2.3 Borrowing Decision

Let $V(b_f, b_h, b_s; Y)$ be expected utility under the default rule outlined in 2. The household solves the utility maximization problem in $t = 1$:

$$\max_{b_f, b_h, b_s} \; V(b_f, b_h, b_s; Y) \quad \text{s.t.} \quad \begin{cases} 0 \leq b_f \leq L_f(Y), \; 0 \leq b_h \leq L_h(Y), \; b_f + b_h \leq L_u(Y), \\ 0 \leq b_s \leq \bar{L}_s. \end{cases}$$

Let $\mu_i^l, \mu_i^u \geq 0, \; i \in \{f, h, s\}$ denote the multipliers on the lower and upper borrowing caps, and let λ_u denote the multiplier on the aggregate unsecured debt borrowing cap. To solve the problem, I define the following marginal continuation values:

$$\begin{aligned}
M_f(Y) &= \beta \, \mathbb{E}[u'(c_2) \, (1 - d_u^*) \, (1 + r_f(Y))] \, , \\
M_h &= \beta \, \mathbb{E}[u'(c_2) \, (1 - d_u^*) \, (1 + r_h)] \, , \\
M_s &= \beta \, \mathbb{E}[u'(c_2) \, (1 - d_s^*) \, (1 + r_s)] \, .
\end{aligned}$$

The Karush–Kuhn–Tucker (KKT) conditions are therefore:

$$
\begin{aligned}
&u'(c_1) - M_f(Y) + \mu_f^{\ell} - \mu_f^{u} - \lambda_u = 0,\\
&u'(c_1) - M_h + \mu_h^{\ell} - \mu_h^{u} - \lambda_u = 0,\\
&u'(c_1) - M_s + \mu_s^{\ell} - \mu_s^{u} = 0;\\
&\mu_i^{\ell} b_i = 0,\ \mu_f^{u}\big(L_f(Y) - b_f\big) = 0,\ \mu_h^{u}\big(L_h(Y) - b_h\big) = 0,\ \mu_s^{u}\big(\bar{L}_s - b_s\big) = 0,\ \lambda_u\big(L_u(Y) - b_f - b_h\big) = 0.
\end{aligned}
$$

The KKT system, together with $r_s \le r_f(Y) \le r_h$, implies a clear priority ranking in borrowing allocation.

- **Scenario (A): No default.** Borrowing follows a "cheapest-first" order: secured debt, then formal unsecured debt, and finally high-cost unsecured debt.

- **Scenario (B): Unsecured default only.** The household exhausts unsecured debt up to the maximum admissible levels L_f, L_h, L_u, irrespective of marginal costs, since repayment is not made.

- **Scenario (C): Both unsecured and secured default.** All debt categories are borrowed to their respective caps.

Proof. See Appendix A.1.

2.4 Hypothesis Development

Define the optimal unsecured debt burden and gap as follows:

$$
R_u^*(Y) = (1 + r_f(Y))b_f^*(Y) + (1 + r_h)b_h^*(Y), \qquad G(Y) = R_u^*(Y) - \Theta(Y), \quad D_u(Y) = \mathbf{1}\{G(Y) > 0\}.
$$

I assume that $r_f, L_f, L_h, L_u, \Theta$ are absolutely continuous in Y, and that the KKT solution is locally single-valued away from measure-zero kinks.

Proposition 1. *Suppose $r_f'(Y) \ge 0$, $L_f'(Y) \le 0$, $L_h'(Y) \le 0$, $L_u'(Y) \le 0$, $\Theta'(Y) \le 0$, $r_s \le r_f(Y) \le r_h$, and $\bar{L}_s \in (0, \infty)$. Then $G'(Y) \ge 0$ almost everywhere; hence, $\Pr(D_u(Y) = 1)$ is weakly increasing in Y.*

Proof. See Appendix A.2.

Proposition 2. *Let $b_u^*(Y) = b_f^*(Y) + b_h^*(Y)$. Suppose $y_2'(Y) = -\gamma < 0$, $r_s \le r_f(Y) \le r_h$, the secured cap binds on a neighborhood $\mathcal{N}$ of Y_0 (i.e., $b_s^* = \bar{L}_s$ there), and the aggregate unsecured cap is slack at Y_0 while some unsecured margin is interior at Y_0. Then there exists a neighborhood $\mathcal{N}' \subseteq \mathcal{N}$ such that*

$$
\frac{d}{dY} b_u^*(Y) > 0 \quad \text{for all } Y \in \mathcal{N}'.
$$

Consequently,

$$\frac{d}{dY}\mathbf{1}\{b_u^*(Y) > 0\} \geq 0 \quad \textit{on } \mathcal{N}'.$$

Proof. See Appendix A.3.

The two propositions motivate the following testable hypothesis for the empirical analysis:

Hypothesis. Individuals with higher youth mental health propensity are more likely to default on unsecured debt and incur more unsecured debt.

3 Data

The primary data sources for this research are the National Longitudinal Survey of Youth 1997 (NLSY97) and the NLSY79 Children and Young Adults (NLSCYA). The NLSY97 Cohort is a longitudinal project that follows the lives of a sample of American youth born between 1980-1984 while The NLSY79 Child and Young Adult cohort is a longitudinal project that follows the biological children of the women in the NLSY79. Both datasets contain measures of youth mental health and detailed financial information, though they differ in the specific types of mental health and financial data collected. NLSCYA spans from 1986 to 2020, representing 16 survey rounds whereas NLSY97 covers 20 rounds of surveys from 1997 to 2021.

In the NLSCYA, respondents were asked a broad set of questions related to financial well-being—including indicators of financial distress—starting at age 21. However, the dataset does not include detailed household balance sheet information. By contrast, the NLSY97 collects rich asset and debt data beginning at age 25, with updates every five years, alongside biennial measures of financial hardship, however, not as detailed as those in NLSCYA.

The use of both datasets allows for a more comprehensive analysis. NLSCYA offers early insights into financial distress, while NLSY97 enables a deeper look at asset composition and debt levels. Together, they provide complementary perspectives on how youth mental health influences financial outcomes over time. Since both data sets contain overlapping financial distress measures, cross-validation of results across different samples is possible, enhancing the robustness of the analysis.

3.1 Mental Health Measures

The two datasets differ in how they measure youth mental health. The NLSCYA provides a comprehensive and structured proxy measure of youth mental health through the Behavioral Problems Index (BPI), which is based on maternal reports (Peterson and Zill, 1986). The BPI covers six behavioral domains: (1) antisocial behavior, (2) anxiousness/depression, (3) headstrong behavior, (4) hyperactivity, (5) immature dependency,

and (6) peer conflict/social withdrawal. Two subscales are derived from these items: the internalizing BPI, which captures anxiety, depression, and dependency; and the externalizing BPI, which reflects antisocial behavior, headstrong tendencies, peer conflict, and hyperactivity. The internalizing and externalizing subscales of the BPI are commonly used as validated proxies for depressive symptoms, anxiety, ADHD, and conduct disorder risk. For instance, Zill et al. (1987) reported children who had previously needed psychiatric treatment having BPI scores roughly one-standard-deviation greater than population average. Furthermore, NLSCYA created nationally normed percentile for these two mental health measures against a random draw from national samples with the same ages. In this context, the percentile ranking reflects the propensity for youth mental health problems—a higher position in the distribution indicates more severe behavioral issues and a greater likelihood of experiencing mental health challenges.

In contrast, in the NLSY97, internalizing mental health is assessed using a scale ranging from 5 to 20, based on five self-reported items related to depressive mood. NLSY97 created a youth mental health scale based on these survey question. In this case, depression is used as the proxy for a more comprehensive internalizing mental health measure in NLSCYA. In addition, the dataset includes a delinquency index that captures respondents' externalizing behavior problems, derived from ten questions related to delinquent or criminal acts reported. Both measures are collected when respondents are between the ages of 12 and 16. In general, the measures in NLSY97 are not as accurate and comprehensive as those in NLSCYA.

The youth mental health measures in NLSY97 data sets are represented as percentiles of the raw scores, indicating each respondent's relative position within the sample distribution with a range between zero and one. Except for the internalizing mental health measure (youth mental health scale), which is recorded only once, I first compute the average raw score across observations before assigning the percentile rank. In this way, I can keep as many as observations and reduce the measurement errors generated by some misreport or extreme values. On the other hand, the youth mental health measures in NLSYCA are calculated using the average of the non-missing nationally normed percentile because for each observation, the raw scores are not directly comparable across survey years because children/youth with different ages behave very differently. In both data sets, the higher percentile indicates worse youth mental health conditions. All youth mental health measures are derived from responses collected before age 17.

Measuring youth mental health as a percentile—reflecting an individual's relative ranking within the sample or national distribution—offers important advantages for empirical analysis. This approach allows for the investigation of mental health effects without relying on formal clinical diagnoses, which are often subject to significant selection bias. Many individuals experiencing mental health challenges may never seek clinical help and therefore remain undiagnosed. Relying solely on diagnostic information could exclude a substantial portion of the population affected by mental health problems. Moreover, clinical diagnoses

can be somewhat arbitrary, potentially omitting individuals with borderline symptoms who nonetheless face meaningful psychological difficulties. The percentile-based approach thus provides a more inclusive and continuous measure of mental health variation across the population.

Although the mental health measures in the two datasets are not identical, they are conceptually comparable in that both distinguish between internalizing and externalizing mental health dimensions using validated behavioral indicators. This alignment facilitates cross-validation and robustness checks across samples.

3.2 Financial Measures

The NLSY97 provides both biennial and quinquennial financial data. The biennial modules capture financial well-being and hardship indicators, including income, cash advance usage, payday loan usage, experiences with debt collection, and delays in rent or mortgage payments. The quinquennial modules offer more comprehensive information on household balance sheets, including assets (e.g., checking accounts, certificates of deposit, stocks, retirement accounts, vehicles, and home-ownership) and liabilities (e.g., mortgages, credit card debt, car loans, student loans, and business-owed loans). They also include indicators of financial distress, such as missed loan payments and bankruptcy filings. Income variables are transformed into five categories to capture its nonlinear relationship with financial distress.

In contrast, the NLSCYA focuses more narrowly on financial well-being. Between 2010 and 2014, biennial surveys collected detailed responses from young adults aged 21 and above on financial strain. One set of questions addresses difficulties in meeting payment obligations across multiple categories, including mortgage or rent, utility bills, credit cards, car loans, and other debts. A second set focuses on more severe forms of financial hardship, such as accounts being sent to collections, asset repossession, bankruptcy, foreclosure, and payday loan use. Notably, beginning in 2010 and continuing through 2020, the survey began to track additional financial well-being indicators such as the consumption delay due to financial constraints, difficulty paying bills, inability to meet monthly expenses, and preparedness for financial emergencies. While detailed asset data are limited, a few ownership variables—such as home and vehicle ownership and market value—are available.

An important theme of this paper is to investigate how youth mental health affects secured debt and unsecured debt distress differently. Therefore, the definitions of secured debt and unsecured debt warrant dedicated discussion. Secured debts are loans backed by physical assets, including home and automobiles, whereas unsecured debts are not collateralized and include obligations like credit card debt and medical debt. Provided with the available data, I classify secured debt as mortgage, rent, and car loans and unsecured debt as credit card bill, utility bill, and other loans and bills. Although rents are not backed by the home itself,

failure to pay rents can result in eviction, resembling a similar consequence of defaulting on mortgage. To a more severe extent, defaulting on secured loans will lead to foreclosure, repossession, and bankruptcy, while failing to pay unsecured loans ends up to accounts being sent to collections. I will use these definitions to construct dependent variables consistently throughout the paper.

The overlap in financial distress indicators across the two datasets enables valuable cross-validation of results. At the same time, their differing emphases—comprehensive asset and debt data in NLSY97 versus broader subjective and objective financial hardship measures in NLSCYA—allow for a more nuanced analysis of how household balance sheet come into play in the relationship.

3.3 Other Variables

3.3.1 Cognitive Abilities

Cognitive abilities are shown to affect individuals' economic and financial decisions (Agarwal and Mazumder, 2013; Brown et al., 2016, 2019; Gerardi et al., 2013; Grinblatt et al., 2011). I utilize the detailed test score and education information to control for its effect on the financial distress. Specifically in NLSCYA, children and youth were asked to report The Peabody Individual Achievement Test (PIAT) scores for math, reading recognition, and reading comprehension for multiple survey waves. Additionally, they were also requested to provide the score for The Peabody Picture Vocabulary Test score which measures an individual's receptive (hearing) vocabulary for Standard American English. All the score are quoted as the percentile compared against a representative national sample. I take the average of all the available scores across waves for each test component and compute the first principal component through factor analysis as the measure of cognitive ability. In terms of the education information, I include an indicator variable taking the value 1 if the individual has ever completed college.

In NLSY97, I measure cognitive abilities using the percentile score of Armed Services Vocational Aptitude Battery (ASVAB) administrated to the youth in the survey. ASVAB measures the respondent's knowledge and skills in both math and verbal proficiencies. The percentile of the score is based on age groups of three-months to reach absolute precision. Since the test was only distributed once before the age of 16, no mean measure is undertaken. Similarly, whether the individual has ever completed college is included as part of the cognitive measure.

3.3.2 Risk and Time Preference

As elaborated in Section 2, risk and time preferences play a vital role in shaping individual borrowing and default decisions. These preferences are central to rationalizing economic behavior in theoretical models.

Controlling for both in the empirical analysis allows us to better identify the mechanisms through which youth mental health influences financial distress.

Both datasets include questions directly related to risk preferences. In the NLSCYA, starting in 2000, respondents were asked to rate their level of agreement with the following three statements: "I enjoy taking risks," "I enjoy new and exciting experiences even if they are a little frightening or unusual," and "Life without danger would be too dull for me." Using the same methodology applied in constructing the cognitive measure, I calculated the average percentile rank of each response within the survey-wave sample up to 2010 (when the financial strain questions were added to the survey) and then computed the first principal component to construct a composite measure of risk preference. In contrast, the NLSY97 dataset includes a single and one-time question about respondents' willingness to take risks, specifically in the context of financial activities. I use the percentile rank of this response within the sample as a measure of individual risk preference, capturing the relative degree of risk aversion.

Unfortunately, neither dataset contains a direct measure of time preference (patience). Following DellaVigna and Paserman (2005), I construct a proxy for patience using information on individuals' behaviors related to drinking, smoking, and recreational drug use—variables available in both datasets. These activities involve present-oriented indulgence at the expense of future health, signaling as behavioral indicators of impatience. Consistent with the approach used for cognitive and risk preference measures, I calculate the average percentile rank of each behavior across time and derive the first principal component to construct a composite measure of patience.

3.3.3 Family Support

Family support can shape long-term financial well-being by influencing both physical health and future earning potential (Olafsson, 2016). To capture these persistent effects of parental investment, I include family support variables in the analysis.

For the NLSCYA cohort, which consists of the children of NLSY79 respondents, I rely on information reported by mothers. The NLSY79 is a nationally representative sample of 12,686 individuals born between 1957 and 1964 and residing in the United States when the survey began. For this cohort, I include controls such as parents' highest level of education, the child's reported closeness to each parent, and perceived neighborhood safety during childhood, and family income reported by mother when the respondent was born. Because individuals may provide multiple responses across survey waves during childhood, I take the average of these responses, including closeness to parents and neighborhood safety, to reduce noise. In addition, respondents report whether they received external transfers to cover expenses such as rent or mortgages, groceries, utilities, or other bills. I use this measure as a direct indicator of family support that

can alleviate contemporaneous financial distress.

For the NLSY97 cohort, I incorporate measures of parental education, household income during childhood, the Physical Environment Risk Index, and the Enriching Environment Risk Index, which together capture both parental investment and the broader childhood environment. As with the NLSCYA, I average variables with multiple responses across waves. To parallel the direct support measure, I use the respondent's report of borrowing from relatives to finance a home purchase or education loans as a proxy for direct family transfers.

For detailed descriptions of the variables used in this study, see Table 1.

[Insert Table 1 about here]

3.4 Summary Statistics

Table 2 reports summary statistics for the two datasets—the NLSY79 Children and Young Adults (NLSCYA) and the National Longitudinal Survey of Youth 1997 (NLSY97). Each dataset includes approximately 30,000 person-year observations for respondents aged 21 and older. Across all survey waves, NLSCYA and NLSY97 interviewed approximately 8,000 and 9,000 unique individuals aged 21 and above, respectively. For some variables, particularly financial delinquency indicators, the number of observations is smaller due to the unavailability of relevant questions in certain waves.

[Insert Table 2 about here]

Females comprise 50% of the sample in both datasets. Notably, both datasets contain a higher share of minority respondents than national U.S. demographics, with approximately 50% of respondents identifying as Hispanic or Black, reflecting the intentional oversampling of minority groups in both surveys. On average, respondents in the NLSY97 are older than those in the NLSCYA (33 years versus 29 years), which corresponds with higher marriage rates (38% versus 26%) and a larger average number of children (0.98 versus 0.62). The share of respondents holding a college degree is slightly higher in the NLSY97 (29%) than in the NLSCYA (24%). Roughly 16% to 18% of respondents live in rural areas across both datasets. Only 1% of respondents in either dataset report being in poor health, which is expected given the relatively young age of the samples. Health insurance coverage is similar across datasets, with a take-up rate of around 70%.

There is a notable difference in the unemployment rate between the two datasets, with the rate in NLSY97 approximately 10 percentage points lower than in NLSCYA. This discrepancy is likely driven by measurement differences: in NLSY97, unemployment is inferred from respondents' reported job income, which may understate true unemployment if individuals are self-employed or out of the labor force.

Turning to financial variables, the homeownership rate is higher in the NLSY97 sample (33%) than in the NLSCYA (23%). NLSY97 respondents are also more likely to have negative household net worth (17% versus

9%) and to have filed for bankruptcy (5% versus 3%). Notably, the net worth is inferred from home and vehicle equity in NLSCYA whereas it is self-reported considering all the equities in NLSY97—suggesting that the actual share of negative equity can be higher in NLSCYA. Additionally, the NLSCYA includes two additional indicators of severe delinquency—repossession and foreclosure—suggesting that the true incidence of severe financial distress may be underestimated in the NLSY97. Reported household income is substantially higher in NLSY97 ($70,000) compared to NLSCYA ($40,000). This difference can be partly attributed to measurement: income in NLSY97 is captured as total gross family income, while NLSCYA income is calculated by summing wage and business income reported by the respondent and their spouse, omitting other sources included in gross income measures. Other financial variables are not directly comparable due to differences in definitions driven by data availability. The NLSCYA reports a higher incidence of late payments on secured debts (6% versus 3%) compared to NLSY97, primarily because the latter does not include car loans in its definition of secured debt. Incidences of late payments on unsecured debts are more common in both datasets; in NLSY97, this is proxied by respondents reporting pressure from bill collectors. Finally, 18% of respondents in the NLSCYA report having accounts in collection, while 3% of NLSY97 respondents report having taken out payday loans, which is used as a proxy for accounts in collection in that dataset.

Overall, the two datasets provide comparable summary statistics, supporting the validity of cross-validation in the empirical analysis.

4 Empirical Results

Before elaborating on the regression results, it is useful to first glean insights from simple graphical analysis. Figure 1 illustrates the relationship between youth mental health propensity and financial distress, measured by late payments on either secured or unsecured debt. Youth mental health measures are divided into quintiles, as shown on the horizontal axis. The vertical axis represents the proportion of individuals who reported being late on payments in a given survey wave. For both internalizing (Figure 1A) and externalizing (Figure 1B) mental health problems, there is a clear positive relationship with unsecured debt distress: as individuals move from the lowest to the highest mental health propensity quintile, the share of late payments increases by approximately 10 percentage points. However, the relationship with secured debt distress is much weaker, showing only a slight and negligible upward trend across quintiles.

4.1 Baseline Results

I start with investigating the relationship between youth mental health and financial distress. The baseline regression tests whether youth mental health is significantly associated with various financial distress indica-

tors. I estimate a linear probability model (LPM), which allows for a flexible inclusion of fixed effects that would otherwise be infeasible in a nonlinear framework such as logit or probit models when the number of categories increases.

The specification of the baseline regression model is as follows:

$$\text{Distress}_{it} = \beta\, \text{YouthMental}_i + \sum_{m \in M} \delta_m Z^{m \in M} + \gamma_{it} + \theta_{b(i)} + \varepsilon_{it} \tag{3}$$

where Distress_{it} represents a binary measure of financial outcomes, including being late on secured and unsecured debt, resulting in bankruptcy, foreclosure, or repossession, and having accounts in collection, for individual i at time t, and YouthMental_i is the main independent variable of interest capturing youth mental health status. $Z^{m \in M}$ represents $M = 4$ different sets of control variables, namely, demographic, financial, cognitive-behavioral, and family background controls. Demographic controls include gender, race/ethnicity, marital status, number of children, rural residence, self-reported health status, health insurance coverage, and educational attainment. Financial controls capture time-varying financial characteristics such as income, home-ownership status, and employment status. cognitive-behavioral controls refer to cognitive abilities (e.g., test scores) and attitudinal traits (e.g., risk preference and time preference). Family background controls comprise parental highest education, closeness to parents, perceived neighborhood safety, and external transfers. γ_{it} denotes survey year by region fixed effects to capture the time-varing local economic conditions, whereas $\theta_{b(i)}$ captures birth cohort fixed effects.

The error term ε_{it} captures unobserved factors influencing financial outcomes. Standard errors will be clustered at the individual level to account for within-person serial correlation over time. β is the coefficient of interest, which signifies the impact of youth mental health on future financial outcomes.

Table 3 presents the estimated effects of youth mental health on financial distress indicators, based on the empirical strategy outlined in Equation 3. The sample is drawn from the NLSCYA dataset, which provides detailed measures of financial distress. Building on Kuhnen and Melzer (2018) and Liao (2021), who use the same dataset to examine the effects of noncognitive abilities and ADHD on financial delinquency (measured by late bill and loan payments), I extend their analysis by distinguishing between secured and unsecured debt distress. The results show a strong positive relationship between youth mental health inclination, both internalizing and externalizing, and unsecured debt delinquencies in later life while no relationship is detect with regard to secured debt delinquencies. These results remain robust after controlling for family support factors, including parents' education, closeness to parents, neighborhood environment, and external transfers–factors that can confound the relationship between youth mental health and financial distress. The magnitude of the mental health coefficients decreases after including these controls, showing that family

support variables indeed account for some of the positive relationship detected.

[Insert Table 3 about here]

The results are meaningful and economically important. For example, with all the control variables, moving from the bottom to the top of the internalizing (externalizing) behavior distribution is associated with a 4.4 (5.5) percentage point increase in the probability of late payments on unsecured debts, corresponding to 27% (34%) of the sample mean (16.6%) for this measure. For severe delinquencies, the effect is even larger: moving from the bottom to top, individuals experience 8.2% (6.9%) increase in the probability of having accounts in collection, representing a 46% (39%) of the sample mean (17.8%). Comparing Panel A and Panel B, the magnitude and statistical significance of the effect of youth mental health on financial distress are larger for externalizing mental health problems.

In line with Hypothesis 1 in Section 2, these results suggest that higher youth mental problem propensity is associated with increased financial distress in adulthood, particularly in the management of unsecured debt. The findings remain robust after accounting for cognitive-behavioral and family support measures, which are closely related to youth mental health, indicating that youth mental health exerts negative effect on financial outcome beyond the traditional economic parameters of time and risk preferences and family characteristics.

The results are robust to different measures of youth mental health. I used the multiple youth mental health measures available in the NLSCYA data set to test the robustness of the relationship between youth mental health and financial distress using alternative specifications of the mental health construct.

The results are presented in Table B.I, with different measures of youth mental health shown across four panels. In Panel A, youth mental health is defined as the mean of the Behavioral Problem Index (BPI) percentiles for each individual, aggregating both internalizing and externalizing components. This provides a broad and comprehensive measure of behavioral problems associated with youth mental health. In Panel B, youth mental health is measured as the median of all internalizing and externalizing BPI percentile rankings, addressing concerns that the mean may be sensitive to extreme values. In Panel C, it is constructed as the percentile ranking of the mean raw score across internalizing and externalizing BPI items. In Panel D, it is measured as the mean of the raw scores for internalizing and externalizing BPI components. It is important to note that the raw score measures in Panels C and D are not age-standardized and do not reflect individuals' relative standing in a nationally representative sample.

Based on the results in Table B.I in Appendix, the baseline findings appear robust to alternative constructions of the youth mental health measure, especially for the externalizing youth mental health measures. The only notable exceptions are in Panel B and D, where the coefficient for youth internalizing mental health on

late unsecured debt payments loses statistical significance. The results further confirm the stronger impact of externalizing youth mental health problems on future financial distress.

4.2 Identification Challenges

Much of the literature on mental health documents correlations without adequately addressing endogeneity. Because mental health is nearly impossible to be randomly assigned to individuals, natural experiments or exogenous shocks that cleanly separate individuals by mental health status are rare. Nevertheless, I make solid attempt to mitigate the endogeneity concerns on establishing causal relationship between youth mental health and financial distress by employing the instrumental variable approach.

First, the observed relationship is unlikely to suffer from reverse causality. I construct measures of youth mental health prior to the respondents' entry into the labor market and engagement in financial activities. As such, future financial distress cannot influence mental health conditions measured beforehand. The temporal separation between the mental health measures and financial outcomes helps mitigate concerns about reverse causality. However, omitted variable and measurement error concerns cannot be ruled out without further investigation.

With respect to omitted variable bias, individuals with youth mental health problems may experience unobserved adverse events–such as discrimination or bullying–that also influence their developmental trajectories. If these unobserved factors are correlated with both youth mental health and financial outcomes, the baseline estimates may be upwardly biased, attributing the full effect of these negative experiences to mental health. On the other hand, individuals with mental health challenges may also receive additional support from family members or social programs, which could mitigate some of the negative outcomes and introduce a downward bias. This offsetting support may mask the true effect of youth mental health on later financial distress, resulting in an underestimation of the actual relationship.

Lastly, concerns about measurement error are highly relevant to this study. Although using percentile rankings to measure youth mental health offers important advantages—such as capturing relative severity and avoiding reliance on clinical diagnoses—it remains subject to considerable noise. Even with multiple measures of youth mental health available within the NLSCYA sample, as shown in Appendix Table B.I, questions about external validity persist. For example, mothers may underreport behavioral problems due to social stigma, leading to systematic underestimation of mental health issues. Furthermore, accurately assessing mental health is inherently challenging, as symptom presentation and diagnostic criteria continue to evolve (Hyman, 2010; Kawa and Giordano, 2012). These factors introduce potential measurement error that likely attenuates the estimated effects and biases the results toward zero.

4.3 Distinguishing Youth Mental Health from Adult Mental Health Effects

4.3.1 Persistence of Youth Mental Health Problem

One may argue that the relationship between youth mental health and financial distress is the consequence of the persistence of mental health problems. Individuals with youth mental health problems are very likely to have the same issues in adulthood, causing their financial distress in the future. Therefore, it is the contemporaneous mental health, instead of youth mental health that dominates the relationship.

I address this important concern using a simple correlation analysis. To measure internalizing mental health in adulthood, I rely on the Center for Epidemiologic Studies Depression Scale (CES-D), administered when individuals were 21 years old or older. While the CES-D focuses specifically on depressive symptoms and is not identical to the broader measure of youth internalizing mental health derived from the Behavioral Problems Index, it captures a key dimension of internalizing symptoms. Respondents were asked to report the frequency of experiencing symptoms such as poor appetite, difficulty concentrating, feelings of depression, a sense that everything required extra effort, restless sleep, sadness, and an inability to get going. I sum the responses to these items, with higher scores indicating more severe depressive symptoms. To standardize across waves, I then calculate each individual's percentile rank within their survey wave.

Measuring externalizing mental health in adulthood is tricky. By exploiting all the psychological measures in NLSCYA, I decide to use Ten Item Personality Measure (TIPI) to construct a measure of agreeableness, which is the most relevant to externalizing mental health among the Big Five traits [4]. Agreeableness measures kindness, helpfulness, and willingness to cooperate. Low agreeableness predicts externalizing behaviors such as substance use, antisocial behavior, and delinquency (Tackett, 2006; Walton et al., 2017). I utilize two questions–"Critical, quarrelsome" and "Sympathetic, warm"–to construct the measure of agreeable, with higher scores indicating being less agreeable. By the same nature, I calculate the percentile for the measure across waves.

Respondents may not answer depression- or personality-related questions in every survey wave. To maximize the number of observations, I employ pairwise correlation analysis to examine the persistence of youth mental health problems. The results are presented in Table 4, with two panels corresponding to internalizing and externalizing mental health problems, respectively.

[Insert Table 4 about here]

Surprisingly, the correlation coefficients between youth and adult mental health are relatively low–

[4] Big Five traits including openness, conscientiousness, extraversion, agreeableness, and emotional stability. Openness measures creativity, curiosity, and willingness to entertain new ideas. Conscientiousness measures self-control, diligence, and attention to detail. Extraversion measures boldness, energy, and social interactivity. Agreeableness measures kindness, helpfulness, and willingness to cooperate. Emotional Stability measures depression, irritability, and moodiness.

approximately 0.16 for internalizing problems and 0.08 for externalizing ones. These modest coefficients suggest that youth mental health is not highly persistent and is a weak predictor of adult mental health outcomes. Even among adult mental health measures taken one to two years apart, the correlation coefficients remain below 0.50. One reason for the particularly low correlations with youth mental health may be the long time gap: the youth mental health percentile is based on the average of all measures recorded between ages 5 and 17, allowing substantial time for an individual's mental health to evolve by adulthood.

4.3.2 The Role of Contemporaneous Mental Health

Even though youth mental health does not strongly persist into adulthood and the main specification includes self-reported general health status to account for health-related shocks that may influence financial distress, one may still be concerned that contemporaneous mental health shocks–not captured by general health–are the primary drivers of the observed relationship between youth mental health and financial distress. To address this concern, I substitute the general health control with contemporaneous mental health measures and examine whether current mental health fully accounts for the variation attributed to youth mental health.

The results are presented in Table 5. The contemporaneous mental health measure–*Current Mental*–is constructed as follows. Following the approach in Section 4.3, I calculate each respondent's percentile rank on the Center for Epidemiologic Studies Depression Scale (CES-D) within their respective survey wave, which a higher ranking indicates worse mental health status.

[Insert Table 5 about here]

Adding contemporaneous mental health controls does not eliminate the relationship between youth mental health and unsecured debt distress, as indicated by the statistically significant coefficients in Columns 3 and 4, with the exception of late unsecured payments for internalizing mental health problems. Although the effect sizes are somewhat attenuated relative to the baseline results in Table 3, the reductions are modest. For example, moving from the bottom to the top of the externalizing mental health distribution is associated with a 5.9 percentage point increase in the likelihood of having accounts in collection, compared to 6.9 percentage points in the baseline specification.

The findings also confirm that contemporaneous mental health, different from youth mental health, is itself a strong predictor of both secured and unsecured debt distress. This result is unsurprising given the well-documented bidirectional relationship between financial distress and mental health—poor mental health may impair earning capacity and financial decision-making, while financial distress can exacerbate mental health challenges. Overall, the results in Table 3 remain robust even after controlling for such a strong predictor as contemporaneous mental health.

The results above provide compelling evidence that the effect of youth mental health on adult financial distress is not solely driven by contemporaneous mental health status. Moreover, adding a control for self-reported general health status in the baseline model (Equation 3) does not attenuate the significant negative association between youth mental health and unsecured debt management.

4.4 Instrumental Variable Strategy

Although the setting of this research question is exempted from reverse causality issues, it is vulnerable to omitted variables and measurement error concerns in order to establish causality as discussed. To mitigate these endogeneity concerns, I employ an instrumental variable (IV) approach to isolate exogenous variation in youth mental health. Specifically, I exploit rich background data on childhood and prenatal experiences available in the datasets. In NLSCYA data set, mothers of the children were asked whether they smoked or consumed alcohol during pregnancy. Prior research has demonstrated robust associations between such prenatal exposures and the development of mental health disorders in children (Duko et al., 2022; Easey et al., 2019). Specifically, the first-stage regression is outline as follows:

$$\text{YouthMental}_i = \pi_1 \, \text{PrenatalExposure}_i + \sum_{c \in C} \delta_c Z^{c \in C} + \theta_{b(i)} + \nu_{it} \tag{4}$$

where $\text{PrenatalExposure}_i$ is a dummy variable taking the value of 1 if the respondent i was exposed to alcohol or cigarettes in utero. All other covariates are defined as in the baseline specification in Equation 3. $Z^{c \in C}$ represents $C = 2$ different sets of control variables, namely, demographic and family support controls. Because the first-stage analysis is based on childhood and early-life information, I exclude most control variables related to future outcomes, keeping only gender, race, cognitive ability, childhood family support variable, including parents' education, closeness to parents and neighborhood environment, and birth year information. Future incidences cannot be used to predict events happened earlier.

The second-stage regression then substitutes the predicted value of youth mental health into the baseline model in Equation 3:

$$\text{Distress}_{it} = \beta \, \widehat{\text{YouthMental}}_i + \sum_{m \in M} \delta_m Z^{m \in M} + \gamma_{it} + \theta_{b(i)} + \varepsilon_{it} \tag{5}$$

where $\widehat{\text{YouthMental}}_i$ is the fitted value of youth mental health of the individual i from the first stage, representing the exogenous component of youth mental health used to identify its causal effect on financial outcomes.

Several important methodological concerns warrant discussion. In this setting, the first stage is estimated

at the individual level, while the second stage follows a panel structure. Youth mental health is time-invariant, taking the same value across all periods in the panel. In such cases, applying the conventional two-stage least squares (2SLS) approach can overstate the relationship between the endogenous variable and the instruments.

Additionally, the covariates included in the first and second stages differ, with the first-stage controls being a subset of those in the second stage. This distinction is intentional, as future variables should not be used to predict early-life characteristics such as youth mental health. Following the approach of Gulen and Ion (2016), who address a similar empirical challenge, I manually implement the two-stage least squares procedure and use nonparametric bootstrapping to obtain consistent standard errors in the second stage.

4.4.1 Validity of Instrument

The mother's behavior during pregnancy is plausibly unrelated to unobserved variables that determine the child's financial outcomes decades later. The key identifying assumption of the instrumental variable is that prenatal exposure to alcohol and cigarettes affects financial distress only through its influence on youth mental health, as shown below:

$$\mathbb{E}[\text{PrenatalExposure}_i \varepsilon_{i,t} | Z, \theta_{b(i)}, \gamma_{it}] = 0. \tag{6}$$

Although the exclusion restriction cannot be directly tested in this setting, I take several steps to assess potential violations. One concern is that prenatal exposure may influence children's developmental traits, including cognition ability and general health condition, that also shape adult financial outcomes. To address this, I regress the instrument, *Prenatal Exposure*, on these childhood attributes using the first-stage specification in Equation 4. The results, reported in Table B.II in the Appendix, show no significant relationship between prenatal exposure and cognitive ability or childhood health. The results remain consistent after including mother fixed effects to rule out time-invariant family characteristics. Although it may seem counterintuitive that prenatal exposure has no measurable impact on cognitive ability and health, medical literature supports the view that its effects on cognitive development and growth deficits are limited before puberty, with findings that remain mixed (Coles et al., 1991; Connor and Streissguth, 1996; Willford et al., 2006). Spohr et al. (1993) also show that Fetal alcohol syndrome (FAS) presents a diminishing negative impact on child development, pointing to a limited long-term impact persisting to youth. In general, these findings alleviate concerns that the instrument affects future financial distress through channels other than youth mental health, at least in the sample I studied.

Another concern is that prenatal exposure may proxy for adverse family background characteristics that independently affect future financial distress. For example, mothers who consumed alcohol or cigarettes

during pregnancy may have exhibited lower self-control or provided a less supportive family environment, potentially influencing parenting style and child development. They may also in socioeconomic disadvantage due to different levels of education or income. To mitigate this concern, I retain the family support controls in the analysis to account for potential confounding channels that may affect the causal interpretation.

I further address this concern using a dose–response test and timing falsification test. If prenatal exposure to harmful substances, including alcohol and cigarettes, is not systematically related to unobserved maternal characteristics, then the instrument should have a stronger effect on youth mental health as exposure intensity increases. Moreover, substance use prior to pregnancy should have little to no effect on youth mental health propensity.

Using detailed information on maternal pregnancy behavior from the NLSCYA, I construct several variables to implement these tests. *Before Pregnancy* is an indicator that takes the value of one if the child's mother reported having smoked or drinking alcohol before age 25. *Either* refers to a prenatal exposure measure equal to 1 if the child's mother consumed either cigarettes or alcohol during pregnancy, and 0 otherwise. *Both* equals 1 if the mother consumed both alcohol and cigarettes during pregnancy. *Either Severe* indicates prenatal exposure equal to 1 if the mother either consumed alcohol more than once per month or smoked more than one pack of cigarettes per day during pregnancy. *Both Severe* is an indicator equal to 1 if the mother both consumed alcohol more than once per month and smoked more than one pack of cigarettes per day during pregnancy. The effects of these measures are expected to increase in magnitude with the intensity of prenatal exposure. Specifically, the coefficient estimate for *Before Pregnancy* should be indistinguishable from zero. The coefficients of estimates using Equation 4 are shown in Figure 2.

[Insert Figure 2 about here]

For both internalizing and externalizing youth mental health propensities, the magnitude of the coefficient estimates increases with exposure intensity. For example, the coefficient for *Either* exposure of 0.04 (0.06) for internalizing (externalizing) problems in Panel A (Panel B) rises to 0.09 (0.17) for *Both Severe* exposure. This pattern is particularly pronounced for externalizing mental health problems. And for *Before Pregnancy*, the figure does not indicate a significant relationship with youth mental health propensity.

To further strengthen this argument, I include mother fixed effects to address potential family-level confounding. For both internalizing and externalizing youth mental health problems, the results remain robust when restricting the analysis to siblings born to the same mother. The estimated coefficients are 0.040 and 0.035, significant at the 1% and 5% levels, respectively[5]. These findings provide strong evidence

[5]After including mother fixed effects, the Cragg–Donald Wald F-statistics fall below the conventional threshold of 10, indicating a weak instrument scenario. This result is expected: only 73.36% of mothers change their smoking status across pregnancies, and the intraclass correlation coefficient (ICC) for prenatal smoking is 0.73, showing that most variation in exposure is between

that prenatal exposure to harmful substances affects financial distress primarily through its impact on youth mental health rather than through family background channels.

4.4.2 IV Results

Table 6 presents the IV regression results in Equation 4 and Equation 5. Standard errors are bootstrapped 1,000 times to ensure consistency.

[Insert Table 6 about here]

The first-stage results indicate that prenatal exposure to alcohol or cigarettes is a strong predictor of youth mental health, with coefficients significant at the 1% level. Exposure to alcohol or cigarettes in utero is associated with a 4% (6%) increase in the internalizing (externalizing) mental health percentile distribution. Moreover, the instrument—*Prenatal Exposure*—passes the weak instrument test, with Cragg-Donald Wald F-statistics well above the conventional threshold of 10 proposed by Staiger and Stock (1997), suggesting the instrument is sufficiently strong. Taken together, these results indicate that weak identification is unlikely to be a concern in this empirical setting.

The positive relationship between youth mental health and financial distress related to unsecured debt persists in the IV analysis after controlling for general health, cognitive-behavioral controls, and family support controls. Moreover, the IV regressions reveal no significant association between youth mental health and secured debt distress across, consistent with the baseline results. Notably, the IV coefficients for youth mental health are nearly ten times larger than those in the baseline regressions, suggesting the presence of potential attenuation bias in the baseline model.

As discussed by Bound et al. (2001), measurement error in survey data is common and often nonrandom. In this context, individuals with mental health issues during youth may be less likely to report financial delinquency or parents may be reluctant to truthfully report any behavioral problem of their children due to social stigma, leading to an underestimation of the true effect of youth mental health on financial outcomes. Another possible explanation is that the coefficient estimated in the instrumental variable setting reflects a local average treatment effect (LATE)–capturing only the impact for individuals affected by prenatal exposure–which may inflate the estimated effect relative to the baseline results (Angrist et al., 1996).

mothers rather than within mothers. As a result, including mother fixed effects eliminates much of the identifying variation, weakening the first stage. While mother fixed effects are valuable for isolating family-level characteristics, household economic conditions and maternal parenting practices may still change over time.

4.5 External Validity Check

To further assess whether measurement error in the survey data biases the estimates in this research setting, I conduct a validation study using the NLSY97 dataset. Specifically, I replicate both the baseline and instrumental variable regression analyses using NLSY97 data and compare the results to those obtained from the NLSCYA sample. As shown in Table 2, the two datasets are broadly comparable, given their similar demographic compositions. Even though the two data sets contain the same set of control variables included in the regression analysis, they have different measures of financial distress information. I make every effort to harmonize financial strain variable definitions across the two datasets; however, due to differences in data availability and survey design, exact alignment is not always possible.

Key differences between the two datasets are discussed below. As noted in Section 3, the financial distress information in NLSY97 is less detailed than that available in NLSCYA. In NLSY97, data on late secured debt payments are limited to mortgage and rent, and do not include car loans as in NLSCYA. For severe delinquency outcomes, only bankruptcy is recorded in NLSY97. Unfortunately, the NLSY97 does not explicitly ask whether respondents were late on unsecured debt payments. It does, however, collect information on whether respondents were late on loan payments other than mortgage and rent, which I use as a proxy for late unsecured debt payments—representing an upper-bound estimate of unsecured distress. In addition, the NLSY97 does not report whether respondents had accounts in collection. As a substitute, I use whether the reported late payments exceeded two months, which represents a more severe form of delinquency than simply being late. It is worth noting that the rate of being late on payments more than two months in NLSY97 is relatively low (4%) compared to the rate of accounts in collection in NLSCYA (18%), suggesting that the former measure reflects a more extreme form of unsecured debt distress and thus serves as an upper-bound proxy.

Another important difference lies in the choice of instrumental variable used in the IV regression analysis. Since the NLSY97 does not include information on prenatal exposure to alcohol or cigarettes, I instead rely on indicators of childhood trauma. Specifically, the childhood module in NLSY97 includes questions about whether the respondent was bullied, witnessed a gunshot, or experienced a home break-in during childhood. These events are plausibly exogenous to a child's innate characteristics and have been shown to significantly affect mental health outcomes such as depression and anxiety (Arseneault et al., 2010; Kunst and Hoek, 2024; Smith et al., 2020). I construct a binary variable—*Childhood Trauma*—which equals 1 if the respondent reported experiencing at least one of these three traumatic events. Unlike more widely studied traumatic events such as parental abuse, experiences like witnessing a gunshot or experiencing a home intrusion are arguably more exogenous to family background and parenting style. These instruments focus

on environmental shocks that are less likely to be influenced by family structure or endogenous household choices. Therefore, there is less concern that the family information will confound the relationship here. Nevertheless, as in the NLSCYA analysis, I include family supoort controls to address concerns regarding the exclusion restriction. These controls include parental education, household income during childhood, the Physical Environment Risk Index, the Enriching Environment Risk Index, and whether they took loans from parents to finance housing and education, which together capture aspects of parental support and broader childhood environment. It is important to note that the sample size decreases substantially after including the family support controls, owing to limited survey coverage.

Table B.III and Table B.IV in Appendix replicate the baseline and instrumental variable regressions, respectively, using the NLSY97 dataset. The baseline regression results are broadly consistent across the two datasets: individuals ranked higher in the youth mental health percentile distribution are more likely to experience unsecured debt distress, while no significant association is found with secured debt distress. Based on the specification in column 5, moving from the bottom to the top of the internalizing (externalizing) youth mental health distribution increases the likelihood of experiencing bill pressure by 6.8 (6.2) percentage points, which represents approximately 34% (31%) of the sample mean (20%).

The IV regression results presented in Table B.IV in Appendix, which mirror those in Table 6, support the interpretation that attenuation bias may be present in the baseline estimates. Childhood Trauma serves as a strong instrumental variable for youth mental health, as evidenced by Cragg-Donald Wald F-statistics that exceed conventional thresholds ($F > 10$) across all specifications. Consistent with the earlier findings in Table 6 in Appendix, the coefficients for unsecured debt distress remain statistically significant after instrumenting for youth mental health and including additional family background controls. The significance disappears for severe measures of unsecured debt. It is important to note, however, that including family controls reduces the sample size by roughly two-thirds. Overall, I do not find robust evidence that youth mental health has a substantial impact on secured debt distress. The coefficients for the unsecured debt distress specifications remain insignificant in this instrumental variable analysis.

Taken together, the positive relationship between youth mental health and unsecured debt distress is highly likely to be causal. While it is not possible to fully rule out all sources of measurement error or omitted variable bias that could confound this relationship, the instrumental variable strategy, combined with a validation study using a comparable sample, provides strong evidence that the causal effect is substantial.

5 Discussions

5.1 Gender and Race Heterogeneity

An important question is whether the relationship between youth mental health and financial distress varies by gender and race. Addressing this question helps identify which groups are more vulnerable and therefore may require greater support. In the following analysis, I present results on both youth mental health propensity and financial distress by gender and racial subgroups.

5.1.1 Youth Mental Health Propensity

Figure 3 illustrates gender differences in youth mental health propensity using NLSCYA data set. Figure 3A shows that female subjects exhibit a slightly higher propensity for internalizing mental health problems across all ages, except at age 13. On average, their percentile ranking on the internalizing Behavioral Problem Index (BPI) is consistently higher than that of their male counterparts. In contrast, Figure 3B indicates that male subjects display a higher propensity for externalizing mental health problems across all ages. The trends detected in NLSCYA are in line with Zahn-Waxler et al. (2008), in which they found that females marked preponderance in depression or anxiety whereas males dominated in conduct problems. Notably, the gender gap in average BPI percentile rankings is larger for externalizing behaviors than for internalizing ones.

[Insert Figure 3 about here]

Turning to racial heterogeneity, the data reveals that Black children exhibit a higher propensity for both internalizing and externalizing mental health problems, as shown in Figure 4. The pattern resonates with that in McLaughlin et al. (2007), in which they use a large sample of nationally representative sixth, seventh, and eighth graders. Figure 4A shows that the gap in internalizing mental health propensity between Black and non-Black children narrows as children age. In contrast, Figure 4B indicates that the racial disparity in externalizing behavioral problems persists throughout the observed age range.

[Insert Figure 4 about here]

To summarize, there are substantial gender and racial differences in youth mental health propensity. Girls are more likely to experience internalizing mental health problems, whereas boys are more prone to externalizing problems. Black children exhibit higher propensities for both internalizing and externalizing problems compared with their Hispanic and non-Black, non-Hispanic peers.

5.1.2 Financial Distress

To examine whether the impact of youth mental health on financial distress differs by gender and race, I re-estimate the baseline model in Equation 3 with interaction terms between youth mental health propensity and gender/race indicators. In this specification, the coefficients on the interaction terms, together with the main effect of youth mental health, capture how the relationship between youth mental health propensity and financial distress varies across gender and racial groups.

Table 7 reports the results by gender. The reference group is male. For internalizing mental health problems, the negative impact on financial distress does not differ across genders: neither the youth mental health measure nor the interaction term is statistically significant. For externalizing problems, there is weak evidence (10% significance level) of differential effects. As shown in Columns 3 and 4, males are more adversely affected in terms of late unsecured debt, while females are more likely to have accounts in collections. Overall, however, the results provide no compelling evidence of systematic gender differences in the impact of youth mental health on financial distress.

[Insert Table 7 about here]

Race, by contrast, shows significant heterogeneity in the impact of youth mental health on financial distress, as reported in Table 8. The reference group is non-Hispanic, non-Black respondents. For internalizing mental health problems, individuals in the non-Hispanic, non-Black group with higher mental health propensities are significantly more likely (12.8 percentage points) to have accounts in collections, whereas Black respondents with higher propensities are significantly less likely (14.0 percentage points) to be in collections relative to their peers. The magnitude of these effects is substantial compared with the sample mean of 17.8%.

Turning to externalizing problems (Columns 3 and 4), a similar pattern emerges. Non-Hispanic, non-Black individuals face higher risks of both late unsecured debt payments and accounts in collections, while Black respondents with higher externalizing propensities are significantly less likely to have accounts in collections. It is also notable that the coefficients on Black are significantly positive across all unsecured debt measures, indicating that Black households are generally worse off financially. Nonetheless, the marginal impact of youth mental health problems on unsecured debt distress is considerably larger for the non-Hispanic, non-Black group.

[Insert Table 8 about here]

To conclude, non-Hispanic, non-Black individuals are more vulnerable to the negative effects of youth mental health problems on unsecured debt distress compared with their Hispanic and Black peers. They

face a significantly higher likelihood of experiencing financial distress in unsecured debt. By contrast, gender shows no clear evidence of heterogeneity in this relationship.

5.2 Mechanisms Linking Youth Mental Health to Financial Distress

5.2.1 Borrowing Decisions

Per the conceptual framework introduced in Section 2, borrowing behavior plays a central role in shaping financial distress outcomes. Combining Hypotheses 2 and 3 with the empirical findings in Section 4, it is reasonable to expect that individuals with youth mental health problems are more likely to accumulate unsecured debt while avoiding substantial secured debt obligations.

This hypothesis can be empirically tested using the rich financial information available–particularly in the NLSY97 sample. I employ the same empirical specification as Equation 3 from Section 4, replacing the dependent variable with various borrowing decision indicators. These include both secured and unsecured debt borrowing measures.

Secured debt borrowing is defined consistently across the two datasets and includes indicators for homeownership, mortgage obligations conditional on homeownership, vehicle ownership, and vehicle loans conditional on vehicle ownership. In contrast, measures of unsecured debt borrowing differ between the datasets due to variations in variable availability. Because the NLSY97 provides more detailed household balance sheet information, I use it as the primary data source for the analysis.

Table 9 provides detailed insights into unsecured debt borrowing behavior, leveraging detailed financial information from the NLSY97. In this analysis, I intentionally exclude the family support controls, as their inclusion would reduce the sample size by approximately 75%[6]. Individuals with a higher propensity for youth mental health problems are not significantly more likely to take on secured debt. However, Table 9 provides compelling evidence that these individuals are more likely to accumulate unsecured debt through rolled-over credit card balances and obligations to other businesses, such as retail stores, medical providers, or banks. While the magnitudes of credit card rollover take-up are similar for internalizing and externalizing problems, the effect is much larger for externalizing problems (7 percentage points) than for internalizing problems (3 percentage points) in terms of miscellaneous debts.

[Insert Table 9 about here]

The estimated effects are economically meaningful: moving from the bottom to the top of the youth externalizing mental health distribution is associated with a 4 percentage point increase in the likelihood of having outstanding credit card bills and a 7 percentage point increase in the likelihood of owing money to

[6]The results are robust to the inclusion of family support controls.

other businesses. These effects correspond to approximately 67% and 36% of the respective sample means. These findings align with Cvijanovic et al. (2025), who document that childhood mental health problems are associated with higher levels of unstructured debt in later life.

Because I use the NLSCYA as the primary dataset for financial distress analysis, I also examine borrowing behavior using the NLSCYA to ensure consistency. The results, reported in Table B.V in the Appendix, confirm this analysis. Consistent with the findings in Table 9, individuals with youth mental health problems are not significantly more likely to hold a mortgage, provided that their homeownership is comparable to those of other individuals. Similarly, individuals with youth mental health problems are not more likely to have vehicle loans, even though their vehicle ownership is significantly lower. On the unsecured debt side, there is no compelling evidence that youth mental health problems are associated with a higher probability of carrying credit card balances. This result is not surprising, given that credit cards are a common means of consumption in the U.S. and widely held across the population. Unfortunately, the NLSCYA dataset does not include broader measures of unsecured debt to fully test the hypothesis. However, respondents were asked about how much money they left over at the end of each month. I construct a variable–*Money Not Enough*–taking the value of 1 if respondents reported either not having enough to make ends meet or just barely having enough. This variable serves as a proxy for financial shortfall, under the assumption that individuals in such situations are more likely to rely on unsecured debt to cover basic consumption needs. Column 6 reports that individuals with higher propensity in the youth mental health problems are more likely to experience this financial strain, suggesting that they may be more likely to incur unsecured debt to bridge the gap. The economic significance is large–moving from the bottom to the top of the youth mental health distribution will increase the likelihood of experiencing money shortfall by about 25% of the sample mean.

To conclude, the empirical evidence presented in both data sets is consistent with the hypothesis in the conceptual framework that individuals with mental health problems in youth are more likely to borrow more, especially unsecured debts. Given that individuals with mental health problems face lower earning potential, as backed by many research [7] (Biasi et al., 2021; Cornaglia et al., 2015; Dobson et al., 2021; Wang et al., 2023), they may experience unsecured debt distress when they borrow more unsecured debt without generating more income to compensate the excessive borrowing.

[7]Using NLSCYA and NLSY97 data, I also find the similar results that individuals with higher ranking in the youth mental health distribution generate fewer household income in the future. Since this is not the focus of the study, I do not explicitly display the results.

5.2.2 Credit Access

Exclusion from formal credit markets can exacerbate excessive unsecured borrowing among individuals with higher youth mental health propensities. While informal credit instruments such as payday loans may provide temporary liquidity, they often impose exorbitant interest rates that many borrowers cannot afford, leading to severe financial consequences such as bankruptcy and default (Gathergood et al., 2019; Skiba and Tobacman, 2019).

Table 10 reports the relationship between youth mental health propensity and credit access. Column 1 shows that individuals with higher externalizing propensities are significantly less likely to have credit cards, whereas no significant relationship is found for internalizing propensities. These results provide partial evidence that affected individuals are less likely to obtain formal credit instruments such as credit cards, potentially increasing their reliance on costly informal alternatives.

[Insert Table 10 about here]

The results in Column 2 confirm this argument: both internalizing and externalizing youth mental health propensities are associated with a higher likelihood of resorting to payday loans. The economic magnitudes are substantial—moving from the bottom to the top of the internalizing (externalizing) distribution increases the probability of having a payday loan by 5.3 (5.5) percentage points, which exceeds 100% of the sample mean of 5.1%. Beyond excessive unsecured borrowing, individuals affected by youth mental health problems face exorbitant financial burdens from limited access to formal credit, further weakening their already fragile financial situation and increasing the likelihood of unsecured debt distress.

5.2.3 Perceived Cost of Default

The baseline results indicate that individuals with youth mental health problems are more likely to experience unsecured debt distress compared to their peers. Notably, no significant relationship is found between youth mental health and secured debt distress. This raises an important question: why is the association limited to unsecured debt?

As discussed in Section 5.2.1, one possible reason is that individuals are more inclined to borrow unsecured debt but not secured debt. However, the direction of influence may also operate in an opposite way: they may deliberately favor unsecured borrowing because the perceived cost of default on unsecured debt is lower than that of secured debt–an important assumption in the stylized model presented in Section 2.

The relative costs of default on secured versus unsecured debt are not straightforward. While borrowers are more likely to default on mortgages–an important form of secured debt—in nonrecourse states (Ghent and Kudlyak, 2011), where lenders can seize collateral but cannot pursue additional assets, recourse laws in

much of the United States are often weakly enforced. By contrast, default on unsecured debt can trigger wage garnishments (DeFusco et al., 2024) and credit rationing (Dobbie et al., 2020), both of which can severely diminish borrowers' quality of life after default.

Directly testing the cost of default hypothesis is not feasible due to data limitations. The NLSCYA does not include detailed consumption records or budget constraint information necessary for a structural analysis. However, the survey does provide a question that indirectly captures respondents' payment prioritization behavior: "*How often do you or does your household put off buying something you need - such as food, clothing, or medical care - because you don't have money?*" Respondents answered on a scale from 1 (Never) to 5 (All the time). While not a direct measure, this question serves as the best available proxy for the perceived cost of default. The underlying logic is that, under financial stress, individuals are likely to prioritize payments with higher perceived consequences–such as mortgages or car loans–over obligations with lower penalties, such as credit card debt or unpaid medical bills. Therefore, a higher frequency of postponing essential consumption may reflect a strategic prioritization of secured debt payments, particularly after controlling for overall financial circumstances.

I construct a dummy variable, *PutOff*, which takes the value of 1 if respondents report "Sometimes," "Often," or "All the time" to the question above, and 0 if they respond "Never" or "Rarely." This variable indicates whether the household exhibits any meaningful tendency to postpone essential consumption due to financial constraints. As a robustness check, I also retain the original ordinal response as a continuous variable, *PutOff Value*, ranging from 1 to 5, where higher values indicate a greater frequency of delaying necessary purchases. The empirical relationship between youth mental health and the proxy for the cost of default is examined in Table 11.

[Insert Table 11 about here]

Columns (1) and (2) of Table 11 show that individuals with a higher percentile ranking in youth mental health problems are significantly more likely to postpone purchasing essential items due to lack of money. This finding provides initial evidence that these individuals may forgo basic consumption in order to meet financial obligations such as mortgage, rent, or car loan payments–suggesting a higher perceived cost of default on secured debt.

However, an alternative explanation is that these individuals experience financial distress across both secured and unsecured debt, with no compensatory behavior involved. To address this concern, I split the sample by secured debt distress status. A comparison between Columns (3) and (5) reveals that the positive association between youth mental health problems and delayed essential consumption only holds for individuals not late on secured debt payments. This pattern supports a mechanism in which individuals

prioritize secured debt obligations to protect housing or other essential assets by sacrificing some essential consumptions. In contrast, among those already delinquent on secured debt, there is no significant relationship between youth mental health and postponing essential purchases, implying that such individuals may no longer need to cut basic spending to service secured debt obligations.

Taken together, the results provide evidence that, at least among individuals with a higher propensity for youth mental health problems, the perceived cost of default is greater for secured debt than for unsecured debt. This finding is consistent with the stylized model presented in Section 2 and supports a mechanism in which these individuals are more likely to delay or default on unsecured obligations, while maintaining payments on secured debts to avoid the more severe consequences associated with housing or asset loss.

5.2.4 Financial Planning

Individuals can avoid financial distress through careful financial planning; however, they often make suboptimal decisions due to different levels of financial literacy (Campbell, 2006). This raises an important question: do individuals with youth mental health problems make poorer financial planning decisions, thereby contributing to their elevated risk of financial distress? The answer to this question can provide deeper insight into the underlying mechanisms linking youth mental health and adult financial outcome.

Table 12 shows the results of the linear probability model estimating the relationship between youth mental health and financial planning behavior, following the specification in Equation 3. Due to the data availability, financial planning ability is measured by by four indicators: whether individuals have established emergency funds, maintain funds in checking or savings accounts, possess retirement accounts, and hold health insurance coverage. These financial planning activities serve as buffer against adverse life events and prevent them from being swamped in financial distress.

[Insert Table 12 about here]

Individuals ranked higher in the externalizing mental health distribution are significantly less likely to engage in sound financial planning. Specifically, they are less likely to have emergency funds, health insurance, checking accounts, and retirement accounts. Moving from the bottom to the top of the externalizing mental health distribution is associated with a reduction of at least 6 percentage points in the likelihood of making optimal financial planning decisions. On the contrary, there is no consistent evidence that youth internalizing mental health problems are associated with poor financial planning. Column 4 provides weak evidence suggesting that individuals with higher internalizing mental health ranks are less likely to have funds in retirement planning accounts. Even though Column 2 shows a significantly negative relationship with having health insurance, this result does not hold in Column 5, in which a different sample is used.

Overall, the evidence suggests that individuals with poor youth mental health are unable to offset the negative consequences of excessive borrowing through improved financial planning. This concern is particularly pronounced for those with externalizing mental health problems: individuals with a higher propensity for externalizing behaviors are significantly less likely to engage in contingency planning, leaving them especially vulnerable to adverse life events. The contrast between internalizing and externalizing youth mental health in financial planning outcomes provides further evidence that externalizing problems exert a stronger influence on future financial distress.

5.2.5 The Role of Noncognitive Ability

Kuhnen and Melzer (2018) and Parise and Peijnenburg (2019) find that noncognitive abilities—measured by self-efficacy, conscientiousness, and emotional stability—are significant predictors of financial delinquency and distress. Notably, Parise and Peijnenburg (2019) claims that the relationship is likely to be causal. Self-efficacy is defined as an individual's belief in their ability to influence important life outcomes. Emotional stability refers to one's capacity to remain calm under pressure and to avoid anxiety or impulsive behavior. Conscientiousness captures traits such as organization, practicality, persistence, self-discipline, and achievement orientation. At first glance, there is considerable conceptual overlap between youth mental health and noncognitive abilities, particularly with emotional stability. Specifically, anxiety and impulsivity are captured by internalizing and externalizing mental health measures in this study. Therefore, it is reasonable to expect that the estimated effect of youth mental health on unsecured financial distress may attenuate once noncognitive ability variables are included as additional controls in the regression analysis.

The self-efficacy measure is available in the NLSCYA dataset and is constructed using responses to seven items from the Pearlin Mastery Scale. In this scale, respondents were asked to rate their level of agreement with each statement on a four-point scale, ranging from strongly disagree (1) to strongly agree (4). Following the methodology of Kuhnen and Melzer (2018), who use the same dataset, I compute self-efficacy as the average percentile ranking of respondents' mastery scores across survey waves, up to 2010–the point at which financial distress questions were first introduced in the survey. This approach ensures temporal ordering and mitigates concerns about reverse causality.

Conscientiousness and emotional stability are constructed from the Ten Item Personality Inventory (TIPI). Conscientiousness is measured using two items: "dependable, self disciplined" and "disorganized, careless" while emotional stability is derived by the other two items—"anxious, easily upset" and "calm, emotionally stable" [8]. Items with negative tones are reverse-coded so that higher value indicates better noncognitive

[8]The measures of conscientiousness and emotional stability in Parise and Peijnenburg (2019) are more comprehensive, as they are based on a larger set of survey items.

abilities. Different from Pearlin Mastery Scale, respondents were asked to rate their level of agreement with each statement on a seven-point scale, from disagree strongly (1) to agree strongly (7). Both measures are quoted as the the average percentile of each item across time for the ease of comparison among coefficients.

Table B.VI in Appendix presents the baseline results for unsecured debt distress with noncoginitive ability controls. I focus on unsecured debt distress here, as no significant relationship has been detected between secured debt distress and youth mental health. The inclusion of noncognitive ability controls attenuates the coefficients on youth mental health; however, most remain statistically significant. Notably, the effect size of youth mental health generally exceeds that of the noncognitive traits. For example, moving from the bottom to the top of the youth externalizing mental health distribution is associated with a 5 percentage point increase in the likelihood of being late on unsecured debt payments, compared to 4.1 percentage points decrease for self-efficacy.

The significance of the coefficients for internalizing mental health problems disappears when noncognitive abilities are included in the regression for late unsecured debt payments. It is worth noting that the measure of emotional stability substantially overlaps with the youth mental health measures, as both capture similar age periods. Overall, while noncognitive abilities share conceptual similarities with mental health–particularly regarding emotional regulation–they do not fully explain the observed relationship between youth mental health and financial distress.

Next, I examine the relationship between youth mental health and noncognitive abilities to assess whether noncognitive traits serve as a potential channel through which youth mental health influences financial distress. The regression results are presented in Table 13 using an ordinary least squares model (OLS) with continuous dependent variables, based on Equation 3. To ensure robustness of the findings, I use both raw score and the percentile rankings of the noncognitive ability measures as dependent variables. As introduced above, the raw self efficacy score ranges from 7 to 28, while the raw score for emotional stability and conscientiousness range from 2 to 14. The percentile ranking in this specification is calculated within a specific survey wave against those who answered the questions. In both cases, higher values indicate stronger noncognitive abilities.

[Insert Table 13 about here]

The results are statistically significant across all three measures of noncognitive abilities, for both raw scores and percentile rankings. A higher propensity for youth mental health problems is associated with lower raw scores and lower percentile rankings of noncognitive abilities, indicating that youth mental health negatively affects the development of these traits. The effect size is generally larger for internalizing mental health problems than for externalizing ones, which helps explain the nonsignificant coefficients for internalizing

problems when noncognitive controls are included. Overall, these findings provide strong evidence that youth mental health influences adult financial distress, at least in part, through its adverse impact on noncognitive abilities.

6 Conclusions

In this paper, I use nationally representative survey data to empirically examine the relationship between youth mental health and financial distress, distinguishing between secured and unsecured debt distress. I provide novel evidence that individuals with higher youth mental problem propensity are more likely to experience unsecured debt distress, but not secured debt distress. Moreover, the relationship does not differ significantly between individuals with internalizing versus externalizing mental health problems. Using an instrumental variable approach, I provide suggestive evidence that the relationship is likely causal.

The identified relationship exhibits significant racial heterogeneity: non-Hispanic, non-Black individuals are more sensitive to the adverse effects of youth mental health on unsecured debt distress. By contrast, the empirical analysis reveals no meaningful heterogeneity by gender.

This paper also identifies several underlying mechanisms. Beyond the well-established income/education channel, I find that youth mental health influences adult unsecured debt distress through borrowing behavior, perceived cost of default, financial planning, and noncognitive abilities. Specifically, individuals with a higher propensity for mental health problems in youth are more likely to take on unsecured debts, have limited credit access to cover those debts, and exhibit poorer financial planning—e.g., lacking emergency funds, checking or savings accounts, and retirement accounts. I provide evidence that individuals with poorer youth mental health perceive the cost of default on secured debt to be higher, consistent with the predictions of the stylized economic model introduced in this paper. Finally, they also display lower levels of noncognitive abilities, including self-efficacy, conscientiousness, and emotional stability, all of which have been shown in the literature to be significant predictors of financial distress.

Understanding the impact of youth mental health on financial distress is of critical importance. Allocating limited resources to the most affected sectors and groups can enhance both economic efficiency and the well-being of vulnerable individuals. Based on the findings of this study, greater attention and resources should be directed toward unsecured debt management for individuals with a history of youth mental health problems, in order to prevent future financial distress. Furthermore, non-Hispanic, non-Black groups should be paid more attention to in addressing the youth mental health crisis in U.S. as they are significantly more vulnerable.

The broader macroeconomic implications of mental health are increasingly gaining attention, particularly in the context of the ongoing mental health crisis. For example, Abramson et al. (2024) models contem-

poraneous mental health in a macroeconomic framework to evaluate the welfare costs of mental illness and the effects of mental health policies. The findings of this paper suggest that youth mental health may have long-term effects on the retail and consumer credit markets, while exerting limited negative influence on the housing market. This opens up promising avenues for future research to further explore the macroeconomic consequences of mental health problems in a more granular way.

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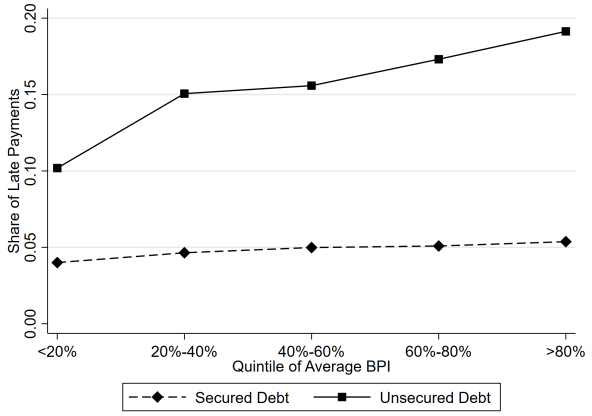
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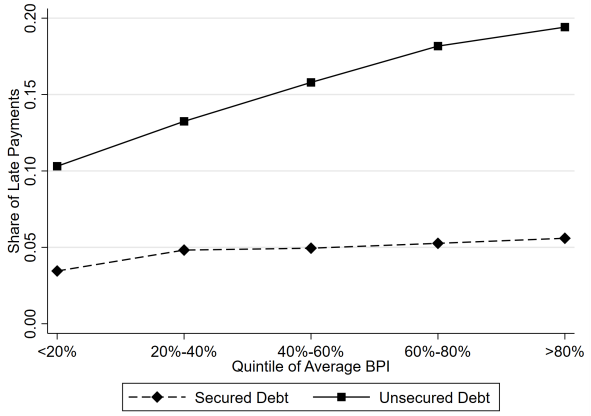
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Figure 1: Youth Mental Health and Financial Distress

This figure plots the share of late payments by debt type, including secured debt and unsecured debt, for individuals in each quintile of youth mental health propensity, measured by the average BPI scores across youth. The y-axis represents the average share of individuals who reported being late on secured debt or unsecured debt in a given survey wave. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. Panel A illustrates internalizing youth mental health, while Panel B depicts externalizing youth mental health. The data are drawn from the NLSY79 Children and Young Adults (NLSCYA) sample.



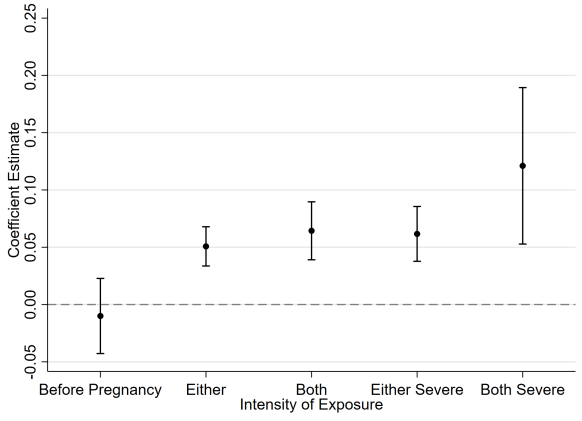
(A) Internalizing Behavioral Problem Index



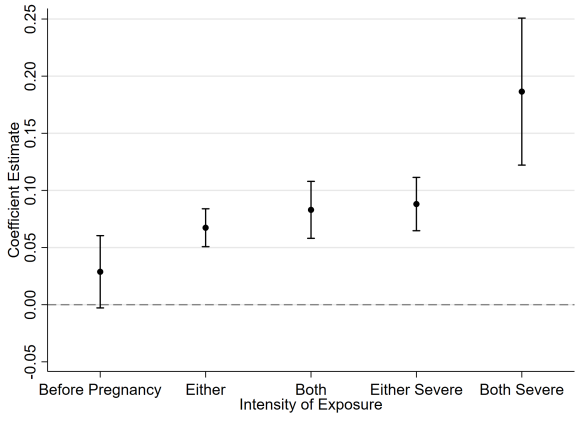
(B) Externalizing Behavioral Problem Index

Figure 2: Coefficient Estimates of Prenatal Exposures

This figure presents coefficient estimates from the first-stage regression of the instrumental variables analysis in Equation 4. *Before Pregnancy* is an indicator that takes the value of one if the child's mother reported having smoked or drinking alcohol before age 25. *Either* refers to a prenatal exposure measure equal to 1 if the child's mother consumed either cigarettes or alcohol during pregnancy, and 0 otherwise. *Both* equals 1 if the mother consumed both alcohol and cigarettes during pregnancy. *Either Severe* indicates prenatal exposure equal to 1 if the mother either consumed alcohol more than once per month or smoked more than one pack of cigarettes per day during pregnancy. *Both Severe* is an indicator equal to 1 if the mother both consumed alcohol more than once per month and smoked more than one pack of cigarettes per day during pregnancy. Panel A reports results for internalizing youth mental health, and Panel B reports results for externalizing youth mental health. All data are from the NLSY79 Children and Young Adults (NLSCYA) sample.



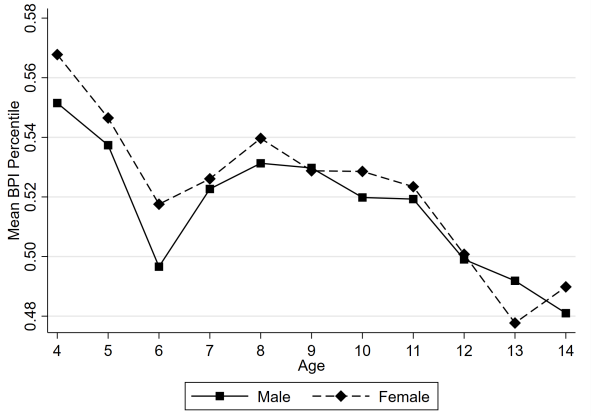
(A) Internalizing Behavioral Problem Index



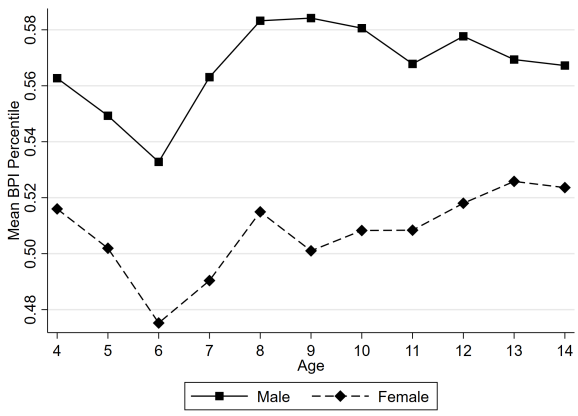
(B) Externalizing Behavioral Problem Index

Figure 3: Youth Mental Health by Gender

This figure depicts youth mental health outcomes from ages 4 to 14, separated by gender. The y-axis represents the mean behavioral problem index percentile for all observations within each age group. Panel A illustrates internalizing youth mental health, while Panel B depicts externalizing youth mental health. The data are drawn from the NLSY79 Children and Young Adults (NLSCYA) sample.



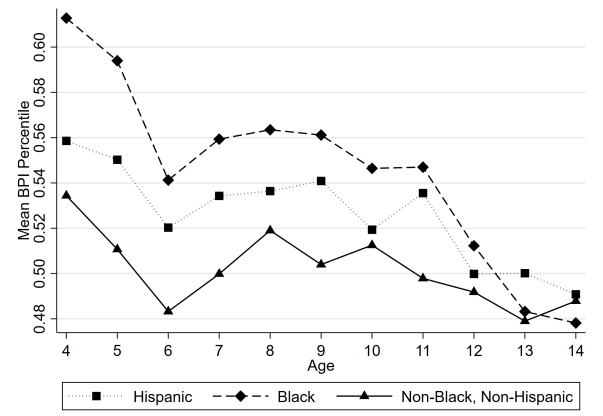
(A) Internalizing Behavioral Problem Index



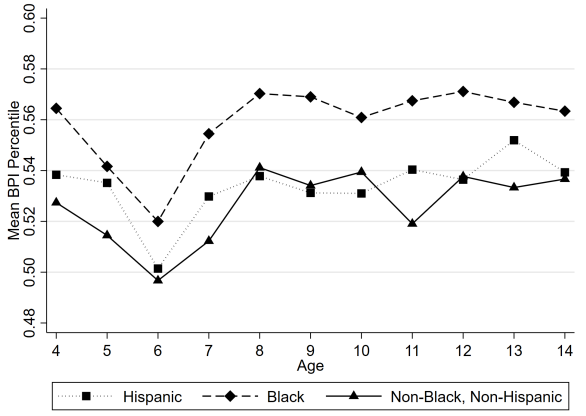
(B) Externalizing Behavioral Problem Index

Figure 4: Youth Mental Health by Race

This figure depicts youth mental health outcomes from ages 4 to 14, separated by race, including Hispanic, Black, and Non-Black, No-Hispanic. The y-axis represents the mean behavioral problem index percentile for all observations within each age group. Panel A illustrates internalizing youth mental health, while Panel B depicts externalizing youth mental health. The data are drawn from the NLSY79 Children and Young Adults (NLSCYA) sample.



(A) Internalizing Behavioral Problem Index



(B) Externalizing Behavioral Problem Index

Table 1: Variable Definitions

Variable	NLSCYA Sample	NLSY97 Sample
Panel A: Mental Health Measures		
Youth Internal Mental	Average percentile ranking of the internalizing Behavioral Problem Index (BPI) components– including anxiety, depression, and dependency–measured before age 17	Percentile ranking of the youth mental health scale based on five self-reported items related to depressive mood, measured at age 16
Youth External Mental	Average percentile ranking of the externalizing Behavioral Problem Index (BPI) components–including antisocial behavior, headstrong tendencies, peer conflict, and hyperactivity–measured before age 17	Percentile ranking of the average delinquency index, derived from ten questions related to delinquent or criminal behavior reported before age 16
Panel B: Demographic Variables		
Gender: Female	Dummy variable equal to 1 if the respondent is female, and 0 otherwise	
Race: Hispanic/Black	Dummy variable equal to 1 if the respondent is Hispanic or Black, and 0 otherwise	
Married	Dummy variable equal to 1 if the respondent is married, and 0 otherwise (including never married, separated, divorced, or widowed)	
College Degree	Dummy variable equal to 1 if the respondent has completed college, and 0 otherwise	
No. of Children	Continuous variable indicating the number of children a respondent had during the survey year	
Rural Area	Dummy variable equal to 1 if the respondent reported living in the U.S. rural area during the survey year	
Unemployed	Dummy variable equal to 1 if respondent reported no current job at the date of interview, and 0 otherwise	Dummy variable equal to 1 if respondent reported no income from job during the survey wave, and 0 otherwise
Health Insurance	Dummy variable equal to 1 if the respondent reported having health insurance coverage during the survey year, and 0 otherwise	
Bad Health	Dummy variable equal to 1 if the respondent reported having poor health condition during the survey year, and 0 otherwise(including fair, good, very good, and excellent)	
Panel C: Financial Variables		
Own Home	Dummy variable equal to 1 if the respondent reported owning a home during the survey year, and 0 otherwise	
Negative Net Worth	Dummy variable equal to 1 if the respondents had negative household net worth, computed by home net value and vehicle net value, and 0 otherwise	Dummy variable equal to 1 if the respondents had negative household net worth, computed by all the assets and debts, and 0 otherwise
Late on Secured Debts	Dummy variable equal to 1 if the respondent reported being late on mortgage, rent, or car loan payments during the survey wave, and 0 otherwise	Dummy variableequal to 1 if the respondent reported being late on mortgage, or rent during the survey wave, and 0 otherwise
Foreclosure, Repossession, or Bankruptcy	Dummy variable equal to 1 if the respondent reported filing foreclosure, repossession, or bankruptcy during the survey wave	Dummy variable equal to 1 if the respondent reported filing bankruptcy during the survey wave
Late on Unsecured Debts	Dummy variable equal to 1 if the respondent reported being late on credit card bill, utility bill, and other loans and bills during the survey year, and 0 otherwise	Dummy variable equal to 1 if the respondent reported being late on loan payments other than mortgage and rent during the survey wave
Accounts in Collection	Dummy variable equal to 1 if the respondent reported having accounts sent to a collection agency during the survey wave, and 0 otherwise	Dummy variable equal to 1 if the respondent reported being late on loan payments other than mortgage and rent for more than two months, and 0 otherwise
Household Income	The sum of self-reported total income from wages, salary, commissions, or tips from all jobs and from own farm or business after expenses in the previous year. Categorical variable grouped self-reported household income during the survey year into five income bins (in \$1,000): $[0, 30]$, $(30, 60]$, $(60, 95]$,$(95, 150]$, and $(150, +\infty]$	Self-reported gross household income in the past year. Categorical variable grouped self-reported household income during the survey year into five income bins (in \$1,000): $[0, 30]$, $(30, 60]$, $(60, 95]$,$(95, 150]$, and $(150, +\infty]$

Table 1: Variable Definitions (Cont.)

Variable	NLSCYA Sample	NLSY97 Sample
Panel D: Other Variables		
Cognitive Ability	First principal component of the average percentile scores from the Peabody Individual Achievement Test (PIAT) subtests–math, reading recognition, and reading comprehension–and the Peabody Picture Vocabulary Test, all administered before age 16	Percentile score of Armed Services Vocational Aptitude Battery (ASVAB) administrated to the youth before the age of 16
Risk Aversion	First principal component of the average percentile rankings of responses to questions related to risk preferences	Percentile ranking of the scores to question about respondent's willingness to take financial risks
Patience	First principal component of the average responses to questions related to drinking, smoking, and recreational drug use	
Parents' Education	Dummy variables equal to 1 if mother and father have completed college, and 0 otherwise	
Closeness to Parents	Average level of closeness to mother and father during childhood reported by respondent	Average score of Physical Environment Risk Index designed by the survey
Childhood Family Income	Family income reported by mother when the child was born. Categorical variable grouped into five income bins (in \$1,000): $[0, 25]$, $(25, 40]$, $(40, 75]$,$(75, 100]$, and $(100, +\infty]$	
Neighborhood Environment	Average level of neighborhood safety during childhood reported by respondent	Average score of Enriching Environment Risk Index designed by the survey
Transfers	Dummy variable equal to 1 if the respondent reported someone other than spouse/partner paid part of living expenses during the survey year, and 0 otherwise	Dummy variable equal to 1 if the respondent reported taking loans from relatives to satisfy housing needs or pay education loans, and 0 otherwise

Table 2: Summary Statistics

This table presents summary statistics for the variables discussed in the data section. Summary statistics are reported separately for the *NLSY79 Children and Young Adults* (NLSCYA) and the *National Longitudinal Survey of Youth 1997* (NLSY97). The analysis sample includes all survey respondents aged 21 or older who were surveyed until 2020 in NLSCYA and 2021 in NLSY97. Variables are grouped into four panels: mental health measures, demographics, financial variables, and other controls. Mental health measures and self-efficacy are constructed as relative percentiles within the sample. In contrast, cognitive ability, patience, risk aversion, conscientiousness, and emotional stability are derived as the first principal component of average responses to relevant questions asked before age 21. Detailed variable definitions are provided in the Appendix. Importantly, some definitions differ across the two datasets: * Secured loans include mortgage, rent, and car loans in NLSCYA, whereas NLSY97 only includes mortgage and rent. While NLSY97 reports only bankruptcy, NLSCYA also records repossession and foreclosure. NLSY97 does not contain a direct indicator for late payments on unsecured loans; instead, the presence of bill pressure is used as a proxy. Similarly, having a payday loan serves as a proxy for accounts in collection in NLSY97. ** In NLSCYA, cognitive ability and risk aversion are measured as first principal components. In NLSY97, they are represented as percentiles due to the availability of only one observation per respondent.

	NLSCYA			**NLSY97**		
	Mean	Std.Dev.	Obs	Mean	Std.Dev.	Obs
Panel A: Mental Health Measures						
Youth Internal Mental	0.52	0.21	26,257	0.56	0.28	32,088
Youth External Mental	0.54	0.23	26,244	0.44	0.31	35,936
Panel B: Demographics						
Gender: Female	0.52	0.50	26,496	0.49	0.50	35,936
Race: Hispanic	0.22	0.41	26,496	0.21	0.41	35,936
Race: Black	0.34	0.47	26,496	0.26	0.44	35,936
Age	28.66	5.39	26,496	32.50	5.59	35,936
Married	0.26	0.44	26,495	0.38	0.49	25,628
College Degree	0.24	0.43	26,496	0.29	0.45	35,936
No. of Children	0.62	1.04	26,496	0.98	1.20	25,703
Live in Rural Area	0.16	0.37	25,905	0.18	0.39	25,032
Unemployed	0.27	0.44	26,453	0.17	0.38	24,057
With Health Insurance	0.70	0.46	26,326	0.73	0.44	25,641
Bad Health Situation	0.01	0.11	26,470	0.01	0.12	25,703
Panel C: Financials						
Own home	0.23	0.42	26,286	0.33	0.47	25,896
Negative Household Net Worth	0.09	0.29	24,731	0.17	0.38	22,065
Late on Secured Debts*	0.05	0.22	25,227	0.03	0.16	22,818
Bankruptcy*	0.03	0.17	13,238	0.05	0.22	25,893
Late on Unsecured Debts*	0.17	0.37	12,908	0.20	0.40	25,342
Accounts in Collection*	0.18	0.38	13,186	0.04	0.20	23,412
Household Income (in $)	43,533.32	47,781.07	24,208	72,620.92	73,251.72	22,298
Panel D: Other Variables						
Cognitive Ability**	0.06	1.69	25,242	0.45	0.29	28,372
Patience	0.02	1.26	22,386	−0.00	2.24	35,936
Risk Aversion**	−0.01	1.40	21,697	0.43	0.29	30,812

Table 3: Youth Mental Heath and Financial Distress

This table presents the baseline results of the relationship between youth mental health and financial distress specified in Equation 3. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on secured debt payments and unsecured debt payments; and 0 otherwise. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. For the secured debt payment outcomes, the sample is restricted to respondents who held those specific types of debt. Two additional binary outcomes indicating severe financial distress—(1) foreclosure, repossession, or bankruptcy, and (2) accounts in collection—are also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Distress		**Unsecured Debt Distress**	
	(1)	(2)	(3)	(4)
	Late Secured Debt Payments	Foreclosure, Repossession, or Bankruptcy	Late Unsecured Debt Payments	Accounts in Collections
Panel A: Internalizing Mental Health Problem				
Internal Mental	0.012	−0.007	0.044*	0.082***
	(0.016)	(0.011)	(0.024)	(0.025)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.078	0.051	0.098	0.117
N	7,862	7,959	7,750	7,939
Panel B: Externalizing Mental Health Problem				
External Mental	0.013	0.006	0.055**	0.069***
	(0.014)	(0.010)	(0.022)	(0.022)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.078	0.051	0.098	0.117
N	7,862	7,959	7,750	7,939
Demographic Controls	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes
Cognitive-Behavioal Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table 4: Persistence of Youth Mental Health Problem

This table reports the pairwise correlations between youth mental health and adult mental health. The sample is from NLSY79 Children and Young Adults (NLSCYA) dataset. All mental health measures are expressed in percentiles, reflecting individuals' relative positions within the sample. The subscript on each adult mental health variable denotes the time period following the measurement of youth mental health (before the age of 17); a larger subscript denotes a longer interval between the two measurements. Panel A presents the persistence of internalizing mental health problems from youth to adulthood, while Panel B examines the persistence of externalizing mental health problems. For adult internalizing mental health, I use the Center for Epidemiologic Studies Depression Scale (CES-D) as a proxy. For adult externalizing mental health, I use the agreeableness dimension from the Ten Item Personality Inventory (TIPI) as a comparative measure. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Youth Mental	*Adult Mental$_1$*	*Adult Mental$_2$*	*Adult Mental$_3$*	*Adult Mental$_4$*
Panel A: Internalizing Mental Health Problem					
Youth Mental	1				
Adult Mental$_1$	0.15***	1			
Adult Mental$_2$	0.16***	0.41***	1		
Adult Mental$_3$	0.16***	0.33***	0.45***	1	
Adult Mental$_4$	0.16***	0.29***	0.39***	0.43***	1
Panel B: Externalizing Mental Health Problem					
Youth Mental	1				
Adult Mental$_1$	0.07***	1			
Adult Mental$_2$	0.08***	0.29***	1		
Adult Mental$_3$	0.09***	0.24***	0.34***	1	
Adult Mental$_4$	0.10***	0.26***	0.35***	0.41***	1

Table 5: Youth Mental Health, Contemporaneous Mental Health, and Financial Distress

This table presents the results of relationship between youth mental health and financial distress with contemporaneous mental health variables. The sample is from the National Longitudinal Survey of Youth 1997 (NLSY97) dataset who were age 25 or older among the survey waves from 1997 to 2021. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on unsecured debt payments; and 0 otherwise. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. Additional binary outcome indicating severe financial distress—accounts in collection—is also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and contemporaneous mental health situation; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive-behavioral traits–cognitive ability, risk aversion, and patience measure, and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. The contemporaneous mental health–*Current Mental*– is measured as the percentile ranking of respondent's self-reported Center for Epidemiologic Studies Depression Scale (CES-D). All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	(1) Late Secured Debt Payments	(2) Foreclosure, Repossession, or Bankruptcy	(3) Late Unsecured Debt Payments	(4) Accounts in Collections
Panel A: Internalizing Mental Health Problem				
Internal Mental	−0.000	−0.014	0.035	0.068***
	(0.017)	(0.011)	(0.025)	(0.025)
Current Mental	0.034***	0.028***	0.062***	0.051***
	(0.012)	(0.008)	(0.018)	(0.018)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.082	0.054	0.100	0.120
N	7,761	7,857	7,652	7,837
Panel B: Externalizing Mental Health Problem				
External Mental	0.002	0.000	0.048**	0.059**
	(0.014)	(0.010)	(0.022)	(0.023)
Current Mental	0.034***	0.026***	0.060***	0.051***
	(0.012)	(0.008)	(0.018)	(0.018)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.082	0.053	0.100	0.120
N	7,761	7,857	7,652	7,837
Demographic Controls	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table 6: Instrumental Variable Regression: Youth Mental Heath and Financial Distress

This table reports the results of the instrumental variable (IV) regression corresponding to the baseline specification in Equation 3. The instrumental variable, *Prenatal Exposure*, is a binary indicator equal to 1 if the individual was exposed to alcohol or cigarettes in utero. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation for the first-stage is respondent while the unit of observation for the second-stage is respondent-by-year. The dependent variables are binary indicators equal to 1 if the respondent reported being late on secured debt payments and unsecured debt payments; and 0 otherwise. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. For the secured debt payment outcomes, the sample is restricted to respondents who held those specific types of debt. Two additional binary outcomes indicating severe financial distress—(1) foreclosure, repossession, or bankruptcy, and (2) accounts in collection—are also included. Control variables in the first stage include: gender, race, cognitive ability, parents' education, self-reported closeness to parents, neighborhood environment, and family income when born. Control variables in the second stage include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level and are bootstrapped 1,000 times in the second stage to ensure consistency. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	First Stage	**Second Stage: Secured Debt Distress**		**Second Stage: Unsecured Debt Distress**	
	(1)	(2)	(3)	(4)	(5)
	Youth Mental	Late Secured Debt Payments	Foreclosure, Repossession, or Bankruptcy	Late Unsecured Debt Payments	Accounts in Collections
Panel A: Internalizing Mental Health Problem					
Internal Mental		0.152	0.067	0.493**	0.720***
		(0.155)	(0.103)	(0.224)	(0.228)
Prenatal Exposure	0.044***				
	(0.008)				
R2	0.172	0.076	0.055	0.099	0.116
N	5,633	7,473	7,567	7,370	7,547
Cragg-Donald Wald F-statistics	33.533				
Panel B: Externalizing Mental Health Problem					
External Mental		0.112	0.049	0.347**	0.530***
		(0.115)	(0.076)	(0.162)	(0.168)
Prenatal Exposure	0.060***				
	(0.007)				
R2	0.217	0.076	0.055	0.098	0.116
N	5,633	7,473	7,567	7,373	7,547
Cragg-Donald Wald F-statistics	65.402				
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes
Region X Year FE	No	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual

Table 7: Youth Mental Health and Financial Distress by Gender

This table presents the baseline results of the relationship between youth mental health and financial distress by gender. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on secured debt payments and unsecured debt payments; and 0 otherwise. *Female* is an indicator variable equals to one if the respondent is a female, and zero otherwise. The interaction terms between mental health and gender are included accordingly. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. For the secured debt payment outcomes, the sample is restricted to respondents who held those specific types of debt. Two additional binary outcomes indicating severe financial distress—(1) foreclosure, repossession, or bankruptcy, and (2) accounts in collection—are also included. Control variables include: (1) demographic characteristics—race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Distress		**Unsecured Debt Distress**	
	(1)	(2)	(3)	(4)
	Late Secured Debt Payments	Foreclosure, Repossession, or Bankruptcy	Late Unsecured Debt Payments	Accounts in Collections
Panel A: Internalizing Mental Health Problem				
Internal Mental	0.014	−0.018	0.022	0.050
	(0.021)	(0.014)	(0.031)	(0.033)
Female	0.014	−0.009	0.020	0.022
	(0.016)	(0.011)	(0.023)	(0.025)
Internal Mental X Female	−0.002	0.021	0.043	0.062
	(0.030)	(0.020)	(0.044)	(0.046)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.078	0.051	0.098	0.118
N	7,862	7,959	7,750	7,939
Panel B: Externalizing Mental Health Problem				
External Mental	0.017	−0.006	0.053*	0.034
	(0.017)	(0.012)	(0.027)	(0.028)
Female	0.018	−0.011	0.042*	0.019
	(0.015)	(0.010)	(0.022)	(0.023)
External Mental X Female	−0.007	0.025	0.005	0.072*
	(0.027)	(0.018)	(0.040)	(0.041)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.078	0.051	0.098	0.117
N	7,862	7,959	7,750	7,939
Demographic Controls	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes
Cognitive-Behavioal Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table 8: Youth Mental Health and Financial Distress by Race

This table presents the baseline results of the relationship between youth mental health and financial distress by gender. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on secured debt payments and unsecured debt payments; and 0 otherwise. *Hispanic* (*Black*) is an indicator variable equals to one if the respondent is self-identified as Hispanic (Black), and zero otherwise. The interaction terms between mental health and race are included accordingly. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. For the secured debt payment outcomes, the sample is restricted to respondents who held those specific types of debt. Two additional binary outcomes indicating severe financial distress—(1) foreclosure, repossession, or bankruptcy, and (2) accounts in collection—are also included. Control variables include: (1) demographic characteristics—race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Distress		**Unsecured Debt Distress**	
	(1)	(2)	(3)	(4)
	Late Secured Debt Payments	Foreclosure, Repossession, or Bankruptcy	Late Unsecured Debt Payments	Accounts in Collections
Panel A: Internalizing Mental Health Problem				
Internal Mental	0.003	0.005	0.050	0.128***
	(0.021)	(0.016)	(0.032)	(0.034)
Hispanic	0.000	−0.000	0.008	−0.014
	(0.022)	(0.013)	(0.032)	(0.032)
Black	0.016	0.019	0.059*	0.119***
	(0.020)	(0.015)	(0.030)	(0.032)
Internal Mental X Hispanic	0.038	−0.012	0.026	−0.005
	(0.041)	(0.024)	(0.057)	(0.059)
Internal Mental X Black	0.005	−0.030	−0.035	−0.140**
	(0.035)	(0.026)	(0.052)	(0.055)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.079	0.051	0.098	0.118
N	7,862	7,959	7,750	7,939
Panel B: Externalizing Mental Health Problem				
External Mental	−0.008	0.020	0.070**	0.107***
	(0.017)	(0.013)	(0.028)	(0.031)
Hispanic	−0.015	0.002	0.003	−0.014
	(0.021)	(0.011)	(0.030)	(0.030)
Black	0.007	0.022*	0.079***	0.108***
	(0.018)	(0.013)	(0.028)	(0.029)
External Mental X Hispanic	0.065*	−0.015	0.038	−0.001
	(0.037)	(0.020)	(0.052)	(0.053)
External Mental X Black	0.022	−0.034	−0.070	−0.115**
	(0.030)	(0.022)	(0.046)	(0.048)
Mean Dep. Var.	0.070	0.029	0.166	0.178
R2	0.079	0.051	0.099	0.118
N	7,862	7,959	7,750	7,939
Demographic Controls	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes
Cognitive-Behavioal Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table 9: Youth Mental Health and Borrowing Decisions

This table presents the results of linear probability model regressions examining the relationship between youth mental health and borrowing decisions. The sample consists of individuals from the National Longitudinal Survey of Youth 1997 (NLSY97) dataset who were age 25 or older among the survey waves from 1997 to 2021. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are binary indicators equal to 1 if the respondent: owned a home (*Homeownership*), had a mortgage (*Mortgage*), owned a vehicle (*Vehicle Ownership*), had a vehicle loan (*Vehicle Loan*), had credit card bills (*Credit Card Bills*), had other credit cards with old balance (*Other Credit Cards*) and owed money to businesses,such as stores, doctor's offices, hospitals, or banks. (*Owe Money to Businesses*). For *Mortgage*, *Vehicle Loan*, *Credit Card Bills*, and *Other Credit Cards*, the sample is restricted to respondents who reported owning a home, owning a vehicle, or having a credit card, respectively. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status (excluding column 1 and 2), income, and net worth (measured by all the household debts and equities); and (3) cognitive and attitudinal traits—cognitive ability (measured by the percentile of Armed Services Vocational Aptitude Battery (ASVAB) math and verbal scores), risk aversion (measured by the percentile of the answers to financial risk aversion question), and patience measure (measured as the first principal components of a set of measure questions). All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Borrowing				**Unsecured Debt Borrowing**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Homeownership	Mortgage	Vehicle Ownership	Vehicle Loan	Other Credit Cards	Owe Money To Businesses
Panel A: Internalizing Mental Health Problem						
Internal Mental	−0.010	−0.009	−0.042***	−0.024	0.043***	0.031**
	(0.016)	(0.021)	(0.016)	(0.022)	(0.012)	(0.015)
Mean Dep. Var.	0.357	0.865	0.758	0.511	0.059	0.193
R2	0.315	0.229	0.192	0.090	0.057	0.091
N	12,464	4,446	11,914	9,027	6,588	12,464
Panel B: Externalizing Mental Health Problem						
External Mental	−0.014	−0.040**	−0.010	−0.053***	0.040***	0.070***
	(0.015)	(0.020)	(0.016)	(0.020)	(0.011)	(0.014)
Mean Dep. Var.	0.356	0.864	0.757	0.510	0.059	0.192
R2	0.315	0.230	0.194	0.091	0.056	0.092
N	13,133	4,676	12,542	9,489	6,855	13,133
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	No	No	No	No	No	No
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual

Table 10: Youth Mental Health and Credit Access

This table presents the results from linear probability model examining the relationship between youth mental health and credit access. The sample consists of individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are are binary indicators equal to 1 if the respondent: have credit card (*Credit Card*) and have payday loan (*Payday Loan*). Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables–homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive-behavioral traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and Peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	(1) Credit Card	(2) Payday Loan
Panel A: Internalizing Mental Health Problem		
Internal Mental	−0.053	0.053***
	(0.032)	(0.017)
Mean Dep. Var.	0.439	0.051
R2	0.311	0.070
N	6,000	5,996
Panel B: Externalizing Mental Health Problem		
External Mental	−0.113***	0.055***
	(0.030)	(0.015)
Mean Dep. Var.	0.439	0.051
R2	0.313	0.070
N	6,000	5,996
Demographic Controls	Yes	Yes
Financial Controls	Yes	Yes
Cognitive-Behavioal Controls	Yes	Yes
Family Support Controls	Yes	Yes
Birth Date FE	Yes	Yes
Region X Year FE	Yes	Yes
Standard Errors	Individual	Individual

Table 11: Youth Mental Health and Cost of Default

This table presents the results from ordinary least squares (OLS) regressions examining the relationship between youth mental health and cost of default. The sample consists of individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are cost of default measures constructed by the answers to the following question: "*How often do you or does your household put off buying something you need - such as food, clothing, or medical care - because you don't have money? "* *PutOff* is an indicator variable taking the value of 1 if respondents report "Sometimes,""Often," or "All the time" to the question above, and 0 if they respond "Never" or "Rarely". *PutOff Value* is the continuous variable ranging from 1 to 5. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables–homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive-behavioral traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and Peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	All Sample		**Late on Secured Debt = 0**		**Late on Secured Debt = 1**	
	(1)	(2)	(3)	(4)	(5)	(6)
	PutOff	PutOff Value	PutOff	PutOff Value	PutOff	PutOff Value
Panel A: Internalizing Mental Health Problem						
Internal Mental	0.055*	0.071	0.054*	0.070	−0.013	0.046
	(0.028)	(0.071)	(0.029)	(0.072)	(0.140)	(0.324)
Mean Dep. Var.	0.272	1.960	0.254	1.910	0.515	2.631
R2	0.133	0.171	0.127	0.163	0.366	0.421
N	7,848	7,848	7,293	7,293	499	499
Panel B: Externalizing Mental Health Problem						
External Mental	0.077***	0.185***	0.070***	0.174***	0.018	0.135
	(0.026)	(0.065)	(0.026)	(0.065)	(0.136)	(0.326)
Mean Dep. Var.	0.272	1.960	0.254	1.910	0.515	2.631
R2	0.133	0.172	0.127	0.164	0.366	0.421
N	7,848	7,848	7,293	7,293	499	499
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual

Table 12: Youth Mental Health and Financial Planning

This table presents the results of linear probability model regressions examining the relationship between youth mental health and financial planning. Column 1 and 2 contain the sample from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2020 whereas Column 3, 4, and 5 consist sample from the National Longitudinal Survey of Youth 1997 (NLSY97) dataset who were age 25 or older among the survey waves from 1997 to 2021. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are binary indicators equal to 1 if the respondent: set up emergency funds for unexpected events (*Emergency Fund*), have health insurance (*Health Insurance*), have funds in checking or saving account (*Checking Accounts*), and have funds in retirement planning accounts (*Retirement Account*). Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage (excluding column 2 and 5), and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	NLSCYA Sample		**NLSY97 Sample**		
	(1) Emergency Funds	(2) Health Insurance	(3) Checking Account	(4) Retirement Account	(5) Health Insurance
Panel A: Internalizing Mental Health Problem					
Internal Mental	−0.038	−0.081***	−0.022	−0.029*	−0.012
	(0.028)	(0.021)	(0.015)	(0.017)	(0.016)
Mean Dep. Var.	0.413	0.708	0.792	0.392	0.744
R2	0.179	0.267	0.283	0.263	0.158
N	12,000	14,603	11,823	11,884	12,464
Panel B: Externalizing Mental Health Problem					
External Mental	−0.064**	−0.095***	−0.057***	−0.070***	−0.062***
	(0.026)	(0.019)	(0.014)	(0.016)	(0.016)
Mean Dep. Var.	0.413	0.708	0.789	0.390	0.742
R2	0.179	0.267	0.285	0.262	0.160
N	12,000	14,603	12,441	12,507	13,133
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	No	No	No
Birth Date FE	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual

Table 13: Youth Mental Health and Noncognitive Abilities

This table presents the results from ordinary least squares (OLS) regressions examining the relationship between youth mental health and noncognitive abilities. The sample consists of individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2020. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are the raw scores for self-efficacy, emotional stability, and conscientiousness in a given survey year. Percentile measures are constructed as the respondent's percentile rank among all individuals who answered the relevant noncognitive ability questions in that year. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, family income when born, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Self Efficacy		**Emotional Stability**		**Conscientiousness**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Raw Score	Percentile	Raw Score	Percentile	Raw Score	Percentile
Panel A: Internalizing Mental Health Problem						
Internal Mental	-1.012^{***}	-0.084^{***}	-0.721^{***}	-0.140^{***}	-0.293^{***}	-0.059^{***}
	(0.339)	(0.030)	(0.087)	(0.019)	(0.075)	(0.017)
Mean Dep. Var.	22.812	0.487	5.179	0.458	5.823	0.446
R2	0.163	0.153	0.087	0.082	0.072	0.078
N	3,138	3,138	8,013	8,013	8,016	8,016
Panel B: Externalizing Mental Health Problem						
External Mental	-0.795^{**}	-0.067^{**}	-0.679^{***}	-0.132^{***}	-0.303^{***}	-0.061^{***}
	(0.313)	(0.028)	(0.083)	(0.017)	(0.069)	(0.016)
Mean Dep. Var.	22.812	0.487	5.179	0.458	5.823	0.446
R2	0.162	0.152	0.087	0.082	0.072	0.079
N	3,138	3,138	8,013	8,013	8,016	8,016
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual

Internet Appendix: For Online Publication

A Proofs

A.1 Borrowing Decision

Proof. Region (A), no default. If all caps are slack (interior solution), the Euler equalities require

$$u'(c_1) = M_s = M_f(Y) = M_h,$$

with $M_s < M_f(Y) < M_h$ because $r_s \leq r_f(Y) \leq r_h$ and marginal utilities are positive. Since $u'(c_1)$ must equalize across all used margins, the household exhausts the cheapest sources first:

1. Borrow secured b_s up to $\bar{L}_s$ (if the cap binds).
2. Then formal unsecured b_f up to $L_f(Y)$ or until the aggregate cap $L_u(Y)$ binds.
3. Finally high-cost unsecured b_h, up to $L_h(Y)$ or residual $L_u(Y) - b_f$.

Thus, in region (A), borrowing is ordered "cheapest first": secured, then formal unsecured, then high-cost.

Region (B), unsecured default. When $d_u^* = 1$, the continuation values $M_f(Y) = M_h = 0$, so the Euler equations for unsecured collapse to

$$u'(c_1) + \mu_f^\ell - \mu_f^u - \lambda_u = 0, \qquad u'(c_1) + \mu_h^\ell - \mu_h^u - \lambda_u = 0,$$

implying interior equalization is impossible. The only feasible solution is at the boundary of the feasible set. Hence unsecured borrowing is pinned by the caps:

$$b_f = \min\{L_f(Y), L_u(Y)\}, \qquad b_h = \min\{L_h(Y), L_u(Y) - b_f\}.$$

That is, the household loads unsecured debt up to the maximum admissible by L_f, L_h, L_u, regardless of marginal costs, since the repayment is not made.

Region (C), both defaults. As in (B), all continuation values $M_f = M_h = M_s = 0$, so every debt category is taken to its respective cap: $b_s = \bar{L}_s$, $b_f = \min\{L_f(Y), L_u(Y)\}$, $b_h = \min\{L_h(Y), L_u(Y) - b_f\}$. □

A.2 Proposition 1

Proof. Fix Y where the active set does not change and derivatives exist.

Region (A): $R_u^* \leq \Theta$. If $b_f^* = b_h^* = 0$ then $R_u^* = 0$ and $G'(Y) = -\Theta'(Y) \geq 0$. If some unsecured margin is interior, the Euler equality on the marginal unsecured source $m \in \{f, h\}$ is

$$u'(c_1) = \beta\, \mathbb{E}[u'(c_2)\,(1 + r_m(Y))]\,.$$

Differentiate w.r.t. Y. Using $u'' < 0$, $y_2'(Y) = -\gamma < 0$ and $r_f'(Y) \geq 0$ (hence $r_m'(Y) \geq 0$ if $m = f$, zero otherwise):

$$u''(c_1)\, c_1'(Y) = \beta\, \mathbb{E}[u''(c_2)\, c_2'(Y)\,(1 + r_m(Y))] + \beta\, \mathbb{E}[u'(c_2)\, r_m'(Y)] \;>\; 0.$$

Since $u''(c_1) < 0$, we get $c_1'(Y) > 0$. With $c_1 = y_1 + b_s^* + b_u^*$ and $\bar{L}_s$ constant, $b_u^{*'}(Y) > 0$ locally (unless displaced by an equal reduction in b_s^*, which cannot happen here as $b_s \leq \bar{L}_s$ and the secured margin is either at its cap or follows its own Euler equation with lower price). Therefore

$$R_u^{*'}(Y) = (1 + r_f(Y))\, b_f^{*'} + (1 + r_h)\, b_h^{*'} + r_f'(Y)\, b_f^* \;\geq\; 0,$$

and $G'(Y) = R_u^{*'}(Y) - \Theta'(Y) \geq 0$.

Region (B): $R_u^* > \Theta$, $R_s^* \leq \Delta$. Here $d_u^* = 1$ so $M_f = M_h = 0$ and unsecured is at the boundary:

$$b_f^* = \min\{L_f(Y), L_u(Y)\}, \quad b_h^* = \min\{L_h(Y), L_u(Y) - b_f^*\}.$$

Thus $b_f^{*'}(Y), b_h^{*'}(Y) \leq 0$ and

$$R_u^{*'}(Y) = r_f'(Y)\, b_f^*(Y) + (1 + r_f(Y))\, b_f^{*'}(Y) + (1 + r_h)\, b_h^{*'}(Y).$$

The last two terms are ≤ 0. However, $G'(Y) = R_u^{*'}(Y) - \Theta'(Y) \geq r_f'(Y)\, b_f^*(Y) - \Theta'(Y)$, which is ≥ 0 because $r_f'(Y) \geq 0$, $b_f^*(Y) \geq 0$, and $\Theta'(Y) \leq 0$.

Region (C): $R_u^* > \Theta$, $R_s^* > \Delta$. As in (B), b_f^*, b_h^* are at their Y-dependent caps and the same inequality holds. Hence $G'(Y) \geq 0$.

By absolute continuity and the local constancy of active sets a.e., the conclusion holds almost everywhere. Since $D_u(Y)$ is monotone in $G(Y)$, $\Pr(D_u(Y) = 1)$ is weakly increasing in Y. □

A.3 Proposition 2

Proof. Fix Y where the active set does not change and derivatives exist.

Region (A): $R_u^* \leq \Theta$. If $b_f^* = b_h^* = 0$ then $R_u^* = 0$ and $G'(Y) = -\Theta'(Y) \geq 0$. If some unsecured margin is

interior, the Euler equality on the marginal unsecured source $m \in \{f, h\}$ is

$$u'(c_1) = \beta\, \mathbb{E}[u'(c_2)\,(1 + r_m(Y))]\,.$$

Differentiate w.r.t. Y. Using $u'' < 0$, $y_2'(Y) = -\gamma < 0$ and $r_f'(Y) \geq 0$ (hence $r_m'(Y) \geq 0$ if $m = f$, zero otherwise):

$$u''(c_1)\, c_1'(Y) = \beta\, \mathbb{E}[u''(c_2)\, c_2'(Y)\,(1 + r_m(Y))] + \beta\, \mathbb{E}[u'(c_2)\, r_m'(Y)] \;>\; 0.$$

Since $u''(c_1) < 0$, we get $c_1'(Y) > 0$. With $c_1 = y_1 + b_s^* + b_u^*$ and $\bar{L}_s$ constant, $b_u^{*'}(Y) > 0$ locally (unless displaced by an equal reduction in b_s^*, which cannot happen here as $b_s \leq \bar{L}_s$ and the secured margin is either at its cap or follows its own Euler equation with lower price). Therefore

$$R_u^{*'}(Y) = (1 + r_f(Y))\, b_f^{*'} + (1 + r_h)\, b_h^{*'} + r_f'(Y)\, b_f^* \;\geq\; 0,$$

and $G'(Y) = R_u^{*'}(Y) - \Theta'(Y) \geq 0$.

Region (B): $R_u^* > \Theta$, $R_s^* \leq \Delta$. Here $d_u^* = 1$ so $M_f = M_h = 0$ and unsecured is at the boundary:

$$b_f^* = \min\{L_f(Y), L_u(Y)\}, \quad b_h^* = \min\{L_h(Y), L_u(Y) - b_f^*\}.$$

Thus $b_f^{*'}(Y), b_h^{*'}(Y) \leq 0$ and

$$R_u^{*'}(Y) = r_f'(Y)\, b_f^*(Y) + (1 + r_f(Y))\, b_f^{*'}(Y) + (1 + r_h)\, b_h^{*'}(Y).$$

The last two terms are ≤ 0. However, $G'(Y) = R_u^{*'}(Y) - \Theta'(Y) \geq r_f'(Y)\, b_f^*(Y) - \Theta'(Y)$, which is ≥ 0 because $r_f'(Y) \geq 0$, $b_f^*(Y) \geq 0$, and $\Theta'(Y) \leq 0$.

Region (C): $R_u^* > \Theta$, $R_s^* > \Delta$. As in (B), b_f^*, b_h^* are at their Y-dependent caps and the same inequality holds. Hence $G'(Y) \geq 0$.

By absolute continuity and the local constancy of active sets a.e., the conclusion holds almost everywhere. Since $D_u(Y)$ is monotone in $G(Y)$, $\Pr(D_u(Y) = 1)$ is weakly increasing in Y. □

B Tables

Table B.I: Robustness Check: Various Youth Mental Health Measures

This table presents the robustness check results with various youth mental health measures available in NLSY79 Children and Young Adults (NLSCYA) dataset. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The independent variable, youth mental health measure, differs across the four panels. In Panel A, it is defined as the mean of the Behavioral Problem Index (BPI) percentile for each individual, aggregating internalizing and externalizing components. In Panel B, it is measured as the median of all internalizing and externalizing BPI percentile rankings. In Panel C, it is constructed as the percentile ranking of the mean raw score across internalizing and externalizing BPI items. In Panel D, youth mental health is measured as the mean of the raw scores for internalizing and externalizing BPI components. The dependent variables are binary indicators equal to 1 if the respondent reported being late on secured debt payments and unsecured debt payments; and 0 otherwise. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. For the secured debt payment outcomes, the sample is restricted to respondents who held those specific types of debt. Two additional binary outcomes indicating severe financial distress—(1) foreclosure, repossession, or bankruptcy, and (2) accounts in collection—are also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	(1) Late Secured Debt Payments	(2) Foreclosure, Repossession, or Bankruptcy	(3) Late Unsecured Debt Payments	(4) Accounts in Collections
Panel A: Mean of the BPI Percentile				
Mental	0.018*	0.002	0.054***	0.071***
	(0.009)	(0.010)	(0.021)	(0.021)
Panel B: Median of the Percentile				
Internal Mental	0.013	−0.003	0.031	0.060***
	(0.010)	(0.010)	(0.021)	(0.021)
External Mental	0.013	0.008	0.052***	0.058***
	(0.009)	(0.009)	(0.019)	(0.020)
Panel C: Percentile of the Mean				
Internal Mental	0.010	−0.005	0.032*	0.060***
	(0.008)	(0.008)	(0.017)	(0.017)
External Mental	0.011	0.006	0.047***	0.057***
	(0.008)	(0.008)	(0.017)	(0.018)
Panel D: Mean of the Raw Score				
Internal Mental	0.001	−0.000	0.003	0.008***
	(0.001)	(0.001)	(0.002)	(0.003)
External Mental	0.001	0.000	0.002**	0.003***
	(0.000)	(0.000)	(0.001)	(0.001)
N	14,275	7,959	7,750	7,939
Demographic Controls	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table B.II: Prenatal Exposure and Childhood Cognition & Health

This table presents the relationship between IV instrument–*Prenatal Exposure*– and various childhood characteristics, including cognitive abilities, risk aversion, patience, and health. The sample includes individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent. The independent variable, *Prenatal Exposure*, is a binary indicator equal to 1 if the individual was exposed to alcohol or cigarettes in utero. The dependent variables are defined as follows. *Cognitive Ability* is the first principal component of the average percentile scores from the Peabody Individual Achievement Test (PIAT) subtests–math, reading recognition, and reading comprehension–and the Peabody Picture Vocabulary Test, all administered before age 16. *Childhood Health* is the average score of the mother-reported health rating administrated before age 16. Control variables include: (1) demographic characteristics–gender and race and (2) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born. All regressions include fixed effects for birth date. Columns 2 and 4 include mother fixed effects. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	(1) Cognitive Ability	(2) Cognitive Ability	(3) Childhood Health	(4) Childhood Health
Prenatal Exposure	−0.016	−0.046	−0.016	−0.028
	(0.043)	(0.076)	(0.016)	(0.031)
R2	0.313	0.795	0.111	0.727
N	4,252	2,986	3,482	2,235
Demographic Controls	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes
Mother FE	No	Yes	No	Yes
Birth Date FE	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual

Table B.III: Validation Study: Youth Mental Heath and Financial Distress

The unit of observation is respondent-by-year. The sample includes individuals from the National Longitudinal Survey of Youth 1997 (NLSY97) dataset who were age 25 or older among the survey waves from 1997 to 2021. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on mortgage or rent payments and having bill pressure from collectors; and 0 otherwise. Bills contain all the bills a respondent could recall, including but not limited to credit card bills, utility bills, and medical bills. Two additional binary outcomes indicating severe financial distress—(1) bankruptcy, and (2) payday loan—are also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive and attitudinal traits—cognitive ability (measured by the percentile of Armed Services Vocational Aptitude Battery (ASVAB) math and verbal scores), risk aversion (measured by the percentile of the answers to financial risk aversion question), and patience measure (measured as the first principal components of a set of measure questions); and (4) family support variables–parents' highest education, household income during childhood, the Physical Environment Risk Index, and the Enriching Environment Risk Index, and loan take-up from parents. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Distress				Unsecured Debt Distress			
	(1) Late Mortgage or Rent Payments	(2) Late Mortgage or Rent Payments	(3) Bankruptcy	(4) Bankruptcy	(5) Late Loan Payments	(6) Late Loan Payments	(7) Late Loan Payments $>$ 2 Months	(8) Late Loan Payments $>$ 2 Months
Panel A: Internalizing Mental Health Problem								
Internal Mental	0.008	0.009	−0.013	−0.006	0.068***	0.029	0.026***	0.027**
	(0.006)	(0.008)	(0.010)	(0.015)	(0.015)	(0.022)	(0.008)	(0.012)
Mean Dep. Var.	0.024	0.021	0.053	0.051	0.200	0.170	0.044	0.051
R2	0.027	0.043	0.042	0.052	0.103	0.112	0.059	0.073
N	11,084	4,484	12,456	4,482	12,313	4,478	11,523	4,477
Panel B: Externalizing Mental Health Problem								
External Mental	0.003	−0.004	0.014	0.006	0.062***	0.035	0.033***	0.025**
	(0.006)	(0.008)	(0.010)	(0.015)	(0.014)	(0.022)	(0.008)	(0.013)
Mean Dep. Var.	0.025	0.022	0.055	0.052	0.201	0.169	0.045	0.052
R2	0.028	0.044	0.041	0.048	0.100	0.111	0.060	0.075
N	11,664	4,636	13,124	4,634	12,972	4,630	12,141	4,629
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	No	Yes	No	Yes	No	Yes	No	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual	Individual	Individual

Table B.IV: Validation Study: Instrumental Variable Regression: Youth Mental Heath and Financial Distress

This table reports the results of the instrumental variable (IV) regression using the National Longitudinal Survey of Youth 1997 (NLSY97) to replicate Table 6. The instrumental variable, *Childhood Trauma*, is a binary indicator equal to 1 if the individual experienced bully, gunshot, or home intrusion during childhood. The sample includes individuals from the National Longitudinal Survey of Youth 1997 (NLSY97) dataset who were age 25 or older among the survey waves. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation for the first-stage is respondent while the unit of observation for the second-stage is respondent-by-year. The dependent variables are binary indicators equal to 1 if the respondent reported being late on mortgage or rent payments and having bill pressure from collectors; and 0 otherwise. Bills contain all the bills a respondent could recall, including but not limited to credit card bills, utility bills, and medical bills. Two additional binary outcomes indicating severe financial distress—(1) bankruptcy, and (2) payday loan—are also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by all the household debts and equities); (3) cognitive and attitudinal traits—cognitive ability (measured by the percentile of Armed Services Vocational Aptitude Battery (ASVAB) math and verbal scores), risk aversion (measured by the percentile of the answers to financial risk aversion question), and patience measure (measured as the first principal components of a set of measure questions); and (4) family support variables–parents' highest education, household income during childhood, the Physical Environment Risk Index, and the Enriching Environment Risk Index, and loan take-up from parents. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level and are bootstrapped 1,000 times in the second stage to ensure consistency. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	First Stage	**Second Stage: Secured Debt Distress**		**Second Stage: Unsecured Debt Distress**	
	(1)	(2)	(3)	(4)	(5)
	Youth Mental	Late Mortgage or Rent Payments	Bankruptcy	Late Loan Payments	Late Loan Payments $>$ 2 Months
Panel A: Internalizing Mental Health Problem					
Internal Mental		0.045	−0.141	0.475**	0.143
		(0.084)	(0.145)	(0.239)	(0.122)
Childhood Trauma	0.048***				
	(0.010)				
R2	0.069	0.029	0.046	0.103	0.063
N	3,588	6,127	6,125	6,052	5,684
Cragg-Donald Wald F-statistics	24.924				
Panel B: Externalizing Mental Health Problem					
External Mental		0.016	−0.050	0.168**	0.051
		(0.030)	(0.051)	(0.084)	(0.043)
Childhood Trauma	0.136***				
	(0.010)				
R2	0.110	0.029	0.046	0.103	0.063
N	3,782	6,127	6,125	6,052	5,684
Cragg-Donald Wald F-statistics	184.853				
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Financial Controls	No	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes
Family Background Controls	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes
Region X Year FE	No	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual

Table B.V: Youth Mental Health and Borrowing Decisions–NLSY79 Children and Young Adults (NLSCYA) Sample

This table presents the results of linear probability model regressions examining the relationship between youth mental health and borrowing decisions. The sample consists of individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. The unit of observation is respondent-by-year. The dependent variables are binary indicators equal to 1 if the respondent: owned a home (*Homeownership*), had a mortgage (*Mortgage*), owned a vehicle (*Vehicle Ownership*), had a vehicle loan (*Vehicle Loan*), had credit card bills (*Credit Card Bills*), and reported not having enough money to make ends meet (*Money Not Enough*). For *Mortgage*, *Vehicle Loan*, and *Credit Card Bills*, the sample is restricted to respondents who reported owning a home, owning a vehicle, or having a credit card, respectively. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status (excluding column 1 and 2), income, and net worth (measured by house and vehicle net values);(3) cognitive and attitudinal traits—cognitive ability (measured by the first principal component of math score, reading comprehension score, reading recognition score, and peabody picture vocabulary test score), risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	Secured Debt Borrowing				**Unsecured Debt Borrowing**	
	(1)	(2)	(3)	(4)	(5)	(6)
	Homeownership	Mortgage	Vehicle Ownership	Vehicle Loan	Credit Card Bills	Money Not Enough
Panel A: Internalizing Mental Health Problem						
Internal Mental	−0.027	−0.067	−0.064**	−0.023	−0.041	0.100***
	(0.021)	(0.049)	(0.027)	(0.034)	(0.045)	(0.031)
Mean Dep. Var.	0.175	0.882	0.650	0.483	0.706	0.438
R2	0.365	0.301	0.280	0.278	0.198	0.210
N	7,961	1,370	7,959	5,170	3,368	7,901
Panel B: Externalizing Mental Health Problem						
External Mental	0.002	−0.058	−0.053**	0.005	0.008	0.111***
	(0.019)	(0.045)	(0.026)	(0.033)	(0.043)	(0.029)
Mean Dep. Var.	0.175	0.882	0.650	0.483	0.706	0.438
R2	0.365	0.301	0.280	0.278	0.198	0.211
N	7,961	1,370	7,959	5,170	3,368	7,901
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual

Table B.VI: Youth Mental Heath, Noncognitive Ability and Unsecured Financial Distress

This table presents the results of relationship between youth mental health and unsecured debt distress with noncognitive ability variables. The sample consists of individuals from the NLSY79 Children and Young Adults (NLSCYA) dataset who were age 21 or older between 2010 and 2014. The unit of observation is respondent-by-year. The key independent variables, *Internal Mental* (Panel A) and *External Mental* (Panel B), represent the percentiles of respondents' internalizing and externalizing mental health index scores, respectively, scaled between 0 and 1 to reflect each respondent's relative position within the sample distribution. A higher percentile indicates worse youth mental health. The dependent variables are binary indicators equal to 1 if the respondent reported being late on unsecured debt payments; and 0 otherwise. Secured debt payments include mortgage, rent, and car loans whereas unsecured payments contains credit card bills, utility bills, and other bills and loans. Additional binary outcome indicating severe financial distress—accounts in collection—is also included. Control variables include: (1) demographic characteristics—gender, race, marital status, college attendance, number of children, rural residence, employment status, health insurance coverage, and self-reported health status; (2) financial variables—homeownership status, income, and net worth (measured by house and vehicle net values); (3) cognitive-behavioral traits–cognitive ability, risk aversion, and patience measure, each measured as the first principal components of a set of measure questions; and (4) family support controls–parents' highest education, self-reported closeness to parents, neighborhood environment, family income when born, and external transfers during adulthood. Self-efficacy is measured as an average percentile ranking of Pearlin Mastery Scale across time up until 2010. Emotional stability and conscientiousness are measured as the percentile ranking of the average scores to related questions in Ten Item Personality Measure (TIPI) across survey waves. All regressions include fixed effects for birth date and region X survey year. Standard errors are clustered at the individual level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

	(1) Late Unsecured Debt Payments	(2) Late Unsecured Debt Payments	(3) Late Unsecured Debt Payments	(4) Accounts in Collections	(5) Accounts in Collections	(6) Accounts in Collections
Panel A: Internalizing Mental Health Problem						
Internal Mental	0.044*	0.037	0.028	0.082***	0.077***	0.068***
	(0.024)	(0.024)	(0.024)	(0.025)	(0.025)	(0.025)
Self Efficacy		−0.042**			−0.027	
		(0.017)			(0.017)	
Emotional Stability			−0.048***			−0.035*
			(0.018)			(0.018)
Conscientiousness			−0.042**			−0.018
			(0.019)			(0.020)
Mean Dep. Var.	0.166	0.167	0.166	0.178	0.178	0.178
R2	0.098	0.099	0.102	0.117	0.118	0.121
N	7,750	7,743	7,628	7,939	7,933	7,814
Panel B: Externalizing Mental Health Problem						
External Mental	0.055**	0.050**	0.042*	0.069***	0.065***	0.058**
	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)	(0.023)
Self Efficacy		−0.041**			−0.028	
		(0.017)			(0.017)	
Emotional Stability			−0.046***			−0.035*
			(0.018)			(0.018)
Conscientiousness			−0.042**			−0.019
			(0.019)			(0.020)
Mean Dep. Var.	0.166	0.167	0.166	0.178	0.178	0.178
R2	0.098	0.099	0.102	0.117	0.117	0.121
N	7,750	7,743	7,628	7,939	7,933	7,814
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Financial Controls	Yes	Yes	Yes	Yes	Yes	Yes
Cognitive-Behavioral Controls	Yes	Yes	Yes	Yes	Yes	Yes
Family Support Controls	Yes	Yes	Yes	Yes	Yes	Yes
Birth Date FE	Yes	Yes	Yes	Yes	Yes	Yes
Region X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Individual	Individual	Individual	Individual	Individual	Individual