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Abstract

This project examines financial fragility in the United States, which is measured as individuals' ability to cope with unexpected expenses. Using data from the 2015 National Financial Capability Study and the 2015 Survey of Household Economics and Decisionmaking, we identify subgroups of the U.S. population that are most financially fragile. We observe widespread fragility across the entire population – more than one-third of Americans are financially fragile. Several years after the financial crisis, financial fragility is not only pervasive, but many middle-income households also suffer from the inability to deal with shocks. Our measure captures several factors that contribute to financial fragility, including lack of assets and indebtedness. The quantitative findings are also supported by qualitative data from focus group interviews. We explore the long-term implications of being financially fragile and its effects on retirement planning – individuals who are fragile in the short term may end up being financially insecure in the long term as well. Our findings point to the need to incentivize short-term savings in a way that is complementary to the institutionalized mechanisms of saving for retirement and other long-term goals. Focus groups also complement our empirical findings regarding the need and benefits of improving financial literacy to make individuals less financially fragile.

1. Introduction

Almost a decade after the Great Recession of 2007–09, even as the threats posed by the crisis have ebbed, Americans continue to experience financial stress. The ability to withstand shocks such as a sudden drop in income, loss of a job, or an unexpected expenditure is an important indicator of financial health. This project seeks to assess households' ability to cope with emergencies by building upon evidence from an indicator of financial fragility, which assesses individuals' capacity to come up with $2,000 within a month (Lusardi, Tufano, and Schneider, 2011). This measure was included in the TNS Global Economic Crisis Study in 2009, and with the resulting data, Lusardi et al. (2011) contributed to opening a new line of research that complemented the literature on precautionary savings. The measure proved to be useful not only to understand the lack of liquid and other assets but also debt and levels of indebtedness of American families.

Since its introduction, the $2,000 in 30 days measure has been used broadly in research. An alternative measure considers an individual's ability to come up with $400 immediately in case of an emergency. The lower amount and shorter time horizon make it comparable to the original $2,000 within 30 days financial fragility indicator. We seek to strengthen our analysis of American households' financial fragility by exploring both measures and examining the variables that make specific population subgroups more financially fragile than others; the major influencing factors associated with fragility; and the long-term implications of financial fragility.

The TNS Global Economic Crisis Study was conducted in 2009—in the wake of the financial crisis. Our current project uses data from surveys conducted several years after the crisis. We use two nationally representative surveys, the 2015 National Financial Capability Study (NFCS) and the 2015 Survey of Household Economics and Decisionmaking (SHED), and we complement these surveys with focus groups conducted in the summer of 2017. These two surveys allow us to investigate financial fragility beyond a single dataset and measure. Further, both surveys and focus groups provide useful insight into households' income and spending patterns, levels of indebtedness, financial behavior, decision making, and assessment of well-being.

According to the 2015 SHED, 46% of American adults reported that they could not immediately cope with a $400 emergency expense or would do so by selling possessions or by borrowing money. Furthermore, of those who reported not having enough liquidity to cover a $400 emergency expense, nearly 40% claimed that their immediate coping capacity is less than $100. Similarly, according to the 2015 NFCS, 34% of the population could probably not or certainly not come up with $2,000 within the next month.

Financial fragility is, thus, still pervasive in the US economy several years after the financial crisis. Moreover, while many families with low income are financially fragile, even higher-income households display financial fragility. About 30% of individuals with incomes of $50,000–75,000 are financially fragile, and so are 20% of individuals in the next income band ($75K–$100K).

Using both datasets, we perform a set of multivariate regression analyses to identify population subgroups that are more financially fragile. In addition, with the help of Applied Research and Consulting (ARC), we conducted six focus group studies in three American cities—Baltimore, Cincinnati, and Austin. We interviewed groups of blue-collar workers, low-income individuals, women, and young people about their personal finances and financial fragility as defined by our metric of $2,000 in 30 days. The focus groups provided us with additional information about individuals' motivation to save or borrow; sources of income and expenditure, including informal work and access to credit markets; reactions to income or expenditure shocks; and their capacity to make ends meet, helping us to better understand the potential sources of financial fragility.

The data point to a high incidence of financial fragility among respondents who have low income, low educational attainment, greater numbers of dependents, and lower levels of financial literacy, and who are women, non-white, and unemployed. We also find that financial fragility remains constant across age groups, despite the expectation of wealth accumulation over an individual's life cycle and thus, an expected lower incidence of financial fragility at older ages. We also find a sharp educational divide: Those without a Bachelor's degree are much more fragile than those with a college degree. It is important to note that the effect of education is observed even after controlling for income in our regression analyses, implying that there are components of education that can affect financial fragility beyond the effect of income. Finally, we find that women are more likely to be financially fragile than men.

These results point to the need for programs and initiatives that promote short-term savings. Over the years, saving for the long term has been promoted in many forms, including tax incentives for house purchases, and for participation and contributions to retirement plans. While a sizeable share of workers save or plan for their retirement, short-term precautionary savings are gravely lacking. This paper explores not only the need for such savings but also the short- and long-term consequences of financial fragility.

The data and focus groups also speak of individuals' coping mechanisms with emergencies, displaying extensive reliance on borrowing within their networks or working longer hours to supplement their income as opposed to building up emergency savings. This observation has implications for both academics and policymakers who seek to understand consumer behavior under uncertainty.

In the following section, we discuss related research that explores financial fragility with different measures or other indicators of household financial resilience. Then we describe our data sources, present results on financial fragility for the overall population and across population subgroups, and conclude with a discussion of our work and its implications for financial education programs.

2. Literature Review

Lusardi, Schneider, and Tufano (2011) presented a metric to measure financial fragility—the ability to cope with an unexpected expenditure or income shock—by surveying respondents' capacity to come up with $2,000 in 30 days. The results of the research were striking: about 50% of Americans in 2009 reported that they were either absolutely or possibly unable to cope with a shock. While the incidence of such financial fragility was understandably higher among low-income groups, a substantial proportion of middle-class Americans were also found to be fragile.

Vandone, Bacchiocchi, and Anderloni (2011) have used an equivalent measure in their research by asking Italian households if they could immediately cope with an unexpected expense of €700. Other related research on the financial fragility of individuals and households has focused on similar measures on specific regions or countries such as Estonia (Rõõm and Meriküll, 2017), Italy (Brunetti, Giardia, and Torricelli, 2016), the Euro area (Ampudia, Vlokhoven, and Żochowski, 2016), Europe (Christelis, et al., 2009), Britain (del-Rio and Young, 2005) and Australia (Worthington, 2003).

Other studies have emphasized sources of financial distress, such as the use of alternate financial services such as pawnshops and payday loans (Skiba and Tobacman, 2009; Brian T. Melzer, 2011) and levels of indebtedness (Christelis, et al., 2009; Jappelli, Pagano, and di Maggio, 2013). Jappelli, Pagano, and di Maggio (2013) talk about the influence of institutional factors on financial fragility. Specifically, they discuss the role of judicial enforcement, information sharing arrangements, and bankruptcy laws. More recently, Morduch and Schneider (2017) studied income and spending volatility as primary causes of financial fragility.

Past research has focused on both objective and subjective measures of financial fragility. The former include many forms of liquidity or debt ratios to assess the coping capacity of households and individuals (Bi and Montalto, 2004; Brown and Taylor, 2008; Faruqui, 2008; Jappelli, Pagano, and di Maggio, 2013; Ampudia, Vlokhoven, and Żochowski, 2016). Smythe (1968) and Johnson and Widdows (1985) measure financial fragility as the sufficiency of liquid assets to cover three months' worth of living expenses in the event of an unexpected crisis. Subjective measures of financial fragility include people's confidence level or their perceived ability to meet emergency expenses (Vandone, Bacchiocchi, and Anderloni, 2011). It is important to acknowledge the subtle shortcomings of empirical measures that evaluate households' existing asset levels to predict current or future fragility. There are vast differences in the sufficiency of these assets ranging from liquid/illiquid assets and stock/flow assets to the preferences of individuals that determine which assets

are used for emergencies, which networks are tapped for borrowing purposes, and which expenditure categories are reduced when unexpected costs are faced.

3. Data and Methodology

In our analysis of financial fragility, we examine respondents from the 2015 National Financial Capability Study (NFCS) and the 2015 Survey of Household Economics and Decisionmaking (SHED) who are in their prime working age, i.e., age 25–60, and not retired. Those who are younger or older are excluded from the sample as their characteristics, financial behavior, and needs can be very different: people under 25 may be students with no labor income, while those over 60 may be retired and receiving Social Security benefits. The 25- to 60-year-old population can thus comprise a more homogenous sample.

3.1 National Financial Capability Study (NFCS)

The NFCS is a nationwide survey commissioned by the FINRA Investor Education Foundation, with the objective of identifying the main indicators of financial capability and tracking how these indicators change with individual characteristics such as demographics, financial behavior, attitude, and financial literacy. The NFCS is conducted every three years, and the 2015 survey had a sample size of 27,564 American adults. Data from the NFCS provide insight into a broad array of aspects of personal finance. The following question, which is the focus of our analysis is also asked: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" The $2,000 amount is reflective of a mid-size shock, such as an unexpected health shock, a major car repair, or an unanticipated legal expense—all categories of expenditure that can be commonplace in daily lives. The possible answers to the question in the survey are "I am certain I could come up with the full $2,000," "I could probably come up with $2,000," "I could probably not come up with $2,000," or "I am certain I could not come up with $2,000." Respondents can also answer "do not know" or can simply refuse to answer. Individuals who choose one of the last two options, i.e., they probably could not or certainly could not come up with the amount in 30 days, are categorized as *financially fragile* (Lusardi, Schneider, and Tufano, 2011).

The uniqueness of this scale is that it evaluates the coping ability of respondents over a month instead of immediately, and this allows individuals to consider the different resources that they would access in an emergency. Furthermore, the $2,000 amount represents a reasonable mid-size shock, such as a car repair or medical bill. This question not only enables an assessment of the potential level of assets and debt obligations, but also helps to study more nuanced factors such as respondents' confidence level and expectations for future finances. An obvious advantage of this measure is that it incorporates many elements of personal finance that are unobservable from outside the household, including the respondent's knowledge of pre-existing and foreseeable payment obligations, the decision to dedicate a proportion of assets to dependents, the reason they choose not to save for emergencies, and what resources are most easily available for rainy day needs.

Our intention is to understand how financial fragility is associated with demographic factors, such as gender, age, ethnicity, marital status, having children, and socioeconomic variables, like income, education, and employment status. In addition, we have information on whether households experienced a large and unexpected drop in income in the previous year or have outstanding medical bills. The NFCS survey also

asked a set of financial literacy questions, permitting us to assess respondents' knowledge and understanding of personal finance. The questions assess respondents' understanding of simple and compound interest, inflation, risk diversification, bond prices, and mortgage structures. We construct a financial literacy index based on whether the respondent was able to answer three simple questions assessing knowledge of interest rates, inflation, and risk diversification (Lusardi and Mitchell, 2008). This indicator of financial literacy is included in our regression model to determine how financial literacy can affect individuals' ability to cope with emergency expenses. The text for the questions can be found in the Appendix.

3.2 Survey of Household Economics and Decisionmaking (SHED)

The SHED is conducted by the Federal Reserve Board with the goal of assessing the financial and economic well-being of American consumers. The survey has been done annually since 2013, with a sample of adults over the age of 18. This dataset, with a representative sample of 5,642 respondents in 2015, is smaller than the NFCS but provides complementary information on household decisions and financial behavior. Preparedness of individuals in case of an emergency is assessed by their response to the question "If you had to cope with an emergency expense of $400 today, what coping source would you use?" The options include charging their credit card and repaying the amount in full with the next statement, taking on long-term credit card debt that they pay off eventually, using cash or savings currently in their savings/checking accounts, using a bank loan or line of credit, borrowing from a friend or family member, using alternate financial services (such as a payday loan, deposit advance, or overdraft), or selling something they own.

To make the financial fragility measure comparable across the different datasets, we classify the respondents with liquid sources of funding (credit card that will be paid off that month or savings/checking account) as *not financially fragile*. Those who use any of the other listed coping sources are classified as *financially fragile*. We consider the ability to come up with $400 immediately as comparable to the ability to come up with $2,000 within a month. As with the NFCS data, the analysis of the SHED data covers demographic variables such as age and gender, and socioeconomic variables like income, educational attainment, marital status, number of financially dependent children, and employment status. We also include other variables such as outstanding medical bills, loans, and income shock (to proxy for indebtedness), as well as access to credit (to gauge respondents' ability to borrow).

3.3 Focus Groups

The data from these two surveys are complemented with focus group interviews, which were conducted by Applied Research & Consulting (ARC) in three American cities: Austin, Baltimore, and Cincinnati. Two groups of 12 participants each were held in each city. The participants of the focus groups had all answered that they could certainly or probably not come up with $2,000 in a month; were primarily or jointly responsible for paying household bills; and came from diverse ethnic backgrounds. Focus group participants were also selected based on their occupation category (work full or part time for an employer, identify themselves as blue-collar, and do not have a college degree), gender (women), and age (young people). These focus group interviews provide a qualitative assessment of the problems faced by those who are financially vulnerable, their perception and assessment of the situations that they find themselves in, and their methods of making ends meet and coping with unexpected expenditures or income shocks.

3.4 Empirical Setup

We first use data from the NFCS to gauge the differences in financial fragility by demographic and socioeconomic factors such as income, education, age, gender, ethnicity, marital status, number of financially dependent children, and employment status. Next, both sets of data are analyzed through multivariate regressions to identify population subgroups that are more vulnerable to financial fragility. These subgroups are studied individually to observe the differences in determinants of fragility. Next, we explore the financial characteristics of the population, such as debt and asset levels, access to credit, and financial literacy. These factors indicating households' financial situation and capability are analyzed further through focus group interviews, in which respondents discuss their income and expenditure patterns; their financial planning habits; and their experience, attitude, and perception of financial disruptions. Finally, we discuss some implications of financial fragility for the long term by analyzing the effect of financial fragility on individuals' propensity to plan for their retirement.

4. Empirical Findings

4.1 Demographic Distribution of Financial Fragility

Table 1 shows the distribution of the financially fragile population within demographic categories. Specifically, we look at how education levels, age, income, gender, and ethnicity relate to financial fragility (second column of Table 1), including "do not know" or "refuse to answer" responses (third column of Table 1). These individuals are assigned to a separate category primarily because there is not enough information to classify them as financially fragile or not. Interestingly, the highest incidence of such responses exists among some of the most vulnerable sections of the population.

[Insert Table 1]

Overall, Table 1 reaffirms the high prevalence of financial fragility among the US population even several years after the Great Recession. The descriptive statistics in Table 1 also report an equal distribution across age groups. We consider seven age categories that are broadly classified as young (ages 25–29 and 30–34), middle age (ages 35–39, 40–44 and 45–49), and older (ages 50–54 and 55–60) individuals. A nearly constant proportion of the population within each age band can be identified as financially fragile (on average 36%), not financially fragile (approximately 60%), and uncertain (close to 4%). It is striking that people of all age groups are financially fragile at comparable levels, despite the expectation of wealth accumulation over the life cycles. This could reflect a structural nature to the problem that goes beyond level of income or expenditure.

Moreover, and contrary to expectations, we see that having higher income does not necessarily translate into being financially resilient. Looking at financial fragility across household income bands, the data show a higher likelihood for financial fragility at income levels below the $50,000 mark. We consider eight household income categories: low income (<$15K, $15–25K, and $25–35K), middle income ($35–50K and $50–75K), and high income ($75–100K, $100–150K, and >$150K). Household income covers all sources of income: wages, investment income, public assistance, and retirement plan funds. On average, 53% of the population with an income of $25,000–35,000 are financially fragile. This drops by almost half (to 28%) for those with twice the household income ($50–75K). The probability of not knowing their financial fragility also drops consistently with income, starting with almost 8% for the lowest income band and decreasing to just over 1% at the

highest income level. Financial fragility persists for the median earner households, and even in the $75,000–100,000 group, 20% of households meet the criteria for financial fragility. Thus, households with higher incomes do experience less financial fragility, but a higher income does not completely prepare them for financial emergencies.

Similarly, we see large differences in the probability of financial fragility across education categories; from 48% for those with a high school degree or less to 40% for those who attended college but did not receive a degree to 23% for those with a Bachelor's degree and to 15% for those with a post-graduate degree. The data clearly show that the higher the educational attainment, the lower the probability of being financially fragile. A clear divergence can be observed among people who are financially fragile and those who are not, starting with 48% versus 46% among those who attended high school or less and reaching 15% versus 82% for those who have a post-graduate degree (third panel of Table 1). The educational divide is a crucial element in studying financial fragility, as education is not only associated with higher income but also may equip individuals with the skills to manage their finances, engage with markets, and have the flexibility to change jobs.

The distribution of financial fragility across gender shows a large difference between men and women. On average, 67% of men are categorized as not financially fragile while 30% indicate that they could certainly or definitely not come up with $2,000 in 30 days. These figures are closer together for women—54% are not financially fragile, while 42% say that they could not cope with the unexpected expense. This indicates a more financially precarious position for women.

Across ethnic groups, the likelihood of being financially fragile varies widely. The proportion of financially fragile individuals ranges from an average of 24% among Asians to 34% among whites to 37% for Hispanics to 47% for African Americans. While Asians seem to be more financially sound than other ethnic groups, they display a high propensity to be uncertain of their coping capacity—approximately 6% report not knowing or refusing to answer the question. Among African American respondents, 6.7% report being uncertain, while 4% of Hispanics and 3.5% of whites respond with "do not know" or refuse to answer the question.

Being married seems to have an important effect on financial fragility, with more than 68% of married individuals being not financially fragile and only 28% financially fragile. The seventh panel of Table 1 lists the distribution of financial fragility according to the number of financially dependent children. Compared to respondents who have no financially dependent children, ability to cope with an unexpected expense rises slightly for those who have up to two dependent children but then starts to fall. Both uncertainty and the incidence of financial fragility rise for households that have three or more financially dependent children.

Finally, the last panel of Table 1 shows the incidence of fragility in the population, classified by employment status. All those who are employed full time, part time, or identify as self-employed are considered employed. We see large differences in financial fragility across employment status, with the proportion of population that is financially fragile falling from almost 54% for the unemployed to 28% for those who are employed.

4.2 NFCS Regression Results

4.2.1 Demographics

Table 2 shows the results from the OLS regression that assesses the factors affecting financial fragility. Model 1 in the first column depicts the effect of demographic variables such as age, income, gender, education, ethnicity, and employment. The "do not know" responses and refusals to answer are excluded, as no reasonable conclusion can be drawn for those who choose not to answer or are unaware of their coping capacity.

[Insert Table 2]

The regression results generally reaffirm the findings of the descriptive statistics provided in Table 1. The characteristics associated with higher financial fragility are low income, low educational attainment, being a woman, belonging to a minority group, being younger, being unemployed, having more financially dependent children, or being unmarried.

The effect of age on financial fragility shows an interesting pattern; only the middle age category (ages 35–39, 40–44, and 45–49) is shown to have a significantly higher likelihood of financially fragility compared to the youngest age group (25–29 years). Interestingly, the first panel shows that older people (ages 50+) who are closer to retirement and the younger age group (ages 30–34) have a similar likelihood of being financially fragile, relative to the youngest people. A sizeable proportion of the focus group respondents were within the middle age category, and financial fragility had a substantial impact on their daily lives. It is important to note that this age group also comprises the majority of the workforce. The statistically significant likelihood of middle age people being financially fragile and their desire for financial advice as discussed in the focus groups makes the case for introducing financial wellness programs into the workplace.

Ethnicity plays a weaker role in explaining financial fragility when we control for other demographic variables. However, the results do show a significant positive correlation between being African American and being financially fragile and a negative effect for being Asian and financially fragile; the African American minority is, on average, 6 percentage points more likely and Asians are almost 3 percentage points less likely than white people to be financially fragile. This restates the findings from Table 1 regarding the higher occurrence of financial fragility among minority populations.

The likelihood of being financially fragile decreases steadily with increasing income, and all differences compared to the lowest income group are statistically significant. Similarly, higher educational attainment, having fewer financially dependent children, or being a male are correlated with a better ability to cope with unexpected expenses. Finally, employment in any capacity (full time, part time, or self-employment) makes the individual almost 10 percentage points less likely to be financially fragile. This complements the focus group observation that people prefer to supplement their income with additional jobs when faced with expenses that they cannot afford.

4.2.2 Financial Literacy

We next focus on the effect of financial literacy on financial fragility. Respondents who answered the three questions on simple interest, inflation, and risk diversification correctly are considered financially literate. The results of Model 2 (in the second column of Table 2) show that being financially literate reduces the likelihood of being financially fragile by more than 6 percentage points. It is worth noting that education has been controlled for in the model; thus, the effect of financial literacy is above and beyond the effect of education. The role of financial literacy is also mentioned in the focus group interviews when respondents

discuss sources of financial advice. Many participants report not having any reliable sources of such advice and lament the absence of financial education in schools. They believe that discussions of personal finance should happen at school and at homes. Some participants state that they do not seek financial advice, either because it is too costly or it is too generic to help them effectively. However, financial education can have an important role to play in financial planning and management. For instance, focus groups participants were asked to list their most important expenditure categories. Most cited rent and other bills, but did not mention recurring expenses such as insurance premiums or child-related costs. Though there are reasons why people may not cite children as a source of expenditure, but misidentification of expenses can have an adverse impact on financial planning—especially among vulnerable households. These are some features that can be addressed in financial literacy curricula to inform financial decision-making.

4.2.3 Measure of Financial Hardship

While demographic variables and financial literacy have high explanatory power, they do not fully explain financial fragility. Therefore, to strengthen this analysis, we also explore several other variables such as an income shock or other financial hardship, unpaid medical bills and other debt, asset levels, and access to credit. These variables serve as proxies for experience of shocks as well as for the ability to borrow. The third column of Table 2 depicts our Model 3, in which variables such as income shock and unpaid medical bills are included. Specifically, the NFCS asks respondents if their household experienced a large and unexpected drop in their income and if they have unpaid, late medical bills. The data show that there is a highly significant relationship between an individual being financial fragile and facing an income shock or having outstanding medical bills. Specifically, experiencing an income shock can make an individual almost 9 percentage points more likely to be financially fragile, and this number is even higher for those who have outstanding medical bills—these respondents are more than 16 percentage points more likely to say that they could certainly or probably not come up with $2,000 in 30 days.

In all three models depicted in Table 2, respondents who said that they “do not know” the answer or refused to answer are excluded. As explained above, this is due to the inability to draw an inference based on our measure of financial fragility. Even if these respondents were included, the estimated coefficients would not change substantially, except for the variables of marriage and financially dependent children.

4.3 SHED Regression Results

Table 3 replicates the NFCS regression with data from the SHED. The dependent variable, financial fragility, takes on the value 0 for all those who can cope with a $400 amount with cash or credit card debt that they can pay off immediately, and 1 for those who would use any other coping sources. Once again, there is a weak relationship between age and financial fragility, but the middle age category is less likely than the 25- to 29-year-old group to be financially fragile. Ethnicity continues to be important, with the African American and Hispanic groups significantly more likely than the white population to be financially fragile. Furthermore, higher income and educational attainment significantly increase individuals’ ability to cope with immediate emergencies with cash/savings or credit card debt that they can pay off within a month. The SHED data also reconfirm the findings from the NFCS about the effects of employment on financial fragility (it decreases fragility), and financial distress like facing an income shock or having outstanding medical bills (they increase fragility).

[Insert Table 3]

4.4 Financial Distress Indicators—NFCS

In order to further explore the factors underlying financial fragility, we also perform a factor analysis on the NFCS dataset. The goal of this analysis is to identify common underlying factors that are not directly measured in the survey. Besides financial fragility itself, we include observed variables that proxy for the various aspects of financial fragility. These are lack of precautionary savings, lack of bank account and credit card, lack of assets such as a house and retirement plan, and lack of health insurance. Further, we add indicators for use of high-cost borrowing and student loans as well as perceived over-indebtedness and dealing with unpaid bills.

The factor analysis shows that two main underlying factors explain close to 100% of the total variance observed in the variables, with around 65% explained by the first factor and 38% explained by the second factor. The estimated factor loadings are shown in Table 1 of the Appendix. A clear pattern among the relevant variables that define the factor's dimensionality emerges when examining these factor loadings. Factor 1 is primarily defined by variables indicating lack of assets, specifically, lack of a bank account, credit card, home, insurance, or retirement account. Therefore, we interpret the first factor as the latent variable representing lack of assets. Using high-cost borrowing, having too much debt, having student debt, and having outstanding loans show a high relevance for the second factor. The second factor is, thus, classified as a measure of the respondents' indebtedness. Interestingly, both latent factors have a relatively high explanatory power on the variable measuring the lack of precautionary savings and on financial fragility. Most of the variance (around 65–70%) of these two variables (precautionary savings and financial fragility) can be explained by the two underlying factors, which we broadly classify as lack of assets and indebtedness. As precautionary savings are one source of coping with a $2,000 emergency expense, we find similar factor loadings for such savings and financial fragility. Hence, the findings of the factor analysis indicate that the likelihood of being financially fragile may be driven by both the asset as well as the debt side of a household's balance sheet.

To further strengthen the interpretation of these two factors and their link to our measure of financial fragility, additional variables from the SHED dataset are also explored.

4.5 Financial Distress Indicators—SHED

The importance of understanding financial distress variables is highlighted further in Table 4, which shows descriptive results for variables in the SHED dataset. As before, we classify people as being *financially fragile* if they can either not cope with a $400 expense or would do so by taking on long-term credit card debt, using a bank loan or line of credit, borrowing from a friend or family member, using alternate financial services (such as a payday loan, deposit advance, or overdraft), or by selling something they own.

[Insert Table 4]

Data from the SHED reconfirm results from the NFCS. The majority of financially fragile individuals have fewer assets, such as a house, car, retirement savings, or insurance coverage. In terms of indebtedness, more than 60% of those who do not have a student loan are not financially fragile, while this proportion falls to 50%

among those who do have a student loan. Thus, having loans can reduce the cash or readily payable credit card debt that individuals can access to cope with emergency expenses. Furthermore, the SHED also assesses respondents' engagement with financial markets by asking them about their experience with credit, such as the number of credit cards they use and their creditworthiness. Table 4 shows that the majority of financially fragile respondents are those who do not use a credit card, and who were either denied credit or given less than the amount that they applied for, as opposed to having unrestricted access to credit. If access to credit is used as proxy for the ability to borrow, then the results show that financially fragile people have a much lower borrowing capacity.

Focus group participants echo these results when they talk about their finances. Specifically, some individuals attributed lower credit scores to lower income, and then drew a link between lower credit scores and getting more expensive loans (higher rates). Overall, they expressed the belief that lower income and less access to credit rendered them unable to borrow and thus reduced their coping capacity.

4.5 Subsamples

The results shown in Tables 2 and 3 enable us to identify vulnerable groups within the age, income, gender, and education subsamples. We find that the middle age cohort, lower-income individuals, women, and people with lower educational attainment are the most financially vulnerable. In this section, we investigate the characters associated with financial fragility in these groups.

4.5.1 Age

Table 5 displays regression results for the financial fragility variable across the three age groups in our sample—young (ages 25–39), middle age (ages 40–49) and older (ages 50–60). The sample is split into the three categories to enable an analysis of the middle-age category (ages 40–49), which was identified as the most vulnerable age range in the NFCS. The goal is to shed light on the characteristics affecting the financial fragility levels for the specific age groups. We see a highly significant effect of ethnicity for the oldest age group (Column 3). African Americans in this age range are, on average, over 6 percentage points more likely to be financially fragile than whites, while Asians in this age group are more than 7 percentage points less likely to report that they cannot cope with the unexpected $2,000 amount within a month.

[Insert Table 5]

The effect of higher education has a uniform effect on financial fragility across all three age cohorts. Respondents with at least a college degree showed, on average, a 7 percentage point lower probability of financial fragility compared to respondents with a high school degree or less. Income, up to the $50,000 mark, has the least effect on financial fragility for the middle age category (40- to 49-year-olds), implying that for middle-aged people, rising incomes do not translate into the ability to buffer shocks. Focus group participants in the middle age band cited several sources of expenditure including rent/mortgage, loans on cars and education, credit card debt, and family-related expenses. These expenses are presumably lower for the younger and older cohorts, who are likely to have fewer family or loan expenses. Accordingly, having financially dependent children has the most significant effect for the middle age group, with each dependent child making the middle-aged respondent, on average, almost 2 percentage points more likely to report that

they cannot cope with a $2,000 expense within a month. Employment status has a similar effect on the likelihood of being financially fragile for young and middle age cohorts, with an approximately 10 percentage point lower likelihood for employed respondents compared to their unemployed counterparts. However, this number drops and becomes an insignificant coefficient for the population close to retirement, as factors other than employment status might be more important to the overall ability of pre-retirees to come up with the $2,000 within a month. Older people may also enjoy lesser flexibility in adapting to the labor market, owing to more traditional skills and older age. Indicators of financial distress, such as experiencing an income shock or having unpaid medical bills have highly significant effects, which rise with age. The effect of unpaid bills more than doubles, from an 11 percentage point likelihood of financial fragility for the young cohort to a 23 percentage point probability for the oldest cohort of 50- to 60-year-olds. Financial literacy is shown to improve respondents' chances of being able to cope with emergency expenses over all age categories, with a 3 percentage point lower likelihood for the youngest cohort and more than 5 percentage point chance of not being financially fragile for the oldest people in our sample.

4.5.2 Income

Table 6 contains separate estimates for the OLS regressions on financial fragility across the three household income categories: low income (<$35K), middle income ($35–75K), and high income (>75K). The income categories are split around the median household income for 2015, which was close to $56,000. A key finding in this regression is the similarity between low- and middle-income households, i.e., the effects of financial fragility change most for the high-income groups, but the changes are not as pronounced going from low income to middle income. This analysis serves a two-fold purpose: the data display changes in fragility by income category, but also show that the middle-income population does not fare much better than the lower-income group when it comes to financial fragility.

[Insert Table 6]

The first panel shows that compared to the youngest people (ages 25–29), those in the middle age category are more vulnerable to financial fragility if they fall in the low- or middle-income classification. Among the older group, of which we'd expect the greatest wealth accumulation, those in the high-income category have a significantly lower likelihood of financial fragility compared to the youngest cohort (25- to 30-year-olds). We also see that compared to the preceding age cohort, people in the age 30–34 band are significantly less likely to be financially fragile, but the effect tapers off for the middle age cohort. Thus, high income seems to protect the young and the old from being financially fragile. On the other hand, we see little difference in coping ability by age in the low- and middle-income categories. This is a worrisome finding, as people have very different investing and saving needs over a lifetime. Although women are still more vulnerable than men, women in high-income households fare much better than women in the low- and middle-income households, with the former being approximately 3 percentage points more likely than men to be financially fragile and the latter being around 8 percentage points more likely to be vulnerable. The effect of education is more evenly distributed, with the highest impact of more education on financial fragility being observed for the lowest income category. Interestingly, the number of financially dependent children in the household significantly and negatively affects financial vulnerability for the low-income group, but the regression results show no significant effect for the middle- and high-income cohort. The table also shows that marriage

continues to provide a buffer against fragility for the low- and middle-income bands. As expected, employment status has a decreasing effect on financial fragility with increasing household income levels (Table 6). This is in line with focus group findings where participants cite income and job uncertainty as a major contributor to financial instability and lack of financial planning. Thus, lack of employment is a bigger concern for those who have lower incomes. The financial distress indicators display very significant correlation with fragility, most adversely affecting the middle-income group; an income shock makes a person with an income in the $35,000–75,000 range more than 12 percentage points more likely to be financially fragile, and unpaid bills make people in the same income category nearly 21 percentage points more likely to be financially fragile. Participants in the focus groups also discussed how financial vulnerability seems to perpetuate their financial condition by trapping them in cycles of low income, low credit, expensive loans, and an inability to repay. More precisely, some respondents made connections among their low incomes, low credit scores, and high insurance premiums, which hurt their ability to get loans or borrow sufficiently when they need funds due to the high costs that they face. Thus, lower-income groups become more vulnerable to being financially fragile if and when they face any kind of financial hardship. Once again, we see a highly significant effect of financial literacy for people in all income categories, even though the positive effect of financial literacy declines across the income bands.

4.5.3 Gender

Table 7 depicts the differences in men's and women's experience with financial fragility. Broadly, vulnerability is much higher for women, who face notably lower returns to income, education, and employment relative to the baseline cohorts.

[Insert Table 7]

Compared to the youngest group (ages 25–29), the likelihood of being financially fragile among women rises up to the age of 44, then falls for the next two age groups. For the oldest age category in our analysis, we do not see any significant effects of age after controlling for all other factors. Women in the 40- to 44-year-old age group are 10 percentage points more likely to be financially fragile than women in the youngest cohort (ages 25–29). The effects of age on financial fragility are much weaker for men. Similarly, ethnicity has weak explanatory power in the differences of financial fragility between men and women, with the only statistically significant effect being observed for African American men, who are almost 7 percentage points more likely than white males to report being financially fragile. Interestingly, compared to those who attend high school or less, both men and women have a nearly 7 percentage point lower likelihood of being fragile if they receive a bachelor's degree. However, the effects reverse for post-graduate degrees, with returns falling for women but rising for men. Women with a post-graduate degree are close to 7 percentage points less likely to be fragile relative to the reference cohort, while men in the same education category are almost 9 percentage points less likely to be fragile. Similarly, while the likelihood of financial fragility falls with income for both men and women, the positive effects of increasing income on financial fragility levels are lower for women than for men compared to their respective baseline cohorts. It is worth noting, however, that the gap narrows with higher income. Marriage makes women almost 5 percentage points less likely to be financially fragile, while there is no significant effect for men. This might be in line with the observation that women are more likely than men to exit the workforce or reduce their workload due to family reasons (child-rearing or care-giving to older family members), or with women's lower wages earned. The trend of lower returns

continues for employment, with doing any kind of work making women close to 8 percentage points less likely and men more than 9 percentage points less likely to be financially fragile. Experiencing an income shock leaves both men and women almost equally more likely to be fragile, increasing probability by almost 9 percentage points. However, the effect of unpaid bills is much more adverse for women—a woman with outstanding medical bills is 19 percentage points more likely to be financially fragile compared to an 11 percentage point higher likelihood for men. Finally, financial literacy seems to be more beneficial for women, decreasing their chances of being financially fragile by more than 7 percentage points compared to 2 percentage points for men. There are several important elements that emerge in this description of financial fragility for women, which were also discussed in the focus groups. Female participants reported feeling that their costs for routine things such as haircuts or jeans are generally higher than those of men. Similarly, we can expect that middle-aged women spend substantially more than younger or older women on family and household expenses. Traditionally, women discuss finances less than men and this can affect their confidence in assessing their coping ability (as asked in our question). The difference in the effect of marriage for women and men also implies that the financial situation of a woman is improved when she has a husband but having a wife does not necessarily make men better off. These differences can be attributed to a structural issue that makes women more vulnerable, and it would follow that such vulnerability should diminish at very high levels of income, when women are more empowered and financially stable.

4.5.4 Educational Attainment

Table 8 contains coefficient estimates for the regression on financial fragility split by education levels. Each column shows a separate regression for the respective highest degree subsample. These subsamples compare people with a high school degree or less to people with some college experience but who did not earn a degree to those attended college and earned a Bachelor's degree and then to those with a post-graduate degree.

[Insert Table 8]

Looking at different age cohorts, the same pattern as in Table 2, Column 3, for the overall regression is found across education levels. People in the middle-age cohorts are significantly more likely to be financially fragile compared to younger and older age groups. This result is independent of the respondent's highest educational attainment, except for people with a Bachelor's degree. For this subsample, we found no significant difference in the likelihood of being financially fragile between young and middle-age cohorts. Among those who attended high school or less, the middle-age group is most likely to be financially fragile, compared to the youngest group. Specifically, their probability of being financially fragile increases by a statistically significant 11 percentage points, compared to the youngest respondents. The fourth column of Table 8 depicts those who have a post-graduate degree, and respondents ages 45–49 are around 12 percentage points more likely to be financially fragile, relative to the youngest age group. Thus, having a high level of education at a young age is associated with less financial fragility. The effect of ethnicity on fragility is more pronounced for the subsample with higher educational attainment. The likelihood of being financially fragile for the African American population relative to the white subgroup increased from around 4 percentage points for those who attend college but do not receive a degree, to around 10 percentage points among those who have a bachelor's or post-graduate degree. This could reflect the difference in returns to higher education between the white population and minority groups. Among those who have a post-

graduate degree, being Hispanic is associated with a 6 percentage point higher likelihood of being financially fragile, compared to the white subsample. It is only among this subgroup of highly educated respondents that Hispanic ethnicity has a significant effect on the financial fragility level. Interestingly, we do not find any significant differences between races and ethnicities among the subsample of those who attended high school or less. In the fourth panel, we find the same highly significant effect of income on financial fragility as in Table 2 Column 3, with fragility consistently falling as income levels rise and this pattern holds true for all education levels. At the highest income categories across the four education levels, coefficients are among the highest for those with lower educational attainment. However, the data also reveal that at lower levels of household income, financial fragility falls most at higher education levels. Thus, we see that having higher levels of education can strengthen finances, despite low levels of household income. Table 8 also shows that the benefits of being employed are greatest for the lowest education category, with significance and magnitude of coefficients falling with increasing education. Furthermore, both indicators of financial distress have significant effects on fragility at all education levels, with the highest vulnerability observed for those who attend college but do not receive a degree. The likelihood of being fragile increases by almost 10 percentage points for those who experience an income shock, and close to 20 percentage points for those who have unpaid medical bills if they are financially fragile and have had some college experience. As expected, the highest effect of financial literacy is observed for the lowest education category, with an almost 7 percentage point lower likelihood of being fragile for those who are financially literate. Differences in the effect of education for each subsample once again reflect that there are components of education that do not directly relate to income levels, but affect how individuals manage their finances or influence their ability to cope with emergency expenses. It could also be that they are better equipped to access information in markets, which enables better decision-making. Furthermore, minorities or other vulnerable groups might not receive equivalent returns to higher education as Table 8 shows; for instance, among those with a post-graduate degree, African Americans might still face other kinds of discrimination in financial markets that restrict their borrowing capacity.

5. Focus Groups

The focus group interviews not only reaffirm the empirical findings from both datasets, but also complement the information with individual insights into topics that are difficult to measure quantitatively.

With regard to income, many participants reported having multiple part-time jobs as opposed to doing stable full-time work. Furthermore, several interviewees described their jobs as seasonal or hourly, instead of continuous, salaried employment. Low income or non-guaranteed income often coincided with a sense of uncertainty about the capacity to make ends meet and an insecurity about being in control of personal finances. Most individuals reported that their financial security is conditional on being able to find enough work or being able to take on a side job. Furthermore, the interviews displayed a sense of general dissatisfaction, with participants mentioning higher taxes, rising costs of living, stagnating wages, and other unfavorable conditions that prevent improvement in their economic situation.

The majority of respondents believed that their weak financial positions were the consequences of too many expenses, as opposed to low income. The most commonly cited expenditures included rent or mortgages, utility bills, and payments for cars, credit cards, and insurance. For some respondents, payments on their house (including bills) represented up to 60% of their monthly income. When prompted further, participants

also acknowledged spending on health bills and children. While both these categories are sources of major expenses, it is noteworthy that many participants do not consider them so. This could point toward a sentimental association with children that makes individuals less likely to think of them as expenditures. However, this behavior can be concerning if it also affects the way that individuals plan or budget. Many people also reported being able to cut down on expenses such as cable, eating out, or shopping when they felt that they needed to prioritize other expenditures. Some participants admitted to spending on luxuries or avoidable expenditures (such as multiple cars, pets, or cigarettes) to maintain a sense of status and to "not live a lifestyle of deprivation." These points highlight the need for making individuals aware of effective ways to plan and to budget their finances. Such information can be provided for example through financial education programs in schools or workplaces.

The focus groups also helped to illuminate the financial behavior and perceptions of participants through discussion of their mechanisms for coping with unexpected expenses and their financial planning habits. Interestingly, many participants reported saving more for the long term, such as retirement plans, than for the short term or for emergencies. To cope with short-term emergency expenses, the most cited sources were either working longer and taking on more jobs or borrowing from their network. Many felt that it was easier to work more and get additional income or borrow within their network if they faced an unexpected expenditure than to budget for rainy day savings. To justify low savings, many individuals also reported a sense of wanting to "reward themselves for working hard" with any money left over after paying their bills. Many participants said that they do not save for emergencies because they have very low disposable income or that they do not prefer to save for an event, which they cannot foresee. However, they also report having undergone some form of distress such as a health bill, divorce, or a car breakdown in recent time. Thus, there is a disconnect between individuals' experiences with episodes of financial distress and their willingness to prepare for future events. This also reflects the need to increase financial literacy and awareness, so that individuals and households can be mindful of the advantages of planning and make informed financial decisions. Furthermore, financial literacy programs can help to inform individuals about the merits of building up rainy day savings rather than relying on additional income or borrowing, which can both introduce more uncertainty.

When introduced to the term, most participants agreed to a description of themselves as financially fragile. Some self-reported causes for financial fragility across the focus groups included having many outstanding loans on education, houses, cars, and credit cards; having low disposable incomes; receiving inadequate information from lenders in financial markets; and lacking financial education at school or at home. Many participants were receptive to the idea of receiving financial education if it were tailored to their situations, and expressed the desire to discuss finances with their children. They also talked about bearing the brunt of the lack of discussion on financial topics in schools and homes. However, when asked if they turn to advisors or any other source of financial advice, most rejected the idea, citing high costs and the absence of tailored advice. Some participants also admitted to feeling a sense of shame in seeking personal financial advice. A small number of respondents mentioned using budgeting apps or financial advice podcasts, but only to a limited extent and they represented a small subset of the interviewed groups. Thus, in their own way, focus group participants reaffirm the observation that financial fragility is not only a problem of too few assets, but also high indebtedness, financial distress, and lack of financial literacy.

Financial fragility can be felt beyond the short term. For instance, several respondents reported experiencing long-term effects of an income drop or major expenditure incurred many years prior. Furthermore, interviewees reported facing a feedback loop, where one big expenditure shock spills over into other areas—such as a car accident leading to the loss of a car, which leads to job loss, higher health expenses, inability to pay rent, and higher interest rates on future loans. Thus, the inability to build up buffer savings makes people ill equipped to cope with emergency expenses; and if they do face a situation in which they must pay more than they can afford, the effects are felt for a long time—perpetuating their financial vulnerability. The problem of financial fragility or the inability to cope with emergency expenditures coincides with a larger problem of vulnerability, with several respondents reporting other detrimental factors such as poor health, large families with many dependents, and abusive relationships. These factors can go a long way in explaining the underlying reasons for financial fragility, even in middle-income households, if their capacity to absorb financial emergencies is too low.

6. Retirement Planning

Focus group observations reveal that the implications of financial fragility stretch into the future. A low level of emergency savings not only makes individuals vulnerable to short-term financial distress if they face a sudden income or expenditure shock, but the consequences of such episodes can affect personal finances for several years. This feature of financial fragility is explored further in our analysis of individuals' retirement planning behavior. Table 9 reports results of an OLS regression on individuals' retirement planning using the same demographic and other controls as earlier models, but including financial fragility as an additional independent variable. We use data from the NFCS, where respondents are asked if they have ever tried to calculate how much they need to save for retirement or if they tried to calculate the amount before they retired. Those who responded "yes" are categorized as having planned for retirement. Thus, the dependent variable in the model depicted in Table 9 takes the value of 1 for those who plan for retirement and 0 for those who report that they did not/do not plan. Those who refuse to answer or respond "do not know" are excluded from the regression analysis, as we cannot draw an inference about their planning behavior without additional information.

[Insert Table 9]

The effects of most factors included are highly statistically significant in explaining retirement planning behavior. Most importantly, being financially fragile lowers the likelihood of retirement planning by almost 18 percentage points. The long-term implications of financial fragility become evident in this analysis. We see that financially fragile people not only face financial difficulties in the short and medium term but are also more prone to long-term financial insecurity. As expected, we see that the oldest group (ages 55–60) is most likely to plan for retirement relative to the youngest cohort (ages 25–29). However, there is a drop in the likelihood of planning for retirement between those who belong in the 35–39 age group and individuals who are 45 to 49 years old. While those in the middle-age group are about 3 percentage points less likely to plan for retirement than the youngest cohort, the oldest cohort is approximately 3 percentage points more likely to plan. Once again, we see vulnerability among women, who are almost 3 percentage points less likely to plan for retirement compared to men. African Americans are 4 percentage points more likely to plan for retirement compared to the white population. With regard to education, we see a stark difference between those who attend college but do not receive a degree and those who graduate with a Bachelor's degree, the

former being 6 percentage points more likely and the latter being more than 11 percentage points more likely to plan for retirement, compared to those whose educational attainment is high school or less.

There is a highly significant effect of marital status and the number of children, with the likelihood of planning for retirement rising with both marriage and the number of financially dependent children. An interesting finding emerges while analyzing household income, with the lower-middle-income category ($35–50K) being the least likely to plan for retirement, closely followed by the lower-income group ($25–35K). The likelihood of planning for retirement rises thereafter with increasing income. Those in the highest income brackets (>$100K) are almost 30% more likely to plan for retirement compared to those in the lowest income bracket (<$15K). These results are in line with our earlier observation that middle-income groups are not substantially different in their experience with financial fragility and vulnerability compared to lower-income groups. Interestingly, we see a significantly positive effect of an income shock or outstanding medical bills—both proxies for financial distress—making respondents more likely to report that they plan/planned for retirement. For those who experience an income shock, the probability of planning for retirement rises by almost 13 percentage points. Finally, the effect of financial literacy is highly significant, with those who correctly answer all three financial literacy questions being 10 percentage points more likely to plan for retirement. This reinforces the importance of financial literacy as a separate and independent component of education.

7. Conclusions and Implications

Almost a decade after the Great Recession started, Americans continue to experience high levels of financial fragility. This study shows that even during a time of higher economic stability, 36% of Americans cannot come up with $2,000 within a month to cover an emergency expense. Fragility is, thus, highly prevalent even in good economic times. Moreover, financial fragility is highly pervasive in the broad working-age population. People in all age groups are comparably likely to be financially fragile and even though the likelihood decreases with increasing income, it is still relatively high among high-income workers. Specifically, we find that according to the 2015 National Financial Capability Study (NFCS), almost 30% of households in the median income category ($50–75K) are financially fragile, and so are 20% of households in the next income band up to $100,000. Given that the U.S. economy has been slowly recovering from the Great Recession, this prevalence of weak personal finances and financial fragility is concerning.

This paper explores financial fragility among the U.S. population by examining the confidence in coping with a $2,000 emergency expense within a month. We use two nationally representative surveys, the 2015 NFCS and the 2015 Survey of Household Economics and Decisionmaking (SHED), and we complement these surveys with focus groups. Our sample is restricted to the ages 25 – 60 years so that we can focus on the fragility among the working age population.

The measure of financial fragility we use is multifaceted. First, it measures the confidence to come up with a fixed amount of money in case of a shock. Second, it refers to an amount, $2,000, which is meant to approximate what is normally needed to cover a mid-size expense, such as a car or home repair, or out of pocket health expenses. Third, it refers to coming up with $2,000 in a month, which provides a relatively large timeframe for respondents to access resources (compared to immediate accessibility). Each of these

features presents an advantage over other measures of financial resilience. By incorporating individuals' assessment of their perceived capacity to come up with a specific amount, we are able to observe a variety of coping mechanisms, beyond having savings, which include relying on a network of family and friends, mainstream or alternative credit services, and selling possessions. The 30-day timeframe also takes into consideration other payment obligations or expense sources that people have to consider when making financial decisions. These considerations enable a wider discussion about who is financially fragile and the characteristics of fragile people. We are able to characterize the problem of financial fragility as relating not just to a lack of assets but also to high indebtedness and financial illiteracy.

In our empirical analysis, we explore the variables that make specific population subgroups more financially fragile than others; the major influencing factors associated with fragility; and the long-term implications of financial fragility. We find that, while financial fragility is still pervasive among the working population, the middle age cohort (ages 40-49), lower-income individuals, women, and people with lower educational attainment are particularly financially vulnerable.

We also find that financial fragility is both an indication of lack of assets and high levels of debt. The empirical findings complemented by the focus group discussions show that the asset and debt side of a household's balance sheet are both affecting the likelihood of not being able to come up with the $2,000 in 30 days. Hence, there is scope for policy intervention in this regard, for example to incentivize households to build up short-term precautionary savings, and draw down their debt levels with better financial planning. According to the focus groups, the prevalent ways to cope with short-term emergency expenses were either working longer and taking on more jobs or borrowing from their network. Many felt that it was easier to work more and get additional income or borrow within their network if they faced an unexpected expenditure than to budget for rainy day savings. These results point to the need for programs and initiatives that promote precautionary savings. Over the years, saving for the long term has been promoted in many forms, such as tax incentives for house purchases or for contributions to retirement plans. Institutionalizing saving for the short term could be another way to incentivize people to hold precautionary savings.

In our analysis, we also study the long-term implications of financial fragility. Specifically, we examine the effects of financial fragility on retirement planning results. This is an important measure of household financial capability and is linked to retirement wealth as well. We find that financially fragile people are less likely to plan for their retirement; thus, financial fragility in the short term may contribute to financial insecurity in the long term. Future research can explore a more holistic indicator of retirement planning that encompasses not only whether people figure out how much to save for the future but also how they go about achieving that goal.

Moreover, we see a strong link between financial fragility and educational attainment. Those without a Bachelor's degree are much more fragile than those with a college degree. It is important to note that the effect of education is observed even after controlling for income in our regression analyses, implying that there are components of education that can affect financial fragility beyond the effect on income. Furthermore, financial literacy significantly reduces the likelihood of being financially fragile and this effect holds even after controlling for education. Thus, financial literacy affects financial fragility above and beyond the effects of education. While the data show several sources of vulnerability for households, which can be difficult to address with a single plan of action, the effect of financial literacy should be noted. It is not just

resources, such as income and expenses, that matter but also the capacity to manage those resources can be important to make sure that American families are sound and resilient.

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Table 1: NFCS descriptive results

	Non-fragile	Fragile	Don't Know/Refuse to Answer
Total	60.21	35.7	4.09
Age			
25–29	56.16	39.82	4.03
30–34	61.62	34.97	3.4
35–39	61.34	33.54	5.12
40–44	59.71	36.56	3.73
45–49	57.87	37.1	5.02
50–54	63.31	32.98	3.7
55–60	60.84	35.45	3.71
Household income			
<$15K	19.91	72.21	7.88
$15–25K	34.26	59.9	5.84
$25–35K	40.98	53.29	5.74
$35–50K	52.89	42.87	4.24
$50–75K	68.75	27.61	3.64
$75–100K	78.52	19.2	2.29
$100-150K	89.29	8.74	1.97
$150K+	92.71	5.89	1.39
Highest degree obtained			
High School Or Less	46.13	47.96	5.91
Some College, No Degree	56.96	39.19	3.85

Bachelor's Degree	74	23.01	2.99
Post-grad Degree	81.98	15.47	2.55
Gender			
Male	66.69	29.43	3.88
Female	53.91	41.8	4.29
Race/Ethnicity			
White Non-Hispanic	62.6	33.94	3.46
African American, Non-Hispanic	45.9	47.41	6.69
Hispanic	59.13	36.96	3.91
Asian, Non-Hispanic	70.47	23.72	5.82
Other, Non-Hispanic	52.04	43.15	4.81
Marital status			
Not married	49.81	45.38	4.82
Married	68.2	28.27	3.53
Financially dependent children			
0	57.35	37.98	4.67
1	62.63	33.87	3.49
2	65.73	31.09	3.18
3	61.01	35.23	3.76
4 Or More	55.69	39.46	4.85
Not employed	38.96	54.38	6.66
Employed	68.7	28.24	3.06

Total observations = 16,793

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: “How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?” People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans.

Table 2: NFCS full regressions

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	Model 1	Model 2	Model 3
Age (*omitted category: Age 25-29):*			
Age 30–34	0.024	0.026*	0.022
	(0.015)	(0.015)	(0.015)
Age 35–39	0.030**	0.034**	0.033**
	(0.015)	(0.015)	(0.015)
Age 40–44	0.059***	0.067***	0.068***
	(0.016)	(0.016)	(0.016)
Age 45–49	0.058***	0.068***	0.068***
	(0.016)	(0.016)	(0.016)
Age 50–54	0.011	0.022	0.025
	(0.015)	(0.015)	(0.015)
Age 55–60	-0.008	0.003	0.008
	(0.016)	(0.016)	(0.015)
Sex:			
Female	0.064***	0.056***	0.053***
	(0.008)	(0.008)	(0.008)
Race or ethnicity (omitted category: White):			
African American, non-Hispanic	0.059***	0.051***	0.041***
	(0.013)	(0.013)	(0.013)
Hispanic	0.011	0.006	0.008
	(0.013)	(0.013)	(0.012)
Asian, non-Hispanic	-0.034*	-0.037**	-0.031*
	(0.018)	(0.018)	(0.018)
Other, non-Hispanic	0.030	0.030	0.027
	(0.021)	(0.021)	(0.020)
Education (omitted category: High school or less):			
Some college, no degree	-0.032***	-0.024**	-0.025**
	(0.011)	(0.011)	(0.011)
Bachelor's degree	-0.094***	-0.079***	-0.071***
	(0.012)	(0.012)	(0.012)
Post-grad degree	-0.099***	-0.080***	-0.073***
	(0.013)	(0.013)	(0.013)
Household characteristics:			
Married	-0.012	-0.012	-0.021**
	(0.010)	(0.010)	(0.010)
Financially dependent children	0.014***	0.013***	0.003

	(0.004)	(0.004)	(0.004)
Income (omitted category: less than $15K):			
Income $15–25K	-0.120***	-0.118***	-0.127***
	(0.019)	(0.019)	(0.019)
Income $25–35K	-0.181***	-0.179***	-0.179***
	(0.020)	(0.020)	(0.020)
Income $35–50K	-0.289***	-0.284***	-0.270***
	(0.018)	(0.018)	(0.018)
Income $50–75K	-0.430***	-0.424***	-0.403***
	(0.017)	(0.017)	(0.018)
Income $75–100K	-0.504***	-0.497***	-0.470***
	(0.019)	(0.019)	(0.019)
Income $100–150K	-0.595***	-0.580***	-0.537***
	(0.018)	(0.018)	(0.018)
Income $150K+	-0.612***	-0.595***	-0.542***
	(0.019)	(0.019)	(0.020)
Employment status:			
Employed full time, part time or self employed	-0.088***	-0.088***	-0.080***
	(0.011)	(0.011)	(0.011)
Financial literacy:			
First three questions correct (interest, inflation, risk)		-0.063***	-0.041***
		(0.009)	(0.009)
Income shock			0.085***
			(0.010)
Outstanding medical bills			0.159***
			(0.010)
Constant	0.762***	0.767***	0.683***
	(0.019)	(0.019)	(0.019)
Observations	16,174	16,174	16,174
R-squared	0.247	0.250	0.280

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. All respondents who chose "do not know" or "refuse to answer" have been excluded as there is not sufficient information to determine whether they are financially fragile. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and

retirement plans. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the respondent reported the household did not experience a large drop in income, the respondent did not answer, or answered “I don’t know.” Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3: SHED replication of NFCS regression

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	Unable to cope with $400 immediately
Age (*omitted category: Age 25-29):*	
Age 30–34	0.001
	(0.039)
Age 35–39	-0.023
	(0.040)
Age 40–44	0.039
	(0.041)
Age 45–49	-0.048
	(0.039)
Age 50–54	-0.068*
	(0.038)
Age 55–60	-0.092***
	(0.036)
Sex:	
Female	0.022
	(0.021)
Race or ethnicity (omitted category: White)	
African American, non-Hispanic	0.115***
	(0.037)
Hispanic	0.085**
	(0.034)
Other, non-Hispanic	-0.006
	(0.036)
Education (omitted category: High school or less):	
Some college, no degree	-0.065**
	(0.028)
Bachelor's degree	-0.186***
	(0.031)
Post-grad degree	-0.219***
	(0.035)
Household Characteristics:	
Married	-0.064**

	(0.025)
Financially dependent children	0.013
	(0.011)
Income (omitted category: less than $15K):	
Income $15–25K	-0.068*
	(0.039)
Income $25–35K	-0.153***
	(0.039)
Income $35–50K	-0.181***
	(0.043)
Income $50–75K	-0.267***
	(0.040)
Income $75–100K	-0.338***
	(0.044)
Income $100–150K	-0.415***
	(0.041)
Income $150K+	-0.422***
	(0.048)
Employment status:	
Employed full time, part time or self employed	-0.105***
	(0.027)
Shock faced in past year	0.157***
	(0.028)
Outstanding medical bills	0.187***
	(0.044)
Constant	0.764***
	(0.051)
Observations	2,728
R-squared	0.306

Note: All data are from the 2015 SHED dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile or unable to cope with $400 immediately if they reported that they either could not cover an emergency expense costing $400, or would cover it by selling something, borrowing from the bank or from family/friends, taking on credit card debt that would pay off eventually, or using alternative financial services. All respondents who refuse to answer are excluded from the sample as no reliable inference can be drawn about their mechanism to cope. *Income* denotes the total income received in the previous 12 months by the respondent and their partner before taxes and deductions, from all sources such as wages, freelance work, interests/dividends/rental income, social security/supplemental social security, unemployment or pension income. Employment covers all respondents who are either working as paid employees or are self-employed. *Shock faced* is a dummy variable that takes

on value 1 if the respondent reports that they experienced any financial hardship in the past 12 months such as a job loss, drop in income, health emergency, divorce or loss of home. *Outstanding medical bills* represents any unpaid balance or debt owed for an unexpected major medical bill in the past 12 months. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: SHED descriptive analysis: Factors of financial distress

	Not Fragile	Fragile
Total	59	41
Credit Card Use		
No Credit Card	23.78	76.22
At Least One Credit Card	69.53	30.47
Credit Denied		
No	63.27	36.73
Yes	24.12	75.88
Credit Restricted		
No	61.27	38.73
Yes	29.77	70.23
Credit Given		
No	52.34	47.66
Yes	76.86	23.14
Asset Levels		
Home		
No	41.19	58.81
Yes	69.68	30.32
Car		
No	30.73	69.27
Yes	66.79	33.21
Retirement Saving		
No Saving for Retirement	21.25	78.75
Some Saving for Retirement	74.09	25.91
Insurance Cover		
No insurance cover	9.35	90.65
Some insurance cover	62.38	37.62
Indebtedness		

Home Loan		
No	48.13	51.87
Yes	69.95	30.05
Auto Loan		
No	68.79	31.21
Yes	64.69	35.31
Edu Loan		
No	61.14	38.86
Yes	50.07	49.93

Total observations = 2,728

Note: All data are from the 2015 SHED dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile or unable to cope with $400 immediately if they reported that they either could not cover an emergency expense costing $400, or would cover it by selling something, borrowing from the bank or from family/friends, taking on credit card debt that would pay off eventually, or using alternative financial services. Credit denied is a dummy variable taking on value 1 if the respondent reported that they or their spouse were turned down for credit in the past 12 months. Credit restricted is a dummy variable taking on value 1 if the respondent or their spouse were approved for credit but given less than they applied for; and credit given is a dummy variable taking on value 1 if the respondent reported that they were neither denied nor given limited credit. *Home* is a dummy variable taking on value 1 if the respondent reports owning a home with or without a mortgage loan. *Car* is a dummy variable taking on value 1 if the respondent report owning a car/truck or owning one car/truck and leasing another; *savings* denotes percentage of total gross income set aside by the respondent and their partner. *Retirement saving* is a dummy variable taking on value 1 if the respondent reports having any form of retirement saving such as a DC or DB plan through an employer, IRA, saving outside retirement account, ownership of real estate or land, business ownership, or others. *Insurance cover* is a dummy variable taking on value 1 if the respondent is covered by any health/auto/renters/life insurance.

Table 5: NFCS regressions by age

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	Age 25–39 fragile	Age 40–49 fragile	Age 50–60 fragile
Sex:			
Female	0.057***	0.042***	0.052***
	(0.013)	(0.016)	(0.014)
Race or ethnicity (omitted category: White)			
African American, non-Hispanic	0.027	0.030	0.062***
	(0.021)	(0.027)	(0.022)
Hispanic	-0.005	0.003	0.029
	(0.017)	(0.024)	(0.027)
Asian, non-Hispanic	-0.028	-0.026	-0.071**
	(0.025)	(0.036)	(0.036)
Other, non-Hispanic	-0.026	-0.005	0.148***
	(0.031)	(0.034)	(0.040)
Education (omitted category: High school or less):			
Some college, no degree	-0.012	-0.034*	-0.039**
	(0.018)	(0.021)	(0.017)
Bachelor's degree	-0.075***	-0.077***	-0.068***
	(0.020)	(0.023)	(0.020)
Post-grad degree	-0.101***	-0.044*	-0.054***
	(0.021)	(0.026)	(0.021)
Income (omitted category: less than $15K):			
Income $15–25K	-0.154***	-0.0861**	-0.124***
	(0.0297)	(0.0370)	(0.0317)
Income $25–35K	-0.201***	-0.129***	-0.186***
	(0.029)	(0.039)	(0.040)
Income $35–50K	-0.265***	-0.225***	-0.331***
	(0.028)	(0.037)	(0.033)
Income $50–75K	-0.370***	-0.410***	-0.452***
	(0.027)	(0.035)	(0.032)
Income $75–100K	-0.433***	-0.487***	-0.506***
	(0.029)	(0.037)	(0.034)
Income $100–150K	-0.513***	-0.530***	-0.571***
	(0.028)	(0.036)	(0.032)
Income $150K+	-0.495***	-0.569***	-0.570***
	(0.033)	(0.038)	(0.034)
Household characteristics:			

Married	-0.054***	-0.009	0.023
	(0.015)	(0.019)	(0.016)
Financially dependent children	0.003	0.016**	0.005
	(0.006)	(0.007)	(0.007)
Employment status:			
Employed full time, part time or self employed	-0.100***	-0.101***	-0.021
	(0.017)	(0.021)	(0.018)
Income shock	0.075***	0.079***	0.107***
	(0.015)	(0.020)	(0.018)
Outstanding medical bills	0.113***	0.176***	0.229***
	(0.016)	(0.020)	(0.019)
Financial literacy:			
First three questions correct (interest, inflation, risk)	-0.028**	-0.051***	-0.052***
	(0.014)	(0.017)	(0.015)
Constant	0.738***	0.744***	0.646***
	(0.026)	(0.03)	(0.028)
Observations	7,219	4,083	4,872
R-squared	0.224	0.328	0.344

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. All respondents who chose "do not know" or "refuse to answer" have been excluded as there is not sufficient information to determine whether they are financially fragile. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the respondent reported the household did not experience a large drop in income, the respondent did not answer, or answered "I don't know." Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: NFCS regressions by income

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	Income <$35K fragile	Income $35–75K fragile	Income >$75K Fragile
Age (omitted category: Age 25–29):			
Age 30–34	0.044	0.018	-0.044*
	(0.030)	(0.025)	(0.026)
Age 35–39	0.055*	0.025	-0.038
	(0.029)	(0.026)	(0.026)
Age 40–44	0.094***	0.082***	-0.017
	(0.030)	(0.027)	(0.026)
Age 45–49	0.127***	0.036	-0.014
	(0.029)	(0.027)	(0.026)
Age 50–54	0.044	-0.001	-0.044*
	(0.028)	(0.026)	(0.025)
Age 55–60	0.045	-0.021	-0.054**
	(0.028)	(0.026)	(0.026)
Sex:			
Female	0.078***	0.071***	0.027**
	(0.017)	(0.015)	(0.011)
Race or ethnicity (omitted category: White)			
African American, non-Hispanic	0.036*	0.053**	0.053**
	(0.021)	(0.024)	(0.024)
Hispanic	-0.007	0.027	0.008
	(0.025)	(0.022)	(0.017)
Asian, non-Hispanic	-0.115**	-0.036	0.016
	(0.051)	(0.030)	(0.022)
Other, non-Hispanic	0.035	0.014	0.041
	(0.035)	(0.038)	(0.033)
Education (omitted category: High school or less):			
Some college, no degree	-0.020	-0.020	-0.054***
	(0.018)	(0.019)	(0.020)
Bachelor's degree	-0.103***	-0.089***	-0.081***
	(0.027)	(0.021)	(0.020)
Post-grad degree	-0.135***	-0.110***	-0.094***
	(0.043)	(0.026)	(0.020)
Household characteristics:			

Married	-0.035*	-0.057***	-0.020
	(0.019)	(0.016)	(0.014)
Financially dependent children	-0.016*	0.006	0.005
	(0.008)	(0.007)	(0.005)
Employment status:			
Employed full time, part time or self employed	-0.138***	-0.094***	-0.031*
	(0.016)	(0.018)	(0.019)
Income shock	0.065***	0.123***	0.074***
	(0.017)	(0.018)	(0.018)
Outstanding medical bills	0.116***	0.206***	0.136***
	(0.017)	(0.018)	(0.020)
Financial literacy:			
First three questions correct (interest, inflation, risk)	-0.073***	-0.055***	-0.028***
	(0.022)	(0.016)	(0.010)
Constant	0.630***	0.349***	0.217***
	(0.028)	(0.032)	(0.036)
Observations	4,496	5,897	5,781
R-squared	0.089	0.111	0.084

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. All respondents who chose "do not know" or "refuse to answer" have been excluded as there is not sufficient information to determine whether they are financially fragile. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the respondent reported the household did not experience a large drop in income, the respondent did not answer, or answered "I don't know." Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: NFCS regressions by gender

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	Female fragile	Male fragile
Age (*omitted category: Age 25–29):*		
Age 30–34	0.034*	0.008
	(0.020)	(0.023)
Age 35–39	0.038*	0.028
	(0.020)	(0.023)
Age 40–44	0.098***	0.034
	(0.021)	(0.024)
Age 45–49	0.067***	0.062***
	(0.021)	(0.023)
Age 50–54	0.035*	0.005
	(0.021)	(0.022)
Age 55–60	0.023	-0.011
	(0.020)	(0.023)
Race or ethnicity (omitted category: White)		
African American, non-Hispanic	0.020	0.065***
	(0.017)	(0.020)
Hispanic	0.008	0.010
	(0.018)	(0.017)
Asian, non-Hispanic	-0.037	-0.017
	(0.025)	(0.027)
Other, non-Hispanic	0.050**	-0.014
	(0.025)	(0.033)
Education (omitted category: High school or less):		
Some college, no degree	-0.028**	-0.025
	(0.014)	(0.016)
Bachelor's degree	-0.072***	-0.070***
	(0.016)	(0.018)
Post-grad degree	-0.065***	-0.086***
	(0.020)	(0.018)
Income (omitted category: less than $15K):		
Income $15–25K	-0.064***	-0.201***
	(0.023)	(0.031)
Income $25–35K	-0.111***	-0.260***
	(0.025)	(0.032)
Income $35–50K	-0.223***	-0.320***

	(0.023)	(0.030)
Income $50–75K	-0.355***	-0.452***
	(0.023)	(0.028)
Income $75–100K	-0.424***	-0.513***
	(0.025)	(0.029)
Income $100–150K	-0.517***	-0.568***
	(0.024)	(0.028)
Income $150K+	-0.540***	-0.567***
	(0.026)	(0.030)
Household Characteristics:		
Married	-0.049***	0.013
	(0.013)	(0.014)
Financially dependent children	0.000	0.003
	(0.005)	(0.006)
Employment status:		
Employed full time, part time or self employed	-0.078***	-0.094***
	(0.012)	(0.021)
Income shock	0.087***	0.088***
	(0.013)	(0.016)
Outstanding medical bills	0.193***	0.111***
	(0.013)	(0.017)
Financial literacy:		
First three questions correct (interest, inflation, risk)	-0.070***	-0.023*
	(0.012)	(0.012)
Constant	0.704***	0.735***
	(0.025)	(0.028)
Observations	8,960	7,214
R-squared	0.284	0.258

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. All respondents who chose "do not know" or "refuse to answer" have been excluded as there is not sufficient information to determine whether they are financially fragile. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the respondent reported the household did not experience a large drop in income, the respondent did not

answer, or answered “I don’t know.” Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: NFCS regressions by educational attainment

Dependent variable: Financial fragility (dummy = 1 for financially fragile respondents)	High school or less fragile	Some college, no degree fragile	Bachelor's degree fragile	Post-graduate degree Fragile
Age (*omitted category: Age 25–29):*				
Age 30–34	0.043	0.012	0.008	0.032
	(0.037)	(0.026)	(0.025)	(0.030)
Age 35–39	0.064*	0.029	-0.015	0.053*
	(0.035)	(0.026)	(0.025)	(0.030)
Age 40–44	0.124***	0.054**	0.010	0.070**
	(0.036)	(0.026)	(0.027)	(0.031)
Age 45–49	0.093***	0.058**	0.022	0.123***
	(0.034)	(0.026)	(0.027)	(0.036)
Age 50–54	0.061*	0.019	-0.030	0.040
	(0.033)	(0.025)	(0.026)	(0.029)
Age 55–60	0.038	-0.014	-0.009	0.068**
	(0.034)	(0.025)	(0.028)	(0.032)
Sex:				
Female	0.058***	0.053***	0.042***	0.055***
	(0.019)	(0.014)	(0.015)	(0.017)
Race or ethnicity (omitted category: White)				
African American, non-Hispanic	-0.009	0.039*	0.099***	0.107***
	(0.027)	(0.021)	(0.026)	(0.037)
Hispanic	-0.007	0.004	0.016	0.059**
	(0.027)	(0.020)	(0.022)	(0.027)
Asian, non-Hispanic	-0.092	0.032	-0.077***	0.014
	(0.075)	(0.041)	(0.023)	(0.024)
Other, non-Hispanic	-0.001	0.051	-0.008	0.054
	(0.045)	(0.033)	(0.033)	(0.046)
Income (omitted category: less than $15K):				
Income $15–25K	-0.110***	-0.128***	-0.185***	-0.123
	(0.030)	(0.028)	(0.056)	(0.103)
Income $25–35K	-0.152***	-0.194***	-0.193***	-0.205**
	(0.033)	(0.029)	(0.051)	(0.095)
Income $35–50K	-0.271***	-0.274***	-0.283***	-0.224***
	(0.033)	(0.027)	(0.047)	(0.083)

Income $50–75K	-0.373***	-0.404***	-0.422***	-0.451***
	(0.032)	(0.027)	(0.045)	(0.075)
Income $75–100K	-0.444***	-0.489***	-0.469***	-0.477***
	(0.039)	(0.029)	(0.046)	(0.077)
Income $100–150K	-0.519***	-0.556***	-0.540***	-0.536***
	(0.041)	(0.028)	(0.045)	(0.076)
Income $150K+	-0.588***	-0.574***	-0.511***	-0.563***
	(0.048)	(0.031)	(0.048)	(0.076)
Household Characteristics:				
Married	-0.025	-0.030*	-0.010	0.007
	(0.021)	(0.016)	(0.018)	(0.019)
Financially dependent children	0.006	0.002	0.002	0.012
	(0.008)	(0.006)	(0.008)	(0.008)
Employment status:				
Employed full time, part time or self employed	-0.104***	-0.072***	-0.062***	-0.002
	(0.020)	(0.016)	(0.022)	(0.036)
Income shock	0.080***	0.097***	0.089***	0.048*
	(0.020)	(0.016)	(0.022)	(0.025)
Outstanding medical bills	0.143***	0.184***	0.142***	0.081***
	(0.020)	(0.015)	(0.024)	(0.029)
Financial literacy:				
First three questions correct (interest, inflation, risk)	-0.069***	-0.044***	-0.025*	-0.025
	(0.023)	(0.014)	(0.015)	(0.017)
Constant	0.667***	0.667***	0.633***	0.493***
	(0.034)	(0.029)	(0.046)	(0.077)
Observations	3,541	6,109	4,179	2,345
R-squared	0.234	0.261	0.206	0.190

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are classified as financially fragile if they reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up with $2,000. All respondents who chose "do not know" or "refuse to answer" have been excluded as there is not sufficient information to determine whether they are financially fragile. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the

respondent reported the household did not experience a large drop in income, the respondent did not answer, or answered “I don’t know.” Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 9: NFCS Retirement planning

Dependent variable: Retirement planning (dummy = 1 for those who think about how much to save before retiring)	Retirement planning
Fragile	-0.175***
	(0.011)
Age (omitted category: Age 25–29):	
Age 30–34	-0.014
	(0.016)
Age 35–39	-0.026*
	(0.016)
Age 40–44	-0.020
	(0.017)
Age 45–49	-0.031*
	(0.016)
Age 50–54	0.022
	(0.016)
Age 55–60	0.034**
	(0.016)
Female	-0.028***
	(0.009)
Race or Ethnicity (omitted category: White):	
African American, non-Hispanic	0.040***
	(0.013)
Hispanic	-0.015
	(0.013)
Asian, non-Hispanic	-0.025
	(0.020)
Other, non-Hispanic	0.003
	(0.023)
Education (omitted category: High school or less):	
Some college, no degree	0.063***
	(0.011)
Bachelor's degree	0.111***
	(0.013)
Post-grad degree	0.104***
	(0.016)

Household characteristics:	
Married	0.034***
	(0.010)
Financially dependent children	0.012***
	(0.004)
Income (omitted category: <$15K):	
Income $15–25K	0.017
	(0.016)
Income $25–35K	0.093***
	(0.018)
Income $35–50K	0.085***
	(0.017)
Income $50–75K	0.139***
	(0.017)
Income $75–100K	0.206***
	(0.019)
Income $100–150K	0.276***
	(0.020)
Income $150K+	0.287***
	(0.024)
Employment status:	
Employed full time, part time or self employed	0.074***
	(0.010)
Financial literacy:	
First three questions correct (interest, inflation, risk)	0.102***
	(0.010)
Income shock	0.125***
	(0.010)
Unpaid medical bills	0.020*
	(0.010)
Constant	0.170***
	(0.019)
Observations	16,107
R-squared	0.181

Note: All data are from the 2015 NFCS dataset. Sample restricted to non-retired individuals age 25-60; all estimates are weighted. People are said to plan for retirement if they report that they tried to figure out how much they need to save for retirement. Fragile is a dummy variable taking value 1 if people reported that they certainly or probably could not come up with $2,000, in response to the following question: "How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?" People are classified as not financially fragile is they reported that they certainly or probably could come up

with $2,000. All respondents who chose “do not know” or “refuse to answer” have been excluded as there is not sufficient information to determine whether they are financially fragile. Income represents household annual income from all sources, such as wages, tips, investment income, public assistance, and retirement plans. Married is a dummy variable taking value 1 if the respondent is married, but not divorced, separated or widowed, and 0 otherwise. Income shock is a dummy variable taking value 1 if the respondent reported the household experienced a large drop in income in the previous 12 months, which they did not expect; and 0 if the respondent reported the household did not experience a large drop in income, the respondent did not answer, or answered “I don’t know.” Outstanding medical bills is a dummy variable taking value 1 if the respondent has any unpaid medical bills that are past due, and 0 otherwise. Financial literacy is a dummy variable taking value 1 if the respondent answered correctly the questions on interest rate, inflation and risk diversification. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix

I. Text for financial literacy questions as asked in 2015 NFCS

1.Simple interest rate -
Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- More than $102
- Exactly $102
- Less than $102
- Don't know
- Prefer not to say

2.Inflation -
Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- More than today
- Exactly the same
- Less than today
- Don't know
- Prefer not to say

3.Risk diversification -
Buying a single company's stock usually provides a safer return than a stock mutual fund.

- True
- False
- Don't know
- Prefer not to say

II. Table 1: Factor loadings from NFCS

Variables	Factor1	Factor2	Uniqueness
Financial Fragility	0.7385	0.4007	0.2940
No precautionary savings	0.6542	0.4512	0.3684
No bank account	0.7584	0.0366	0.4235
No credit card	0.7883	0.0702	0.3736
Not owning a home	0.5489	0.1757	0.6679

No health insurance	0.4931	0.0555	0.7537
No retirement plan	0.5633	0.0326	0.6816
Use of high-cost borrowing	0.2823	0.4758	0.6939
Having too much debt	0.1449	0.7517	0.4139
Having student loans	0.0545	0.5513	0.6931
Unpaid bills	0.2821	0.6191	0.5371

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