

Non-Cognitive Abilities and Financial Delinquency: The Role of Self-Efficacy in Avoiding Financial Distress*

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Abstract

We investigate a novel determinant of financial delinquency, namely, people's subjective expectations regarding the cost-benefit trade-off in default decisions. These expectations are determined by individuals' self-efficacy, a non-cognitive ability that measures how strongly people believe that their effort influences future outcomes. Empirically we find that people with higher self-efficacy are less likely later in life to be in financial distress, are more likely to prepare to deal with adverse financial shocks, and when these arrive, are less likely to become delinquent. Thus, subjective expectations are an important factor that can help explain variation across households in their financial decisions.

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1 Introduction

Financial decisions require individuals to consider intertemporal trade-offs in an uncertain environment. For example, a prospective saver evaluates whether the future expected benefits of precautionary savings outweigh the cost of reducing consumption today. A borrower struggling to repay a loan compares the potential benefits of avoiding default to the costs of reducing spending or getting a second job today to avoid default. Or a middle-aged couple evaluates whether insuring their long-term care is worthwhile at the expense of the insurance premium. In each of these choices, the agent considers a trade-off involving an action that is costly today and has an uncertain effect on the distribution of outcomes later on. Therefore, individuals' subjective perception of this trade-off is likely to influence their decisions.

Building on this intuition, we examine the role of subjective beliefs that people have regarding the effect of their actions on future outcomes on these individuals' financial behavior. People vary in how strongly they believe that their actions or effort influence what the future will bring. This characteristic, known as self-efficacy, has been shown in the growing economics literature on non-cognitive skills to be important for educational attainment and labor market success (Heckman et al. (2006), Lindqvist and Vestman (2011)). In this paper we investigate whether self-efficacy also matters for financial choices, such as defaulting on debt, setting aside emergency savings, and insuring against risks.

Why might self-efficacy matter for financial decisions? By changing an individual's perception of the benefits from acting, self-efficacy can impact the choices that he makes. Consider a borrower at risk of default. His efforts to avoid default are immediately costly and may be ineffective. If he has low self-efficacy, he will perceive his sacrifices to have little effect on his financial future. Defaulting will appear optimal. By contrast, an individual with high self-efficacy will believe that he can take action to lower his chance of default, and thus will view sacrificing consumption and working longer hours today as optimal. A simple way to conceptualize the role of self-efficacy is within an effort choice problem, where providing effort is costly but increases the chance that the person will avoid a poor outcome

later. People with lower self-efficacy foresee less marginal benefit from exerting effort or from making sacrifices today, so they choose to spend less effort, which in turn will cause them to face a higher likelihood of experiencing a bad outcome. Within this framework, we would expect individuals with lower self-efficacy to have higher rates of financial distress, to spend less effort to prepare for potential adverse shocks, and upon encountering such shocks, to become delinquent at higher rates.

Drawing on these insights, we use data from the National Longitudinal Survey of Youth (NLSY) to test whether self-efficacy affects financial choices and outcomes. Our main analysis uses the NLSY Child and Youth panel, which follows survey participants from early childhood through adulthood. The survey tracks individuals' cognitive and non-cognitive abilities, including their self-efficacy, from an early age. Once participants move into adulthood, they also report their labor and financial market experiences. The survey's financial variables include measures of borrowing, delinquency on loans and bills, bankruptcy and asset repossession, and precautionary saving. We observe these financial choices and outcomes for a sample of roughly 6,000 younger adults (ages 21 to 41) between 2010 and 2014. We extend the analysis by using the NLSY 1979 panel (the parents of those in the Child and Youth panel) to study self-efficacy and financial choices among older adults (ages 47 to 56). In these data, we observe emergency savings, credit applications and denials, actions taken to plan for retirement, and the purchase of long-term care insurance.

We document a strong negative correlation between self-efficacy and financial distress. Individuals with higher self-efficacy, measured earlier in life, are subsequently less likely to default on outstanding loans or fall behind on bill payments than their peers with lower self-efficacy. In turn, they are also less likely to experience foreclosure, asset repossession or personal bankruptcy. Individuals with higher self-efficacy are also less likely to be rejected for credit and less likely to turn to high-cost payday loans. The magnitudes of these effects are large in comparison to sample averages. A one standard deviation increase in self-efficacy corresponds to a 1.4 percentage point decrease in the probability of loan default, a

0.6 percentage point increase in the probability of foreclosure, repossession or bankruptcy, and a 0.8 percentage point increase in the probability of borrowing through payday loans. In proportion to sample averages, these differences represent declines of 12% to 18% in the rates of default and payday borrowing.

We use the detailed data of the NLSY to explore why self-efficacy displays a negative correlation with financial distress. We first rule out potential differences—in ability, preferences, education, earnings, indebtedness, and parental support—that may confound the effects of self-efficacy. We find that self-efficacy remains negatively correlated with financial distress after conditioning on measures of cognitive ability, risk tolerance, and time preference. As documented in prior studies, both education and earnings rise with self-efficacy in our sample. Nevertheless, self-efficacy remains negatively correlated with distress even after controlling for educational attainment and income. We find furthermore that indebtedness tends to increase rather than decrease with self-efficacy, which rules out the possibility that high self-efficacy individuals default less often merely because they have less debt. Lastly, we examine sibling groups, for whom the NLSY collects data on each individual, to test whether parental support accounts for differences in self-efficacy and delinquency. In models with sibling group fixed effects, which limit the identifying variation in self-efficacy to differences across siblings, we continue to find a strong negative correlation between self-efficacy and financial distress. This finding implies that shared family support does not confound self-efficacy in our main analysis.

Consistent with our theoretical motivation, we find that individuals with high self-efficacy are more likely to take precautionary actions to avoid financial distress. High self-efficacy individuals are more likely to set aside emergency savings, purchase insurance, and plan for retirement. Among the younger adults in the NLSY Child and Youth panel, a small fraction of respondents—only 4%—maintain emergency savings sufficient to cover three months of expenses. The likelihood of such precautionary saving increases substantially with an individual’s self-efficacy: our estimates indicate that a one standard deviation increase in

self-efficacy raises the likelihood of emergency savings by 2 percentage points, or 50%. This relationship persists over the life-cycle, as the older adults in the NLSY 1979 panel also set aside emergency savings at higher rates when they have high self-efficacy: a one standard deviation increase in self-efficacy corresponds to a 3.4 percentage point, or 9%, increase in the likelihood of having savings that covers at least three months of expenses. High self-efficacy individuals are also more likely to obtain insurance coverage and plan for retirement. Among younger adults, the purchase of health insurance increases with self-efficacy, even after controlling for income and the availability of employer sponsored coverage. Among older adults, purchases of long-term care insurance and preparation for retirement (e.g., visiting with a financial planner) increase with self-efficacy, even with controls for income and net worth.

Not only are high self-efficacy individuals more financially prepared, they are also better able to weather income and health shocks without defaulting on their debts. Individuals with low self-efficacy who experience job loss or a health problem default on their debt and bill payments at very high rates, more than double the rate of those who remain employed and healthy. By contrast, individuals with the highest self-efficacy experience little to no increase in default after an income or health shock.

These findings are consistent with the notion that self-efficacy, through its impact on financial preparedness, promotes financial stability. The precautionary actions that self-efficacy engenders appear to matter the most for individuals from poorer backgrounds. When we link young adults to their parents, we find that the negative correlation between self-efficacy and default is strongest for individuals who grew up in the least wealthy families. Moving from the top tertile to the bottom tertile of parental net worth, we find that the marginal effect of self-efficacy on default nearly triples.

Our results have implications for the understanding and modeling of household financial fragility and default decisions. A large number of U.S. households face a precarious financial situation. According to the Federal Reserve Board, nearly half of adults are ill-prepared for

a financial disruption and would struggle to cover emergency expenses should they arise.¹ The financial fragility of American households was particularly evident in the recent financial crisis, when one in twelve households defaulted on outstanding loans and delinquent debt became an issue of macroeconomic significance. Thus it is important to understand why only some households become financially delinquent, but many others do not.

So far, economic models in the literature characterize default as a strategic decision taken upon considering the trade-off between the benefit of expunging remaining debt payments and freeing up resources for other consumption and the costs of credit market exclusion, forgone collateral, and social stigma. Studies have examined the importance of strategic default as a mechanism to eliminate debt in the absence of liquidity shocks (Deng et al. (2000), Foote et al. (2008), Campbell and Cocco (2015)), the structure of bankruptcy law (Fay et al. (2002)) or cultural norms (Guiso et al. (2013)) have also been shown to predict default outcomes. Additionally, household financial default has been found to be driven by the occurrence of income and expenditure shocks (Elul et al. (2010), Gross and Notowidigdo (2011), Hsu et al. (2014)). Our insight is that differences in individuals' perception of the costs and benefits in the standard trade-off play a key role in financial distress outcomes. Our findings imply that the typical sources of household-level heterogeneity in theoretical models of default (e.g., Chatterjee et al. (2007)), namely, varying time preferences and costs from credit market exclusion – exclude an important factor that influences financial distress outcomes. While agents might still attempt to optimize their actions, their subjective beliefs matter in how they solve debt-related problems.

The evidence documented here suggests that non-cognitive abilities are important for financial decisions and outcomes, which complements the findings of the recent literature in economics and psychology regarding the significant role played by non-cognitive skills on educational attainment (Heckman et al. (2006), Cadena and Keys (2013), Cadena and Keys

¹Specifically, forty-six percent of U.S. adults either could not cover an emergency expense costing \$400, or would cover it by selling something or borrowing money. The full report on the Survey of Household Economics and Decisionmaking is available at: <http://www.federalreserve.gov/2015-report-economic-well-being-us-households-201605.pdf>

(2015)), wages (Lindqvist and Vestman (2011)), and health outcomes (Taylor and Seeman (2000)). In recent work, Parise and Peijnenburg (2017) document that emotional stability and conscientiousness, which are individual characteristics likely related to the ability to execute planned actions, are negatively related to financial delinquency, thus complementing our findings regarding the role of expectations on effort provision and the avoidance of financial distress.

Moreover, our results complement the finance literature focused on the role of cognitive abilities on household outcomes. This literature has shown that better cognitive skills predict better outcomes in terms of mortgage delinquency, credit card usage, loan choices, and savings and investment behavior (Gerardi et al. (2013), Agarwal and Mazumder (2013), Stango and Zinman (2009), Grinblatt et al. (2011)). Financial literacy skills help individuals choose better investment portfolios and plan better for retirement (Choi et al. (2010), Lusardi and Mitchell (2014)). Education has positive effects on financial market participation, credit market access, and credit management (Campbell (2006), Ru and Schoar (2016), and Cole et al. (2012)). We contribute to this line of work in household finance by showing that non-cognitive skills, in particular people's capacity to believe that they can influence their future through their effort, are also helpful for attaining good financial outcomes in life.

Our paper also adds to the emerging literature regarding the connection between subjective expectations and household financial decisions. Individuals who are moderately optimistic about their life work harder, invest more in equities and have more savings (Puri and Robinson (2007)). People who believe their future is not under their control are more likely to lack interest in learning about investment options, to have low savings, and to be indebted over long horizons (Shapiro and Wu (2011), Cole et al. (2012), Caputo (2012)). Also, subjective expectations about macroeconomic conditions (rather than about one's personal situation), which are driven by broad economic developments (Greenwood and Shleifer (2014), Malmendier and Nagel (2016), Kuchler and Zafar (2016)), as well as by people's personal socioeconomic situation (Kuhnen and Miu (2017)), have been shown to predict

households' investment decisions (Kezdi and Willis (2011), Das et al. (2017)). An interesting question for future work is whether subjective expectations about macroeconomic outcomes, and those about one's personal outcomes – for example, self-efficacy – are related, and how much these two types of expectations contribute to the observed variation across households in their financial decisions.

2 Self-efficacy and financial decision making

Psychologists define self-efficacy as a person's belief that he can control, or exert influence over, the important events in his life. High self-efficacy has been shown to predict better physical and mental health (Taylor and Seeman (2000)), better academic achievements (Kalil and Khalid (2010)), higher job satisfaction and job performance (Judge and Bono (2001)), and a less negative impact of encountering economic hardship or being in a low-income group on psychological well-being and physical health (Lachman and Weaver (1998), Pudrovska et al. (2005)).

2.1 Measuring self-efficacy

The measure of self-efficacy available to us in the NLSY Child and Youth panel is the Pearlin Mastery score.² The Mastery score, which is compiled from responses to a battery of seven statements, is designed to measure generalized mastery, or self-efficacy, rather than domain-specific mastery. For each statement, the respondent ranks the strength of their agreement on a scale of one (“strongly agree”) to four (“strongly disagree”). The seven Pearlin statements are: (1) “No way I can solve some of the problems I have.”; (2) “Sometimes I feel that I am being pushed around in life.”; (3) “I have little control over the things that happen to me.”; (4) “I can do just about anything I really set my mind to.”; (5) “I often feel helpless in

²Psychologists have measured self-efficacy through three related concepts: locus of control (Rotter (1966)), the sense of mastery (Pearlin et al. (1981)), and self-efficacy (Bandura (1986)). High self-efficacy is synonymous with high mastery and an internal locus of control.

dealing with the problems of life.”; (6) “What happens to me in the future mostly depends on me.”; (7) “There is little I can do to change many of the important things in my life.”

After reversing the scoring for items 4 and 6 so that higher scores correspond to greater mastery or self-efficacy, the 7 scores are summed to give a total raw score ranging between 7 and 28. In our analysis, we assign each individual to a percentile in the distribution of these raw scores, and use this percentile as our self-efficacy measures, to help with interpreting the magnitude of the estimated effects of self-efficacy on variables related to financial distress. Using the raw Pearlin score, rather than the percentile measure, in our regressions leads to similar results in terms of economic importance and statistical significance.

2.2 How can self-efficacy affect the likelihood of financial distress?

In this section, we provide a simple framework for understanding the role of self-efficacy in an individual’s decision to default on outstanding debt. We consider an effort choice problem describing a situation where a person has to spend effort to avoid a poor financial outcome, for instance, by identifying ways to cut spending today, or to secure additional income, in order to avoid defaulting on their credit card or mortgage payments in the future. In this situation, increasing the effort e provided has some cost $c(e)$ but it increases the probability that the person will obtain a high (H) rather than a low (L) outcome later. The actual probability of obtaining the high outcome H is the effort level e , and the probability of obtaining the low outcome L is $1 - e$. However, people believe that the probability of outcome H is $e * s$, where $s \in [0, 1]$ measures their self-efficacy. If $s = 1$, people correctly assess that the probability of getting the high outcome is equal to the effort e they provide. If $s < 1$, people have a pessimistic assessment of the impact their effort has on the probability of getting the high outcome.

The person chooses the effort level e to maximize the perceived benefit minus the cost of effort, i.e., they maximize the expression $-c(e) + \beta[esH + (1 - es)L]$, where β captures the person’s patience. Assuming the cost function is $c(e) = \frac{\gamma e^2}{2}$, with $\gamma > 0$, the first order

condition implies that the effort level selected is $e^* = \frac{\beta s(H-L)}{\gamma}$. Hence the probability that the low outcome L is realized will be 1 for the lowest self-efficacy (i.e., $s = 0$) people and will be $1 - \frac{\beta(H-L)}{\gamma}$ for the highest self-efficacy (i.e., $s = 1$) ones. Therefore, we have a simple expression for how differences in the level of self-efficacy should relate to differences in the observed frequency of low outcomes, such as distress events in our data. Namely, $\Pr\{L \text{ outcome if } s = 0\} - \Pr\{L \text{ outcome if } s = 1\} = \frac{\beta(H-L)}{\gamma}$. Equivalently, this can be expressed as: $\frac{d\Pr\{L \text{ outcome}\}}{ds} = -\frac{\beta(H-L)}{\gamma} < 0$.

This simple and stylized model provides the intuition for our main empirical predictions. Namely, we expect to observe in the data that lower self-efficacy is associated with a higher probability of financial distress, and with a lower level of effort spent preparing to avoid delinquency.

3 Data and summary statistics

3.1 Data

Our data source is the National Longitudinal Survey Youth (NLSY). The initial survey, the NLSY79, began in 1979 with a cohort of nearly 13,000 men and women who were between the ages of 14 and 21. As female sample members had children, the NLSY formed the Child and Young Adult (NLSY CYA), a longitudinal survey that follows each of these children throughout childhood and into adulthood. Our analysis focuses primarily on the NLSY CYA, which contains richer information on self-efficacy and financial distress than the NLSY79. We use the NLSY79 for supplementary analysis of retirement preparedness among older adults.

The NLSY CYA provides bi-annual data that begins in 1986 and continues through 2014. The survey has two components, a child questionnaire administered to those of age 14 or younger and a young adult questionnaire administered to those of age 15 and older. The child survey focuses on the family and schooling environments, and the child's health as well

as his cognitive, emotional and social development, while the young adult survey continues to focus on schooling, psychological development and social development, but also tracks respondents' marital history, employment history and financial history as they move into adulthood. Despite the label "young adult", the latter questionnaire is used for sample members throughout adulthood, which means that by 2014, we observe a number of sample members that are well into their 30s.

The NLSY CYA sample includes 11,512 individuals as of the 2014 interview. In our analysis of financial distress and self-efficacy, we focus on adults that are 21 years old or older as of 2014, at which point they are more likely to be financially independent. This portion of the sample includes 6,031 individuals for which we have demographic information. Our data on financial outcomes begins with the 2010 interview, when many personal finance questions were added to the NLSY CYA questionnaire, and continues with the 2012 and 2014 interviews. The analytic sample includes responses from each of these three interviews and thus includes multiple observations for individuals who complete multiple interviews.

We use the NLSY79 sample for analysis of measures excluded from the NLSY CYA, such as credit applications and denials, and preparations for retirement. We use the most recently released bi-annual interview, which was conducted in 2012 and provided information on roughly 7,300 sample members. As of this interview, the respondents were between the ages of 47 and 56.

3.2 Summary Statistics

We report summary statistics for the NLSY CYA sample in Table 1. The panel includes approximately 12,000 person-year observations, so roughly 2 interviews per individual across the years 2010, 2012 and 2014. Our independent variable of interest is derived from the Pearlin Mastery scores obtained in interviews between 1986 and 2008, preceding the measures of financial delinquency. For each individual, we average the raw Pearlin Mastery scores obtained prior to 2010. We then examine the distribution of average Pearlin scores across

all individuals and assign the percentile rank within this distribution. The resulting Pearlman percentile measure varies between 0 and 1.

To quantify time preferences, we obtain measures of the participants' patience, based on interviews conducted in childhood. The patience score ranges from 1 to 3, depending on the mother's assessment of whether the child is "impulsive, or acts without thinking." Within the rating scale, 1, 2 and 3 correspond to "often true", "sometimes true," and "never true," so a higher score indicates greater patience. The same measure of patience has been previously used by DellaVigna and Paserman (2005) to document that more impatient individuals exert less effort to search for jobs and have longer unemployment spells.

To quantify risk preferences, we obtain measures of the participants' propensity to avoid risky behaviors based on interviews conducted in adulthood prior to the measurement of financial outcomes. Participants convey their attitude toward risk by responding to three statements: "I enjoy taking risks," "I enjoy new and exciting experiences, even if they are a little frightening or unusual," and "Life with no danger in it would be too dull for me." For each statement, the participant provides a numerical rank between 1 ("strongly disagree") and 4 ("strongly agree"). We flip the scale so that higher scores correspond to lower risk tolerance. We then extract the first principal component from the three responses in order to form a single measure of risk aversion.

To measure cognitive ability, we use scores on the Peabody Individual Achievement Test (PIAT), which tests math ability, reading recognition and reading comprehension, and the Peabody Picture Vocabulary Test. These four tests of cognitive ability are taken throughout childhood. In each test, the ability scores are measured in percentiles and normalized by age group relative to scores in a national sample in 1968. We extract the first principal component of the four scores as our measure of the person's cognitive ability.

Turning to educational attainment, the respondents report having a college or graduate degree in 19% of (person-year) observations, having completed some college in 8.53% of observations, having only a high school diploma in 55.26% of observations, and failing to

complete high school in 17.25% of observations. The rate of college degree completion is lower than U.S. averages because some sample members are still in their 20s, accumulating education.

The average respondent is 27 years old. Approximately 48% of the sample are men. And racially, the composition of the sample is tilted toward minorities, with both blacks (34.90% of the sample) and hispanics (21.85% of the sample) being intentionally oversampled in the original NLSY data set.

Respondents live in households that, on average, include just over three people, have income of roughly \$29,000, and debt of \$21,770. The distribution of debt is highly skewed, as some households have significant debt, mainly due to mortgages, while about 53% of the sample have debt close to zero. Within our sample, the incidence of having a credit card, a vehicle loan or a mortgage is 41.89%, 30.93% and 15.21%, respectively.

Among household financial variables, the data on household debt are quite rich, while the data on assets are less comprehensive and detailed (in particular, the survey lacks information on financial asset holdings). Since 2000, each respondent to the young adult questionnaire reports the outstanding balances on credit card, vehicle and mortgage loans, as well as the estimated value of the underlying collateral for the latter two categories. In 2010, 2012 and 2014, various questions about credit delinquency, asset loss, difficulties accessing credit, and financial preparedness were added to the survey. These measures comprise the key dependent variables in our study.

Specifically, we can observe whether, as of 2010, 2012 and 2014, a person has been at least 60 days behind on payments for their credit card, vehicle loans, other type of loans, or bills over the last year. The mortgage delinquency measure differs slightly in that it measures delinquency over the 2 years rather than the prior 12 months. We also observe if the person had assets repossessed or their property foreclosed in the prior 2 years, and whether in the prior 12 months, the person had accounts sent to a bill collector, had filed for bankruptcy, or had borrowed from a payday lender. We also use the respondents' answers to questions

relating to whether they have emergency funds available (this data item is only available in 2012 and 2014), and whether they have health insurance, as measures for the extent of financial fragility.

Overall, in our sample of approximately 12,000 (person-year) observations we observe that the frequency of being delinquent as indicated by being late on debt payments (*Late debt*) or bill payments (*Late bills*) is 11.35% and 12.50%, respectively. The variable $Late\ debt_{it}$ captures whether person i in year t reports being late with making the required payments on their credit card, vehicle loan, mortgage or other type of debt outstanding, and $Late\ bills_{it}$ captures whether the person reports being late with paying their medical, utilities or other bills. If we measure delinquency as being late with making either of these two types of payments, the frequency of delinquency is 18.81%. The incidence of having accounts sent to collection agencies is 18.20%, and the incidence of home foreclosure, asset repossession, or personal bankruptcy is 3.15%. Respondents indicate having a credit card, a vehicle loan, or a mortgage in 41.89%, 30.93%, and 15.21%, of our person-year observations, respectively, and in 5.86% of observations, they state that they have borrowed money from a payday lender. In 3.67% of the person-year observations respondents report having emergency funds saved up, and in 34.28% of observations, respondents report having no health insurance.

4 Self-efficacy and financial distress

We estimate the relationship between financial distress and self-efficacy using the following model:

$$Distress_{it} = \alpha + \beta SelfEfficacy_i + \gamma' \mathbf{X}_{it} + \varepsilon_{it}, \quad (1)$$

where $Distress$ is a binary indicator for financial distress (e.g., missing a loan or bill payment) for individual i in year t and $SelfEfficacy$ is the percentile rank of individual i 's average Pearlin Mastery score prior to 2010. The model includes control variables, as indicated by the

vector \mathbf{X} . We expand the set of control variables across specifications. We first control for demographic characteristics—age (in years) and fixed effects for race and gender—cognitive ability, risk aversion, and patience. We then add controls for educational attainment (fixed effects for each of five categories), the log of income in year t , and an indicator for whether the individual had a credit card, a mortgage or a vehicle loan in year t . We estimate the model using ordinary least squares, with observations clustered by individual in calculating standard errors.³

The coefficient estimate $\hat{\beta}$ measures the relationship between self-efficacy and financial distress, conditional on the control variables in \mathbf{X} . It is important to emphasize that our findings are not subject to a concern about reverse causality. If self-efficacy and distress were measured contemporaneously, one might worry that respondents express having less control over their lives because they have recently defaulted on debt. For this reason, we take advantage of the longitudinal structure of the NLSY and use the self-efficacy measure obtained years before the financial outcomes are realized. Nevertheless, we do not isolate exogenous variation in self-efficacy. In light of prior evidence that self-efficacy and other non-cognitive abilities have important effects on behavior, omitted variables bias is certainly possible. To reduce the scope for this problem, we control for differences in income, educational attainment, and parental support. However, there remain unobserved variables such as financial wealth and expectations for income growth and uncertainty that may also explain delinquency decisions. We thus interpret the model estimates cautiously, as evidence that is suggestive of a link between self-efficacy and financial distress.

4.1 Self-efficacy and delinquency on loan and bill payments

Before examining the regression estimates, in Figure 1 we show the relationship between self-efficacy and financial delinquency in a simple plot. We measure financial delinquency with an indicator that is 1 if the respondent indicated being late paying debt ($Late\ debt = 1$)

³Using a Probit model rather than the linear probability model, has little impact on the estimated effect of self-efficacy.

or bills (*Late bills* = 1), and it is 0 otherwise. We find that there is a negative relationship between a person’s self-efficacy and their likelihood of being financially delinquent. The figure shows the average delinquency rates, as well as standard error bars, for each quintile of Pearlin scores in our sample. The incidence of financial delinquency decreases significantly from the lowest quintile to the highest. For people with the lowest self-efficacy, corresponding to raw Pearlin scores below 20, the average incidence of delinquency is 23.11%, whereas for those in the highest quintile of self-efficacy (those with raw Pearlin scores greater than 24) the average incidence of delinquency is 13.96%. The difference between these two rates of delinquency is both economically and statistically significant ($p < 0.01$).

We further examine the relationship between self-efficacy and delinquency by estimating Equation 1. The regression results are displayed in Table 2. The results show a strong negative correlation between a person’s self-efficacy earlier in life, and his subsequent likelihood of missing debt and bill payments. The estimate in the first specification shows that, without control variables, the probability of missed debt payments declines by 4.68 percentage points ($p < 0.01$) when moving from the bottom of the self-efficacy distribution to the top (from 0 to 100 percentile). After conditioning on demographic- and preference-related control variables, the estimated effect is even larger, at -5.01 percentage points ($p < 0.01$). Finally, with further controls for education, income, and indebtedness, the self-efficacy coefficient decreases to -5.56 percentage points ($p < 0.01$).⁴ For a one standard deviation increase in self-efficacy (0.29), this coefficient estimate implies a 1.61 percentage point decline in loan default. This decline is meaningful, as it is 14% of the average loan default rate in the sample (11.4%). As shown in the remaining columns of Table 2, we also observe a negative and significant relationship between self-efficacy and delinquency on bills. In the specification without controls, the coefficient on the self-efficacy measure indicates a 9.55 percentage point decline ($p < 0.01$) in the delinquency rate for a 100 percentile change in the Pearlin score. Control variables reduce the magnitude of this estimate somewhat, to -7.26

⁴Low self-efficacy individuals are not defaulting because they are more indebted. In fact, the likelihood of an individual having a credit card, auto loan or mortgage actually increases with self-efficacy.

($p < 0.01$) with demographic and preference controls and to -5.28 ($p < 0.01$) with education, income and indebtedness controls as well. This final coefficient estimate implies that a one standard deviation increase in self-efficacy reduces delinquency by 1.53 percentage points, or 12% relative to the average bill delinquency rate in the sample.

From the coefficients on the covariates in the model, we find that respondents with lower education levels relative to the reference group of graduate degree holders have a significantly higher probability of being delinquent. Moreover, we find that people who are more risk averse and more patient have lower delinquency rates. Higher incomes lead to a lower rate of being delinquent in terms of paying bills, but, all else equal, do not influence to the probability of being late making debt payments. Demographic factors are also important, in that older people, women and non-white respondents have higher rates of financial delinquency.

4.2 Self-efficacy and the consequences of financial delinquency

In Tables 3 and 4 we examine the relationship between a person's self-efficacy earlier in life, and the likelihood of facing negative consequences caused by financial delinquency. In Table 3 we focus on indicators of asset loss, whereas in Table 4 we focus on indications of loss of access to traditional credit.

The results in Table 3 document that individuals with higher self-efficacy are both less likely to have accounts in collection and less likely to experience foreclosure, asset repossession or bankruptcy. In specifications with the full set of controls, we find that a move from the bottom of the self-efficacy distribution to the top corresponds have a 2.83 percentage point decline in the probability of having an account in collection ($p < 0.10$) and a 1.52 percentage point decline in the probability of having a property foreclosed, assets repossessed, or declaring bankruptcy ($p < 0.05$). For a one standard deviation change in self-efficacy, these estimates imply proportional declines of 5% and 14%, respectively, relative to the average incidence of account collections and foreclosure, repossession or bankruptcy in the sample.

Another potential consequence of loan default is being excluded from the credit market

in the future or, alternatively, receiving credit but at very expensive terms. The results in Table 4 document that self-efficacy is positively related to credit access and borrowing via traditional, lower-cost loans, and negatively related to borrowing through high-cost payday loans. In the first two columns in the table we use data from the NLSY79 as to whether the respondent applied for credit, and whether contingent on applying, they were rejected. (These questions are not asked in the Child and Young Adult survey.) Including the full set of controls (except for the endogenous measure of whether an individual had a debt account), the regression in the first column of the table shows that self-efficacy does not predict whether people apply for credit. However, the regression in the second column indicates that among people who applied for credit, the rejection rate declines significantly as self-efficacy rises. A increase in the self-efficacy percentile from 0% to 100% corresponds to a drop of 10.18% in the credit application rejection probability ($p < 0.01$). In other words, we observe that in the sample of older adults, low self-efficacy corresponds to a decline in credit access.

The same conclusion can be inferred, albeit indirectly, within the Child and Young Adult sample. For that sample we do not observe credit applications and denials but we do observe credit usage. Columns 3-5 in Table 4 have as dependent variables indicator variables that measure whether the respondent has a credit card, a car loan, or a mortgage loan, respectively. The dependent variable in the last column in the table indicates whether the person has taken out a payday loan. We document that increasing the self-efficacy percentile from 0% to 100% increases the probability of having traditional credit sources by 3.76% for credit cards, 5.24% for vehicle loans, and 4.95% for mortgages, respectively (all significant at $p < 0.05$ or better). Moreover, the same change in self-efficacy corresponds to a drop of 2.90% in the probability that the person has taken out a payday loan ($p < 0.01$), an effect equal to half of the observed 5.86% rate of payday lending usage in our sample. In summary, the results on credit denials and credit usage are consistent with low self-efficacy individuals being denied credit over time and relying to a greater degree on high-cost credit such as payday loans rather than lower-cost credit cards, auto loans and mortgage loans.

4.3 Self-efficacy, financial distress and parental support

An important factor that is outside of our stylized theoretical framework but could be related to both the self-efficacy of individuals, and to their likelihood of financial distress is parental investment, or intra-family insurance. Specifically, it is possible that people with high levels of self-efficacy grow up in families where parents invest more in their offspring in terms of character formation, but also, perhaps, offer more financial support to children should they encounter adversity in life.

In Tables 5 and 6 we examine whether differential parental investment can explain the relationship we have documented between self-efficacy and financial delinquency and its consequences. In the regression models in Table 5 we take advantage of the fact that many of the individuals in our sample have siblings, and thus we can include mother fixed-effects as additional determinants of financial delinquency and its consequences. For all of the outcomes we examine – being late making loan payments or paying bills, losing assets, or the ability to access traditional credit – the effects of self-efficacy are statistically significant and similar in sign and magnitude to those documented in Tables 2, 3 and 4. In other words, this analysis suggests that intra-family insurance can not fully account for the effects of self-efficacy on financial delinquency and its consequences in terms of asset loss and credit access.

Moreover, when we split the data based on the net worth of the respondents' mothers in Table 6, we find that the largest effect of self-efficacy on the likelihood of financial delinquency, as measured by the *Late debt_{it}* indicator, is obtained among individuals whose mothers are in the lowest tertile in terms of net worth. For these individuals, the difference in the probability of delinquency between those with the highest and those with the lowest self-efficacy scores is 8.91% ($p < 0.01$), which is larger than the average effect of 5.56% found in the main specification in Table 2. Among individuals with mothers in the wealthiest tertile of the sample, self-efficacy has a negative impact on delinquency, but the estimated effect is smaller (a drop in delinquency of 3.01% from the highest to the lowest self-efficacy

levels) and statistically not different from zero. These results suggest that self-efficacy is particularly helpful to individuals who face more economically adverse environments early in life.

5 Self-efficacy, financial preparedness and fragility after economic shocks

5.1 Self-efficacy and financial preparedness

Our stylized model suggested that one mechanism explaining the connection between self-efficacy and distress is based on effort provision. Namely, higher self-efficacy people believe that their effort has a greater impact on their future, and thus will be more willing to take costly actions today to avoid a bad outcome in the future. The results presented above are consistent with that idea, but do not clarify the mechanisms by which self-efficacy reduces fragility. In further analysis below, we use measures of financial choices to test the proposed mechanism that high self-efficacy individuals take actions to improve their future financial security and insulate them from negative economic shocks.

To measure financial actions that help prepare for and potentially mitigate adverse events, we use several variables related to precautionary saving, insurance purchases, and retirement preparation available in the NLSY. In Table 7 we use two indicators of financial preparedness observed in the NLSY CYA: having “emergency” savings of at least three months of expenses, and purchasing health insurance. We find that increasing the self-efficacy percentile from 0% to 100% corresponds to a 7.59 percentage point ($p < 0.01$) increase in the probability that an individual has emergency funds available and a 6.13 percentage point ($p < 0.01$) decrease in the probability that they do not have health insurance. The negative effect of self-efficacy on the likelihood of being uninsured continues to be large and significant (-5.18%, $p < 0.05$) even after we control for whether health insurance is offered to the individual through their

job. This controls for possible effects of self-efficacy on a person’s employment and choice of job, and thus allows us to isolate the effect of self-efficacy on the decision to purchase health insurance, rather on the availability of insurance. In Table 8 we use three indicators of financial preparedness available in the NLSY79 sample of older adults: having set aside emergency funds, having taken action to be financially prepared for retirement, and having purchased long-term care insurance. We find that an increase in the self-efficacy percentile from 0% to 100% corresponds to an increase of 12.02 percentage points ($p < 0.01$) in the probability of having emergency funds, an increase of 8.45 percentage points ($p < 0.01$) in the probability of retirement planning activities, and 3.01 percentage points ($p < 0.1$) in the probability of having long-term care insurance. Thus, across both younger and older adults, we find that self-efficacy is positively related to actions that are costly today but mitigate adverse financial outcomes in the future.

5.2 Self-efficacy and fragility after economic shocks

The finding that self-efficacy is positively correlated with financial preparedness suggests that we should observe, as implied by our theoretical setting, that people with higher self-efficacy will be better able to weather negative financial events. The evidence in Table 9 supports this implication. We consider two indicators of negative economic shocks that are observable in the NLSY CYA: whether a person has lost their job in the past year or experienced a health shock requiring medical care. In the regression models in the first and fourth columns in the table, we document that self-efficacy is not related to the probability of either of these two types of shocks occurring. However, as the results in the other regressions in the table show, the likelihood of financial delinquency following such a shock is significantly smaller for people with higher self-efficacy. In columns 2 and 3 we examine the role of the job loss indicator and its interaction with the person’s self-efficacy on the probability that the individual is late making debt payments, and paying their bills, respectively. In columns 5 and 6 we examine the role of the health shock indicator and its interaction with the person’s

self-efficacy on the same two indicators of financial delinquency – namely, being late making debt payments, and paying bills. Across these four specifications we find that the shock itself, either job loss or health issue, increases the probability of financial delinquency significantly, by 4.86% to 13.28% ($p < 0.01$), a finding consistent with prior studies that have shown that job loss and large medical expenditures increase default (Elul et al. (2010), Gross and Notowidigdo (2011), Hsu et al. (2014)). Moreover, self-efficacy continues to be a negative predictor of delinquency, in line with all our results so far.

The novel finding in these models is the negative effect on the likelihood of delinquency of the interaction term between the financial shock indicator and self-efficacy. Across these regression models, comparing the coefficient on the financial shock indicator and on the interaction term between the financial shock indicator and the person’s self-efficacy shows that negative financial shocks increase the probability of financial delinquency significantly only among people with low self-efficacy. Specifically, increasing the self-efficacy percentile from 0% to 100% leads to a drop of 13.14% ($p < 0.01$) and 13.35% ($p < 0.05$), respectively, in the likelihood of being late paying debt and that of being late paying bills, if a job loss occurs, which implies that among the highest self-efficacy people job loss has negligible effects on financial delinquency. Similarly, we find that increasing the self-efficacy percentile from 0% to 100% lowers the probability of being late paying bills by 7.46% ($p < 0.01$) in the event that a health shock occurs, almost completely mitigating the 8.40% increase in this type of delinquency caused by the health shock itself. Thus, these results show that high self-efficacy can significantly lessen the impact of a job loss or of an adverse health event on the individual’s propensity to become financially delinquent.

5.3 Self-efficacy, general optimism, and financial preparedness

Our self-efficacy measure may contain aspects of general optimism as measured in Puri and Robinson (2007), but there are important differences between the two. General optimism differs from self-efficacy, in that it does not specifically measure the subjective impact of

agency, that is, the perception of the impact of one's effort, on the likelihood of obtaining a good future outcome. Rather, increased optimism refers to a shift upward in the distribution of outcomes people believe are possible. Therefore, optimism and self-efficacy have different implications for the level of effort exerted by people to attain good outcomes. Individuals with high levels of optimism will not work very hard, since they expect the good outcome to happen anyway, and this implies that excessive optimism is detrimental, a finding documented by Puri and Robinson (2007). Individuals with high self-efficacy, on the other hand, will expend high levels of effort to try to accomplish a good outcome, because of their perceived high return to effort. In our data, we indeed find no detrimental effect of having the highest levels of self-efficacy. On the contrary, as can be seen for example in Figure 1, individuals with the highest self efficacy are those with the lowest rates of financial distress, and as shown in the analysis in Tables 7 and 8, they are also most likely to take measures to prepare to weather potential negative financial shocks.

6 Conclusion

Recent work in economics and psychology has emphasized the importance of non-cognitive abilities in educational and job market success. Here, we find that non-cognitive skills also play an important role in determining financial success. More specifically, we find that self-efficacy predicts substantial differences in financial distress later in life. Individuals who believe more strongly that they can change future outcomes through their actions, are less likely, years later, to be delinquent on loans, and to suffer consequences such as having assets repossessed or property foreclosed, or to lose access to traditional credit. We also document that those with higher self efficacy prepare more to avoid financial distress later in life, and have a lower probability of being financially delinquent upon facing negative financial shocks induced by a job loss or a health event.

Identifying the role of non-cognitive abilities such as self-efficacy on household financial

outcomes is useful because, unlike other characteristics that may be pre-determined, non-cognitive skills can be improved via interventions at various stages in life. For example, Heckman et al. (2013) show that an intervention in early childhood, the Perry Preschool program, improved participants' schooling and labor market outcomes mainly through an increase in non-cognitive skills. It is therefore possible that by helping people believe more in their own capacity to influence the future, they will in fact take action and achieve better financial outcomes. We believe this is a fruitful avenue for future work in household finance.

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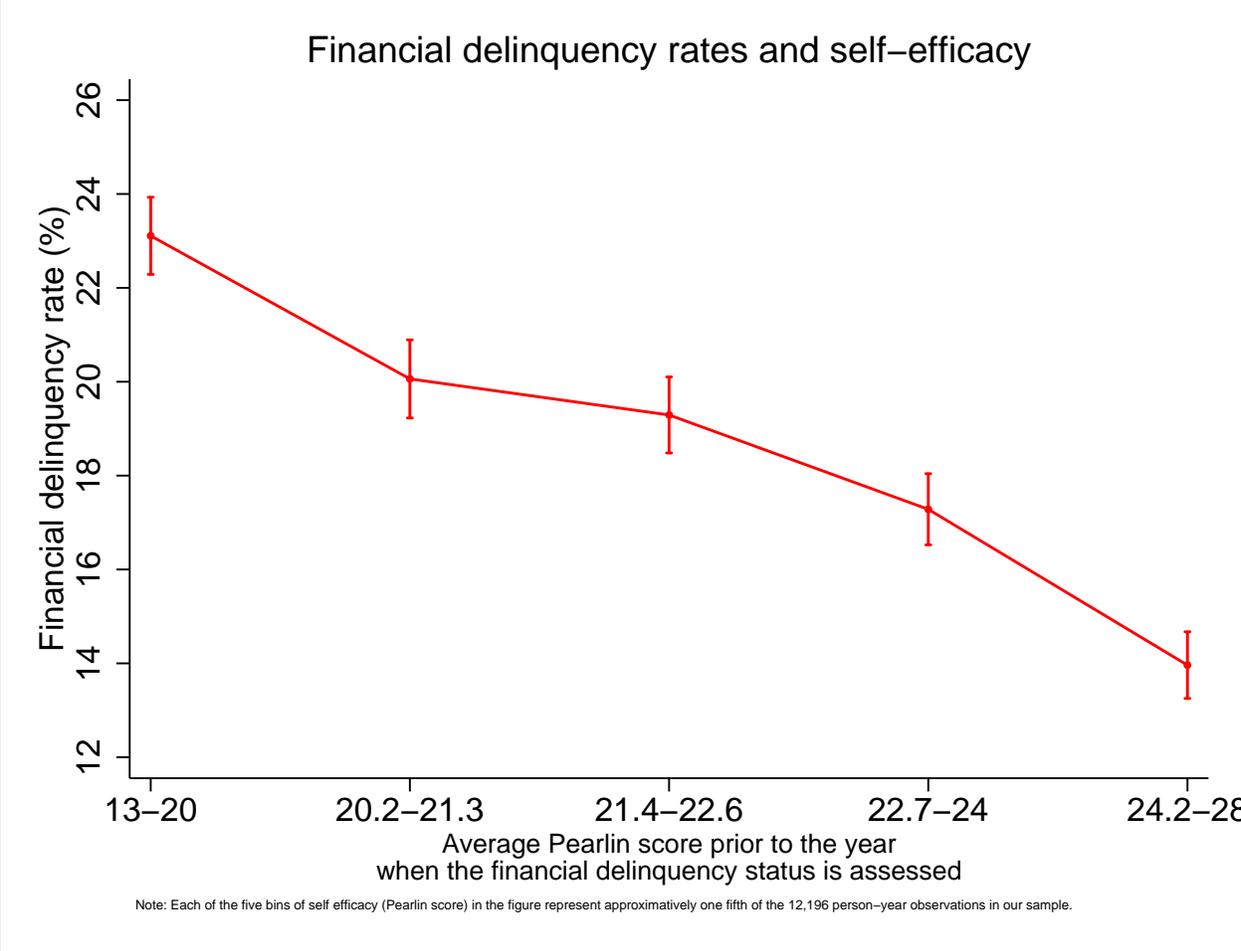


Figure 1: The incidence of financial delinquency in a given survey year, as a function of the self-efficacy of respondents measured earlier in life. The figure shows the average delinquency rates, as well as standard error bars, for each of five categories of Pearlman scores, each containing approximately one fifth of the 12,196 person-year observations in our sample. Financial delinquency is defined based on whether the respondent indicated being late paying their debt, or paying their bills. For 18.81% of our observations, the respondent is classified as being financially delinquent.

Table 1: Summary statistics.

The person-year observations summarized below refer to 6031 unique individuals in years 2010, 2012, and 2014, when questions regarding financial variables are asked of the participants in the National Longitudinal Survey Youth 1979 Child and Young Adult sample.

Variable	Mean	St. Dev.	N
<i>Self-Efficacy_i</i> (Pearlin percentile score)	0.51	0.29	12,196
<i>Age_{it}</i> (years)	27.03	4.20	12,196
<i>Cognitive ability_i</i> (normalized)	-0.09	0.99	12,196
<i>Risk aversion_i</i> (normalized)	-0.02	0.98	12,196
<i>Patience_i</i>	2.43	0.44	12,196
<i>Income(log)_{it}</i>	8.78	3.46	12,196
<hr/>			
<i>Late debt_{it}</i>		Yes: 11.35%	11,892
<i>Late bills_{it}</i>		Yes: 12.50%	11,878
<i>Accounts in Collection_{it}</i>		Yes: 18.20%	12,151
<i>Foreclosure, Repossession, or Bankruptcy_{it}</i>		Yes: 3.15%	12,187
<i>Credit Card_{it}</i>		Yes: 41.89%	12,191
<i>Vehicle loan_{it}</i>		Yes: 30.93%	12,087
<i>Mortgage_{it}</i>		Yes: 15.21%	12,196
<i>Payday loan_{it}</i>		Yes: 5.86%	12,180
<i>Emergency funds_{it}</i>		Yes: 3.67%	8,423
<i>No health insurance_{it}</i>		Yes: 34.28%	12,196
<hr/>			
Education	No high school: 17.25%		12,196
	High school: 55.26%		12,196
	Some college: 8.53%		12,196
	College: 15.49%		12,196
	Graduate degree: 3.47%		12,196
Gender	48% men, 52% women		12,196
Race	21.85% hispanic		12,196
	34.90% black		12,196
	43.25% non-black, non-hispanic		12,196

Table 2: Self-efficacy and financial delinquency. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. $Self\text{-}efficacy_i$ refers to person i 's percentile in the distribution of Pearlin scores. Education omitted category: $Graduate\ degree_i$. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Late</i> <i>debt_{it}</i>	<i>Late</i> <i>debt_{it}</i>	<i>Late</i> <i>debt_{it}</i>	<i>Late</i> <i>bills_{it}</i>	<i>Late</i> <i>bills_{it}</i>	<i>Late</i> <i>bills_{it}</i>
<i>Self-efficacy_i</i>	-4.68 (-4.16)***	-5.01 (-4.21)***	-5.56 (-4.65)***	-9.55 (-8.21)***	-7.26 (-6.09)***	-5.28 (-4.43)***
<i>Age_{it}</i>		0.25 (3.35)***	0.21 (2.68)***		0.68 (8.19)***	0.76 (8.89)***
<i>Cognitive ability_i</i>		0.92 (2.45)**	0.93 (2.22)**		-1.85 (-4.83)***	-0.29 (-0.70)
<i>Risk aversion_i</i>		-0.78 (-2.11)**	-0.70 (-1.93)*		-1.31 (-3.54)***	-1.22 (-3.30)***
<i>Patience_i</i>		-2.70 (-3.47)***	-2.91 (-3.74)***		-4.21 (-5.46)***	-3.25 (-4.22)***
<i>No highschool_i</i>			7.04 (4.11)***			11.79 (7.07)***
<i>Highschool_i</i>			7.80 (5.27)***			8.41 (6.34)***
<i>Some college_i</i>			5.00 (2.96)***			4.68 (2.95)***
<i>College_i</i>			2.36 (1.62)			1.88 (1.51)
<i>Income(log)_{it}</i>			0.02 (0.20)			-0.40 (-3.59)***
<i>Has Debt_{it}</i>			8.13 (10.90)***			
Gender FEs	No	Yes	Yes	Yes	Yes	Yes
Race FEs	No	Yes	Yes	Yes	Yes	Yes
R^2	0.002	0.01	0.03	0.01	0.03	0.04
Observations	11892	11892	11892	11878	11878	11878

Table 3: Self-efficacy and asset-related consequences of financial delinquency. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. *Self-efficacy_i* refers to person *i*'s percentile in the distribution of Pearlin scores. Education omitted category: *Graduate degree_i*. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Accounts in Collection_{it}</i>		<i>Foreclosure, Repossession or Bankruptcy_{it}</i>			
<i>Self-efficacy_i</i>	-4.68 (-3.30)***	-4.20 (-2.82)***	-2.83 (-1.89)*	-1.98 (-3.22)***	-1.72 (-2.74)***	-1.52 (-2.38)**
<i>Age_{it}</i>		0.51 (5.48)***	0.54 (5.65)***		0.27 (6.29)***	0.27 (6.09)***
<i>Cognitive ability_i</i>		0.92 (1.90)*	2.67 (5.16)***		-0.32 (-1.63)	-0.03 (-0.12)
<i>Risk aversion_i</i>		-1.09 (-2.37)**	-0.79 (-1.74)*		-0.20 (-1.01)	-0.14 (-0.70)
<i>Patience_i</i>		-6.89 (-6.83)***	-5.94 (-5.90)***		-0.38 (-0.96)	-0.22 (-0.55)
<i>No highschool_i</i>			14.89 (6.88)***			2.47 (2.55)**
<i>Highschool_i</i>			13.47 (7.42)***			2.18 (2.68)***
<i>Some college_i</i>			7.62 (3.64)***			1.06 (1.15)
<i>College_i</i>			0.70 (0.41)			-0.02 (-0.03)
<i>Income(log)_{it}</i>			0.42 (3.57)***			0.15 (2.92)***
<i>Has Debt_{it}</i>			-0.25 (-0.27)			-0.43 (-1.01)
Gender FEs	No	Yes	Yes	Yes	Yes	Yes
Race FEs	No	Yes	Yes	Yes	Yes	Yes
<i>R</i> ²	0.001	0.02	0.04	0.001	0.01	0.01
Observations	12151	12151	12151	12187	12187	12187

Table 4: Self-efficacy and credit-related consequences of delinquency. Data are from the NLSY79 original cohort in the first two columns, and from the NLSY97CYA in the last four columns. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. *Self-efficacy_i* refers to person *i*'s percentile in the distribution of Pearlin scores. Education omitted category: *Graduate degree_i*. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Applied for credit_{it}</i>	<i>Applied& rejected_{it}</i>	<i>Credit card_{it}</i>	<i>Vehicle loan_{it}</i>	<i>Mort-gage_{it}</i>	<i>Payday loan_{it}</i>
<i>Self-efficacy_i</i>	1.33 (0.58)	-10.18 (-3.05)***	3.76 (2.15)**	5.24 (3.17)***	4.95 (3.76)***	-2.90 (-3.31)***
<i>Age_{it}</i>	-0.35 (-1.23)	-1.12 (-2.75)***	0.34 (3.21)***	0.89 (8.88)***	2.03 (23.06)***	0.25 (4.21)***
<i>Cognitive ability_i</i>	0.32 (9.93)***	0.02 (0.46)	6.05 (10.06)***	0.62 (1.09)	-0.43 (-0.93)	0.35 (1.16)
<i>Risk aversion_i</i>	0.43 (1.95)*	0.50 (1.32)	0.53 (1.02)	0.97 (1.99)**	0.57 (1.43)	-0.15 (-0.54)
<i>Patience_i</i>	-0.61 (-0.31)	0.14 (0.04)	4.26 (3.78)***	0.74 (0.69)	1.42 (1.59)	-1.61 (-2.69)***
<i>No highschool_i</i>	-7.41 (-2.40)**	11.22 (2.09)**	-45.47 (-18.35)***	-5.96 (-2.07)**	-12.91 (-4.74)***	5.26 (4.59)***
<i>Highschool_i</i>	0.05 (0.02)	7.82 (2.72)***	-32.11 (-14.17)***	1.70 (0.62)	-9.41 (-3.56)***	4.49 (4.88)***
<i>Some college_i</i>	2.96 (0.99)	3.03 (0.89)	-16.50 (-6.20)***	10.15 (3.30)***	-3.19 (-1.08)	3.45 (3.03)***
<i>College_i</i>	-2.04 (-0.75)	0.14 (0.05)	-5.13 (-2.27)**	1.89 (0.67)	-1.95 (-0.71)	1.21 (1.39)
<i>Income(log)_{it}</i>	3.65 (13.10)***	-4.41 (-4.55)***	2.40 (20.48)***	4.03 (51.31)***	1.53 (18.15)***	0.47 (7.46)***
Gender FEs	Yes	Yes	Yes	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes	Yes	Yes	Yes
<i>R</i> ²	0.12	0.09	0.24	0.15	0.14	0.02
Observations	5561	2336	12191	12087	12196	12180

Table 5: Self-efficacy and financial delinquency: parental investment as a mechanism. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. *Self-efficacy_i* refers to person *i*'s percentile in the distribution of Pearlin scores. The controls omitted here for brevity are the same as those in the full specifications in Tables 2 through 4. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Late debt_{it}</i>	<i>Late bills_{it}</i>	<i>Accounts in collection_{it}</i>	<i>Foreclosure, Repossession, or Bankruptcy_{it}</i>	<i>Credit card, Vehicle loan, or Mortgage_{it}</i>	<i>Payday loan_{it}</i>
<i>Self-efficacy_i</i>	-4.17 (-2.42)**	-4.06 (-2.17)**	-4.04 (-1.98)**	-3.50 (-3.65)***	8.57 (3.60)***	-3.06 (-2.59)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Mother FEs	Yes	Yes	Yes	Yes	Yes	Yes
Gender FEs	Yes	Yes	Yes	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.09	0.10	0.17	0.04	0.38	0.12
Observations	11892	11878	12151	12187	12196	12180

Table 6: Self-efficacy and financial delinquency: heterogeneous effects based on parental environment. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. $Self-efficacy_i$ refers to person i 's percentile in the distribution of Pearlin scores. The controls omitted here for brevity are the same as those in the full specifications in Tables 2 through 4. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Late debt_{it}</i>				
	All observations		Lowest tertile of mother net worth	Middle tertile of mother net worth	Highest tertile of mother net worth
<i>Self-efficacy_i</i>	-4.17 (-2.42)**	-5.56 (-4.66)***	-8.91 (-4.07)***	-6.35 (-2.96)***	-3.01 (-1.59)
<i>Mother net worth_i</i> ('000s)		-0.01 (-5.51)***			
Controls	Yes	Yes	Yes	Yes	Yes
Mother FEs	Yes	No	No	No	No
Gender FEs	Yes	Yes	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes	Yes	Yes
R^2	0.09	0.03	0.04	0.02	0.03
Observations	11892	11891	3708	4068	4115

Table 7: Self-efficacy and financial preparedness early in adulthood. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. $Self\text{-}efficacy_i$ refers to person i 's percentile in the distribution of Pearlin scores. Education omitted category: $Graduate\ degree_i$. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Emergency funds</i> _{it}	<i>No health insurance</i> _{it}	<i>No health insurance</i> _{it}
<i>Self-efficacy</i> _i	7.59 (3.68)***	-6.13 (-3.25)***	-5.18 (-2.33)**
<i>Age</i> _{it}	-0.24 (-1.94)*	-0.18 (-1.66)*	-0.53 (-3.84)***
<i>Cognitive ability</i> _i	-1.88 (-2.65)***	0.25 (0.39)	0.83 (1.12)
<i>Risk aversion</i> _i	0.35 (0.56)	-2.24 (-3.99)***	-1.01 (-1.54)
<i>Patience</i> _i	7.36 (5.68)***	-6.68 (-5.47)***	-6.63 (-4.60)***
<i>No highschool</i> _i	-32.27 (-9.69)***	25.85 (9.71)***	22.98 (7.80)***
<i>Highschool</i> _i	-25.03 (-8.15)***	13.07 (5.70)***	8.94 (4.13)***
<i>Some college</i> _i	-16.54 (-4.74)***	4.75 (1.83)*	2.50 (1.01)
<i>College</i> _i	-7.39 (-2.33)**	0.12 (0.05)	0.28 (0.13)
<i>Income(log)</i> _{it}	1.65 (11.05)***	-0.24 (-1.60)	-2.73 (-9.11)***
<i>Health insurance offered by employer</i> _i			-12.77 (-6.03)***
Gender FEs	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes
R^2	0.07	0.06	0.08
Observations	8423	12196	6725

Table 8: Self-efficacy and financial preparedness late in adulthood. Data come from the NLSY79 original sample. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. *Self-efficacy_i* refers to person *i*'s percentile in the distribution of Pearlin scores. Education omitted category: *Graduate degree_i*. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Emergency funds_{it}</i>	<i>Retirement planning_{it}</i>	<i>Long-term care insurance_{it}</i>
<i>Self-efficacy_i</i>	12.02 (5.37)***	8.45 (3.65)***	3.01 (1.92)*
<i>Age_{it}</i>	0.65 (2.35)**	0.71 (2.57)**	0.36 (1.93)*
<i>Cognitive ability_i</i>	0.14 (4.40)***	0.23 (7.45)***	-0.02 (-1.10)
<i>Risk aversion_i</i>	0.88 (4.03)***	1.10 (4.80)***	-0.12 (-0.80)
<i>Patience_i</i>	-1.85 (-0.97)	0.75 (0.38)	-1.88 (-1.51)
<i>No highschool_i</i>	-18.54 (-6.17)***	-22.78 (-7.60)***	-9.35 (-4.36)***
<i>Highschool_i</i>	-13.74 (-5.58)***	-14.16 (-6.22)***	-6.22 (-3.31)***
<i>Some college_i</i>	-7.94 (-2.71)***	-4.06 (-1.50)	-4.32 (-1.99)**
<i>College_i</i>	1.61 (0.61)	-3.63 (-1.56)	-5.34 (-2.66)***
<i>Income(log)_{it}</i>	3.84 (12.46)***	2.70 (8.44)***	1.07 (5.82)***
<i>Net worth_i</i> ('000s)		0.04 (13.44)***	0.01 (3.84)***
Gender FEs	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes
<i>R</i> ²	0.13	0.19	0.02
Observations	5565	5445	5466

Table 9: Self-efficacy and dealing with financial shocks. Linear probability models, with standard errors clustered by participant. Probit models yield similar results. *Self-efficacy_i* refers to person *i*'s percentile in the distribution of Pearlin scores. The controls omitted here for brevity are the same as those in the full specifications in Table 2. T-statistics are shown in parentheses. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Dependent variable	<i>Lost job_{it}</i>	<i>Late debt_{it}</i>	<i>Late bills_{it}</i>	<i>Health shock_{it}</i>	<i>Late debt_{it}</i>	<i>Late bills_{it}</i>
<i>Self-efficacy_i</i>	-0.00 (-0.37)	-5.05 (-3.96)***	-4.34 (-3.48)***	0.00 (0.30)	-4.96 (-3.72)***	-3.24 (-2.46)**
<i>Lost job_i</i>		13.28 (4.18)***	10.91 (3.32)***			
<i>Lost job_i</i> <i>X Self-efficacy_i</i>		-13.14 (-2.61)***	-13.35 (-2.51)**			
<i>Health shock_i</i>					4.86 (3.21)***	8.40 (5.10)***
<i>Health shock_i</i> <i>X Self-efficacy_i</i>					-2.24 (-0.93)	-7.46 (-2.92)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Gender FEs	Yes	Yes	Yes	Yes	Yes	Yes
Race FEs	Yes	Yes	Yes	Yes	Yes	Yes
<i>R</i> ²	0.01	0.03	0.04	0.04	0.03	0.05
Observations	10742	10545	10535	12196	11892	11878