Assessing the Short-Term Stability of Financial Well-Being in Low- and Moderate-Income Households

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Abstract

Much of the literature on household finances tends to focus on discrete or relatively objective measures like savings, debt, economic mobility, and there has been a lack of research on holistic measures of financial well-being. This gap is due in part to the absence of a common understanding of how to define and measure financial well-being; a gap that was recently addressed by the Consumer Financial Protection Bureau's development of a financial well-being scale. However, the research on this scale is still scarce and little is known about how financial well-being evolves over time. To that end, this paper uses a two-wave survey of low- and moderate-income tax filers to present the first longitudinal analysis of the CFPB's financial well-being scale. Using a combination of descriptive analysis, OLS regression, and fixed effects panel regression, we assess (1) the stability of financial well-being over a six-month period; (2) the extent to which household characteristics predict volatility in financial well-being; and (3) the relationship between the experience of adverse financial events, including financial shocks and material hardships, and financial well-being. We find that financial well-being scores are extremely stable over the short-term, and that household characteristics are generally not strong predictors of financial well-being changes. We also find that, while adverse financial events like the loss of a job are significantly associated with declines in financial well-being, these changes are not large. These findings have implications for researchers and practitioners interested in using the financial well-being scale in program and policy evaluations.

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INTRODUCTION

The research literature on the financial conditions of U.S. households often focuses on an array of different measures to understand these conditions, their short- and long-term trends, and the impacts of programs meant to improve them. The most common approach to understanding household financial conditions is to rely on relatively objective financial indicators. For example, overall economic mobility may be measured in terms of a child's earnings relative to their parents (Chetty et al., 2017), financial constraints may be measured in terms of the percent of a household's income consumed by necessary expenditures (Schanzenbach, Nunn, Bauer, & Mumford, 2016), and a household's ability to withstand an emergency may be measured by their liquid savings (Collins & Gjertson, 2013) or their ability to come up with enough money to offset a modest unexpected expense (Board of Governors of the Federal Reserve System, 2017). Evaluations of programs and policies aimed at improving households' finances similarly tend to rely on objective measures such as credit scores and debt levels (e.g., Roll & Moulton, 2019), housing stability (e.g., Gallagher, Gopalan, & Grinstein-Weiss, 2019), and savings and money management behaviors (e.g., Theodos, Stacy, & Daniels, 2018).

Another approach to understanding household financial security is to examine financial literacy or financial capability measures. Financial literacy is an individual's ability to process economic information and make an informed financial decision as a result (Lusardi & Mitchell, 2014). Household financial literacy is often correlated with better economic outcomes for these households (Lusardi & Mitchell, 2007), even as a causal link between financial literacy and improved behaviors and outcomes remains unestablished (Fernandes, Lynch, & Netemeyer, 2014; Miller, Reichelstein, Salas, & Zia, 2015). There is also limited work on the relationship between finances and the psychological well-being of households, which focuses on topics such as the primacy of finances as a source of stress in U.S. households (e.g., Anderson et al., 2015), the degree to which households worry about their ability to manage a financial shock (e.g., Abbi, 2012), the level of financial anxiety in different populations (Roll, Taylor, & Grinstein-Weiss, 2016; Shapiro & Burchell, 2012), and the role that an individual's financial situation plays in their ability to plan and make financial decisions (e.g., Mullainathan & Shafir, 2013).

Each of these approaches can offer valuable insights into different aspects of a household's financial circumstances and realities, yet there has to-date been relatively little work assessing how households perceive their own financial conditions holistically. Research on this front has been historically limited by the absence of a common understanding of how to define, operationalize, and measure an individual's or household's overall sense of their financial conditions. However, in 2015 the Consumer Financial Protection Bureau (CFPB) took a significant step toward addressing this gap by developing a comprehensive definition of financial well-being in U.S. households. Drawing on in-depth interviews with individuals, financial capability practitioners, and field experts, the CFPB defined financial well-being in terms of a household's control over their day-to-day and month-to-month finances, their capacity to absorb a financial shock, their feeling of being on track to meet their financial goals, and having enough financial freedom to make choices that enhance their lives (CFPB, 2015).

To facilitate the measurement of the construct of financial well-being, the CFPB also developed a financial well-being scale (CFPB, 2015). This scale is becoming increasingly common in both research and practice, and the extant work on financial well-being demonstrates a positive correlation between this subjective measure of financial well-being and a variety of relatively objective measures like income, liquid assets, and stability in earnings and expenses (Consumer Financial Protection Bureau, 2017; Sun, Kondratjeva, Roll, Despard, & Grinstein-Weiss, 2018; Walker, Bocian, DeMarco, Freeman, & Warmath, 2018). However, the body of research on financial well-being has not yet examined the degree to which financial well-being is stable (or unstable) over time, nor has it explored the household characteristics, circumstances, and experiences that predict downstream changes in financial well-being.

The existing research on household financial volatility would indicate that a household's subjective sense of financial well-being may be unstable, even over the short-term. This research consistently demonstrates that U.S. households often face high levels of financial volatility, such as a sudden decline in household income from the loss of a job or large increases in expenses from health emergencies or necessary home or car repairs. National survey research demonstrates the scope of this volatility, finding that roughly a quarter of U.S. households reported the loss of a job within the prior year

(Board of Governors of the Federal Reserve System, 2016) and 60 percent reported a large expenditure increase (The Pew Charitable Trusts, 2015). The consequences of these shocks are considerable, as they have been estimated to cost an average of $1,500 to $2,000 (Collins & Gjertson, 2013; Searle & Köppe, 2014) and are associated with a wide array of household hardships including missed essential bill payments (McKernan, Ratcliffe, & Vinopal, 2009), food insecurity (Leete & Bania, 2010), and forgone medical care (Despard et al., 2018).

However, there remains an open question about how volatility in objective measures of financial security may translate to volatility in a more holistic, subjective measure of financial well-being. Though the evidence points toward U.S. households exhibiting high levels of financial stress, lacking resources to offset a financial emergency, and having a generally precarious financial situation, these households also commonly report leading comfortable financial lives (Board of Governors of the Federal Reserve System, 2018). This may indicate that there is a disconnect between objective, discrete measures of financial security—such as income, savings, financial volatility, etc.—and more subjective, holistic measures of financial well-being like the CFPB's financial well-being score.

To explore the degree to which financial well-being is stable, and how that stability relates to an array of key characteristics, circumstances, and experiences, this paper presents one of the first in-depth looks at how individual financial well-being evolves over time. Using a longitudinal survey of low- and moderate-income (LMI) tax filers, we address the following questions:

1. How stable is financial well-being in LMI households over the short-term?
2. To what extent are short-term changes in financial well-being associated with household demographic and financial characteristics?
3. What is the relationship between the experience of different financial shocks and hardships and changes in financial well-being?

To investigate these research questions, we first employ basic descriptive and OLS regression techniques to explore the stability of financial well-being over time and the degree to which household characteristics

predict downstream changes in financial well-being. We then use a series of OLS and fixed-effects panel regressions to estimate the degree to which the experience of financial shocks (including income, expense, and housing shocks) and indicators of hardship (including missing essential payments, skipping medical care, overdrafting bank accounts, food insecurity, and being rejected for credit) are associated with changes in financial well-being, both with and without accounting for time-invariant household characteristics.

We find that, over the six-month period observed between Wave 1 and Wave 2 of the survey, households' reported level of financial well-being was extremely stable. Financial well-being was 49.04 at Wave 1 and 48.96 at Wave 2; a statistically insignificant -0.08 point difference. We also find that most of the measured indicators we use in this study—including an array of demographic and financial characteristics—were not predictive of changes in financial well-being, and the changes associated with the few significant indicators (certain levels of education and employment status, Hispanic identification, and the use of credit-based alternative financial services) were not large. At the same time, we do observe that financial well-being tends to be relatively unstable for households at either end of the financial well-being distribution: Households with low levels of financial well-being at Wave 1 of the survey experienced significant (and relatively substantial) increases in financial well-being by Wave 2, while households with high initial levels of financial well-being experienced significant and substantial declines in financial well-being.

We also observe interesting patterns in the relationships between an array of financial shocks and hardships and changes in financial well-being. In examining the level of financial well-being in a cross-sectional analysis, the experience of most shocks and hardships was strongly correlated with lower financial well-being. However, when examining the relationship between the experience of shocks and hardships and changes in financial well-being over time, we observed that shocks and hardships were associated with relatively small (though in many cases still significant) declines in financial well-being. In terms of shocks, an unexpected income decline and an unexpected home or appliance repair were associated with changes in financial well-being of -2.926 ($p<0.001$) and -1.488 ($p<0.001$), respectively,

after accounting for all time-invariant individual factors in a fixed effects panel regression. The experience of car repairs, medical expenses, and eviction were not associated with significant changes in financial well-being. In terms of hardships, the experience of food insecurity between survey waves was associated with a 2.943-point decline in financial well-being ($p<0.001$), credit rejection was associated with a 3.151-point decline ($p<0.01$), skipping essential medical care was associated with a 2.103-point decline ($p<0.01$), and skipping essential bills was associated with a 3.132-point decline ($p<0.05$).

The observed stability of financial well-being over the short-term speaks to the reliability of financial well-being as a construct, which may make it an attractive outcome measure for researchers, financial capability professionals, and policymakers looking to assess the impacts of different programs on their target populations. However, the fact that financial well-being scores do not exhibit large declines in the face of major financial events like an unexpected income decline may indicate that the scale is not sensitive enough to pick up any impacts in financial well-being from common financial security interventions such as financial counseling, financial education, or matched savings programs. However, additional research is required to understand the impacts from programs such as these on financial well-being.

PREVIOUS RESEARCH USING THE FINANCIAL WELL-BEING SCALE

To date, there has been relatively little research done on the CFPB's Financial Well-Being Scale. The foundational work outlining financial well-being dynamics in the United States comes from the CFPB itself, which conducted a nationwide survey of financial well-being in 2017 (CFPB, 2017). This study found that the average financial well-being score in the U.S. was 54 on a 0 to 100 scale and that there was substantial variation in scores—those with financial well-being in the top ten percent of U.S. households had financial well-being scores that were 35 points higher than those in the bottom ten percent. Additionally, some of the strongest predictors of financial well-being scores were measures that captured either a household's volatility or its ability to buffer against volatility: Those who struggled to make ends meet or had a recent experience with material hardship exhibited relatively low levels of financial well-being, while those who had high levels of liquid savings or the capacity to absorb unexpected expenses

had relatively high levels of financial well-being. Indeed, the ownership of liquid savings was the single largest differentiator of financial well-being levels in this study. This work also investigated the relationship between financial and demographic characteristics and financial well-being, and found that employment, income, age, and education were all related to higher levels of financial well-being. White households and households reporting very good health status also reported higher levels of financial well-being, while no differences were observed by gender.

Building on the CFPB's work, Walker et al. (2018) used the same national survey to investigate the degree to which financial knowledge, skills, and behaviors, and objective financial circumstances predict financial well-being. They found that a household's objective financial situation was the strongest predictor of financial well-being, and explained about seventy percent of the variance in cross-sectional financial well-being. They also found that financial skills (e.g., knowing how to act on financial information to make decisions) were predictive of financial behaviors, but that financial behaviors were only indirectly related to financial well-being through a relationship with a household's objective financial circumstances.

Collins and Urban (2018) also used the CFPB's survey to understand how FWB evolves over the life-cycle. They found that financial well-being generally increases with age before plateauing around the age of retirement, and that financial well-being scores generally track income, assets, and marketplace participation. Conversely, they also show that financial knowledge is not significantly associated with financial well-being, indicating that the construct of subjective financial well-being captures metrics separate from traditional measures of financial knowledge or literacy.

Finally, Sun et al. (2018) examined the financial well-being dynamics in LMI households specifically.[1] They found that their LMI sample had a financial well-being score six points lower than the national average (48 versus 54), and that LMI households exhibited different financial well-being patterns

[1] Earlier versions of the results presented in this current study were featured in two research briefs by the same authors (Bufe, Sun, Roll, Kondratjeva, & Grinstein-Weiss, 2019; Sun, Roll, Kondratjeva, Bufe, & Grinstein-Weiss, 2019).

by age, education, and race. Specifically, they found that very young and very old LMI households had the highest levels of financial well-being, while middle-aged LMI households had the lowest levels of financial well-being, and that education was negatively correlated with financial well-being. These patterns are almost the inverse of what was observed in studies of financial well-being on the general population (Collins & Urban, 2018; CFPB, 2017), possibly indicating that households who find themselves in lower-income brackets at higher ages or with higher educational attainment may feel particularly vulnerable or insecure in their finances. Another interesting inversion in financial well-being patterns relative to the general population had to do with race and ethnicity: In the LMI sample, non-Hispanic White households had the lowest rates of financial well-being, whereas this group had the highest rate of financial well-being in the CFPB's general population sample. In comparison, LMI non-Hispanic Blacks had the highest levels of financial well-being. Similarly to the CFPB's general population study, however, this work found that the ability to cover an unexpected financial emergency was the single strongest predictor of financial well-being levels.

While each of the above studies has substantially contributed to the limited research on financial well-being, they were all conducted using cross-sectional data. As such, there are open questions surrounding the degree to which a household's sense of financial well-being is stable, as well as the extent to which certain household experiences—such as the experience of financial shocks or hardships—are related to increases or decreases in financial well-being. By presenting the first analysis of how financial well-being dynamics change over time, we can substantially inform the understanding around the factors that lead to stability or instability in households' experience of financial well-being.

METHODS

Data

This paper uses data from the longitudinal 2018 Household Financial Survey, a two-wave survey offered to a random sample of tax filers who used TurboTax Freedom Edition (TTFE) to file their taxes. TurboTax Freedom Edition is free tax preparation software offered as part of the IRS Free File Alliance program, which provides free online tax preparation products to low- and moderate-income households.

To qualify for TTFE in 2018, a tax household was required to have either a 2017 adjusted gross income less than $33,000 or qualify for the Earned Income Tax Credit, though looser income restrictions applied to the small minority of households who were active duty military.

The first wave of the 2018 HFS was administered between January and April of 2018 to 15,898 LMI households immediately after they completed their taxes. Six months after these tax households filed their taxes and completed the first HFS wave, survey respondents were contacted for the second wave of the survey; 3,911 tax households completed this wave. The HFS waves included a large number of questions about tax household demographics, financial characteristics, tax refund usage, measures of income volatility and financial shocks, the experience of hardships, and financial behaviors. Both waves also included the ten-item CFPB Financial Well-Being Scale. While the unit of observation in this study is a tax household (hereafter household), demographic characteristics (e.g., age, gender) and self-assessed financial well-being correspond to those of a tax filer who completed taxes on behalf of their tax household.

Though we draw our sample from a population of online tax filers, all results in this analysis use weights generated from the Census Bureau's 2017 American Community Survey to make our findings generalizable to the U.S. LMI population on observable characteristics.[2]

Sample

For this analysis, we restricted the sample to households that completed both survey waves (n=3,911) and for whom there was no missing survey data. These exclusions resulted in a final analytical sample of 3,324.

Measures

Dependent variable

[2] Specifically, we restrict the American Community Survey sample to households with incomes at 200% of the federal poverty line or lower, and weight based on age, age squared, education, student status, gender, race/ethnicity, and the presence of children in the household.

The outcome of interest in this study is the change in financial well-being between Wave 1 of the survey, delivered at the time households file their taxes, and Wave 2 of the survey, delivered six months later. We measure financial well-being in both waves of the survey using the CFPB's full ten-item financial well-being scale, which asks respondents to react to the following ten statements: (1) "I could handle a major unexpected expense"; (2) "I am securing my financial future"; (3) "Because of my money situation, I feel like I will never have the things I want in life"; (4) "I can enjoy life because of the way I'm managing my money"; (5) "I am just getting by financially"; (6) "I am concerned that the money I have or will save won't last"; (7) "Giving a gift for a wedding, birthday or other occasion would put a strain on my finances for the month"; (8) "I have money left over at the end of the month"; (9) "I am behind with my finances"; (10) "My finances control my life." Each of these statements is measured on a 5-item Likert scale. Response categories for the first six questions are "Completely, Very well, Somewhat, Very little, Not at all," and responses for the last four questions are "Always, Often, Sometimes, Rarely, Never." To derive financial well-being scores from these questions, we followed the procedure identified in the CFPB's technical report and applied a software-based scoring method that relies on Item Response Theory (CFPB, 2017). Since the unit of analysis in this study is a household, the measurement of financial well-being scores for survey respondents represents the level of financial well-being at the household level.

Independent variables

The independent variables in this study are an array of demographic and financial characteristics measured at Wave 1 of the survey, as well as households' experience of financial shocks and material, medical, and financial hardships measured in both waves of the survey. Table 1 provides a detailed description of all variables used in this study.

The demographic variables in this study include gender, race/ethnicity, relationship status, number of children, age, student status, educational attainment, housing status, and self-rated health status. The financial variables in this study include employment status, income, whether households could access $2,000 in an emergency, whether they had health insurance, whether they had used a credit-based alternative financial service provider (e.g., payday loans, title loans, pawn shops, etc.) in the prior six

months, and whether they owned any debt on credit cards, educational loans, medical bills, or past-due bills.

[TABLE 1 HERE]

We measure households' experience with financial shocks and hardships in both waves of the survey by asking them if they had experienced each of the given hardships in the prior six months.[3] Measured financial shocks include an unexpected income decline (including job loss or a reduction in pay); an unexpected major home/appliance repair; an unexpected major vehicle repair; an unexpected major medical expense; or an eviction, which we define as someone in the household being forced to move by a landlord when they did not want to move.

Measured hardships include whether households skipped rent or mortgage payments, essential bills, or medical care because they could not afford it; whether households overdrafted their bank account; whether households were rejected for credit, received less credit than they applied for, or did not apply for credit for fear of being turned down; and whether households experienced any food insecurity. Respondents indicated whether their household experienced a shock or hardship through a series of yes or no questions to every shock and hardship indicator except food insecurity, which was measured through the USDA's six-item food insecurity screener and subsequently collapsed into a dummy variable capturing if the respondent gave a positive response to any food insecurity items in the screener.

Analytical Approach

This study presents findings in three stages. In the first stage, we examine the degree to which financial well-being changes over the short-term in our full sample, as well as the degree to which household demographic and financial characteristics predict changes in financial well-being. In order to evaluate the relationships between household characteristics and changes in financial well-being, we employ both bivariate analysis and a series of OLS regression models to explore how demographic and financial

[3] The one exception to this is the question on eviction, which we ask over the prior 12 months at Wave 1 and over the prior 6 months at Wave 2.

characteristics interact in predicting changes in financial well-being. These regressions take the following general form:

$$FWB\_2_i = \alpha_i + \beta_1 FWB\_1_i + \delta Demo_i + \gamma Fin_i + \varepsilon_i \qquad (1)$$

where the dependent variable, FWB_2_i, is the financial well-being of household *i* at wave 2 of the HFS, FWB_1_i is the household's financial well-being at Wave 1 of the HFS, $Demo_i$ is a vector of household demographic characteristics measured at Wave 1, Fin_i is a vector of household financial characteristics measured at Wave 1, α is a constant, and ε is the error term.[4] Demographic predictors include age, education, race/ethnicity, relationship status, student status, children, and health status. Financial predictors include income, employment, access to emergency resources, access to health insurance, home ownership, income volatility, and bank account ownership.[5] In controlling for Wave 1 financial well-being when estimating Wave 2 financial well-being, the coefficients δ and γ thus correspond to the marginal change in financial well-being between Waves 1 and 2 attributable to a given variable, holding other factors constant.[6]

In the second stage of our analysis, we explore how changes in financial well-being correspond to a household's initial level of financial well-being. To do so, we first categorize households based on the quartile of their Wave 1 financial well-being score and examine how financial well-being changes between Waves 1 and 2 of the HFS for households in each initial financial well-being quartile. We then re-estimate the OLS regression model in Equation 1 for each initial financial well-being quartile. This approach allows us to assess any potential interactions between initial financial well-being, household characteristics, and the stability (or volatility) of financial well-being.

[4] We also estimated these models including controls for state of residence and the date of survey completion. These state and date controls did not appreciably change our estimates.

[5] Given that Wave 1 of the survey was conducted at the time of tax filing, we also include controls for the whether or not a household received a tax refund, the size of the tax refund, and the amount of taxes owed. We do not include these estimates in the presentation of the results, but they are available upon request.

[6] In practice, this modeling approach leads to identical coefficient estimates as a first differences regression—in which the dependent variable is the difference between Wave 2 and Wave 1 financial well-being—that controls for the baseline level of financial well-being. As a robustness check, we also report the results of first differences regression estimates that do not control for baseline financial well-being.

In the third stage of our analysis, we explore the relationship between changes in financial well-being and the experience of adverse financial events, which include an array financial shocks and material, medical, and financial hardships. We begin by descriptively exploring changes in financial well-being for households who experience these shocks and hardships relative to households who do not. We then estimate a series of OLS regression models to assess the degree to which financial shocks and hardships predict changes in financial well-being. These regressions estimate the following general model:

$$FWB\_2_i = \alpha_i + \partial Shock\_2_i + \rho Shock\_1_i + \sigma FWB\_1_i + \delta Demo_i + \gamma Fin_i + \varepsilon_i \quad (2)$$

where $Shock\_1_i$ and $Shock\_2_i$ are vectors capturing the experience of financial shocks prior to Wave 1 and between Wave 1 and Wave 2, respectively. These financial shocks include the unplanned loss of a job or decline in income, car repair, home repair, medical expense, or eviction, and the rest of the measures are identical to Equation 1.

In addition to the OLS models, we also exploit the longitudinal nature of the survey to conduct a panel regression with household fixed effects of the following form:

$$FWB_{it} = \alpha_i + \beta Shock_{it} + \lambda Wave_t + \theta_i + u_{it} \quad (3)$$

where the coefficient λ captures the trend in financial well-being between survey waves, β captures the change in financial well-being associated with experiencing a new shock between survey waves, and the term θ captures the household-level fixed effects of household *i*. This final model thus allows us to isolate the effect of experiencing a shock on financial well-being while accounting for all time-invariant factors. For our assessment of the relationship between the experience of hardship and financial well-being, the analysis proceeds identically to the estimation of the relationship between shocks and financial well-being changes, with models of the following forms:

$$FWB\_2_i = \alpha_i + \partial Hard\_2_i + \rho Hard\_1_i + \sigma FWB\_1_i + \delta Demo_i + \gamma Fin_i + \varepsilon_i \quad (4)$$

$$FWB_{it} = \alpha_i + \beta Hard_{it} + \lambda Wave_t + \theta_i + u_{it} \quad (5)$$

Where $Hard\_1_i$, $Hard\_2_i$, and $Hard_{it}$ are vectors of hardships including skipping rent, skipping essential bills, skipping medical care (including doctor's visits, prescriptions, and dental care), overdrawing an account, experiencing food insecurity, and credit denial.

RESULTS

The Short-Term Stability of Financial Well-Being

Figure 1 shows the distribution of changes in financial well-being across the two survey waves. For the full sample, we observe that financial well-being is extremely stable over the short-term. The average financial well-being at the time of the first survey was 49.04 and the average financial well-being six months later was 48.96; a mean difference of just -0.08 (and a standard deviation of 9.32). The distribution of changes in financial well-being follows an approximately normal distribution, albeit with differences in financial well-being clustering around 0.

[FIGURE 1 HERE]

Key Predictors of Changes in Financial Well-Being

Tables 2a and 2b show the weighted sample incidence of the explanatory variables in this study, the mean financial well-being in each wave of the survey across these variables, and the difference in financial well-being between survey waves. Table 2a focuses on the demographic characteristics of our sample and Table 2b focuses on the financial characteristics.

[TABLE 2A HERE]

The majority of our weighted sample was female, white, single, childless, and in good health. Roughly 20 percent of our sample was enrolled in school on either a full- or part-time basis, and roughly 20 percent had either a bachelor's or graduate degree. A minority of households owned their homes, with 43 percent renting and 24 percent neither owning nor renting (which includes situations such as living with family). The average age in our sample was 34. Over a third of our sample was unemployed, over half were traditionally-employed on either a full- or part-time basis, and eight percent reported some degree of self-employment. Over two-thirds of our sample made less than $30,000 in the prior year. Strong majorities of our sample had health insurance (88 percent), kept a budget (73 percent), and did not

report using a credit-based alternative financial service such as payday loans (89 percent). In terms of liquidity access, 58 percent definitely or probably could access $2,000 in the event of an emergency. Two-thirds of our sample reported having credit card debt, 31 percent reported educational debt, 25 percent reported medical debt, and 20 percent reported past-due bills.

[TABLE 2B HERE]

Financial well-being scores tend to be very stable across demographic characteristics; Table 1a shows that observed financial well-being differences across these characteristics are never significantly different from zero at a five percent significance threshold. In terms of financial characteristics, there are some interesting patterns in financial well-being changes. Households who definitely could access $2,000 in an emergency at Wave 1 actually report a decline in financial well-being of 1.81 points ($p<0.01$) at Wave 2, while those who either probably or definitely could not access $2,000 in an emergency at Wave 1 report directionally higher financial well-being levels at Wave 2. At the same time, households that report having medical debt and past-due bills at Wave 1 report increases in financial well-being of 2.24 ($p<0.05$) and 1.69 points ($p<0.05$), respectively.[7]

Table 3 presents the results of multiple regression analyses exploring the degree to which demographic, and financial characteristics predict changes in financial well-being. Model 1 presents regression estimates only controlling for baseline financial well-being, Model 2 builds on Model 1 by examining the relationship between household demographic and financial characteristics and changes in financial well-being, Model 3 examines the relationship between financial characteristics and financial well-being, and Model 4 examines the relationship between all variables of interest and changes in financial well-being.

[TABLE 3 HERE]

[7] These patterns do not hold when presenting the multiple regression analysis below (Table 2). The relationship between access to emergency liquidity and changes in financial well-being reverses itself, with those who definitely could not access $2,000 in an emergency at Wave 1 experiencing significant declines in financial well-being, and debt ownership at Wave 1 being insignificantly correlated with changes in financial well-being.

As in the bivariate analysis above, we see that demographic and financial characteristics are typically not predictive of changes in financial well-being. The incorporation of each set of variables into the regression models does not notably increase the explanatory power (R-squared) of the regression models beyond simply controlling for financial well-being at Wave 1, as in Model 1.

At the same time, we do observe some interesting patterns in the relationships between the modeled characteristics and changes in financial well-being. In Model 4, we see significant declines in financial well-being among households with less than a high school diploma (-2.403; $p<0.1$) or who have some college experience (-1.415; $p<0.05$). Relative to White households, Hispanic households experience a significant decline in financial well-being (-2.201; $p<0.01$). We also observe indications that households with higher incomes (in our low-income sample) and households in traditional employment experience modest increases in financial well-being. Finally, households that reported using credit-based alternative financial services like payday loans at Wave 1 of the survey experienced significant declines in financial well-being relative to those that did not (-2.776; $p<0.01$).

The Relationship between Baseline Financial Well-Being and Short-Term Changes in Financial Well-Being

Figure 2 examines the degree to which an individual's initial financial well-being is associated with downstream changes in financial well-being. Each panel of Figure 2 shows the distribution of financial well-being changes for households in a given quartile of initial financial well-being, with the red line indicating the mean change. The first quartile of Wave 1 financial well-being covers a range from 14 to 41, the second quartile ranges from 42 to 51, the third quartile ranges from 52 to 60, and the fourth quartile ranges from 61 to 95. While the financial well-being for the full sample was very stable between waves, Figure 2 shows that individuals at the lowest and highest ends of the financial well-being distribution actually experience relatively large fluctuations in financial well-being in the short-term. Households in the first quartile experienced an average 4.76-point increase in financial well-being between Wave 1 and Wave 2, while households in the fourth quartile experienced, on average, a 5.03-

point decrease in financial well-being. Households in the middle two quartiles exhibited relatively little volatility in financial well-being between Wave 1 and Wave 2.[8]

[FIGURE 2 HERE]

Figures 3a and 3b examine the degree to which different predictors are related to changes in financial well-being for individuals in each quartile of Wave 1 financial well-being.[9] For households with the lowest initial financial well-being levels, being aged between 35 and 64 is significantly related to declines in financial well-being, relative to individuals aged 18 to 24. For households in the middle of the initial financial well-being distribution, education is significantly related to declines in financial well-being. Relative to individuals whose highest level of educational attainment was a high school diploma, households who had both higher and lower levels of educational attainment were more likely to report lower levels of financial well-being at Wave 2. Households who both had higher initial levels of financial well-being and could not access $2,000 in an emergency appear vulnerable to declines in financial well-being. This is particularly true for households in the highest quartile of initial financial well-being—those who definitely could not access $2,000 in an emergency experienced a 7.8-point decline in financial well-being at Wave 2 ($p<0.05$), relative to those that definitely could access $2,000. Hispanics in the highest quartile of the financial well-being distribution also experience a significant decline in financial well-being (3.59 points; $p<0.01$). Households in the bottom quartile of the financial well-being distribution who neither owned nor rented their housing experienced significant increases in their financial well-being, while anyone in the top quartile who did not own their home experienced significant declines in financial well-being.

[FIGURE 3A HERE]

[FIGURE 3B HERE]

[8] Regressing the Wave 1 financial well-being quartile on the change in financial well-being confirms these results. The change in financial well-being for the 1st and 4th financial well-being quartiles, respectively, is significantly different from the change in all other quartiles, while the change in financial well-being for those in the 2nd quartile is not significantly different from the change for those in the 3rd quartile (and vice versa).

[9] These models replicate Model 4 in Table 2 for each individual quartile of Wave 1 financial well-being.

The Experience of Shocks and Hardships and Changes in Financial Well-Being

In this section, we shift from examining the relationship between a household's characteristics at Wave 1 and short-term changes in financial well-being toward examining how the experience of adverse events between survey waves—in this case financial shocks and material, medical, and financial hardships—is related to changes in financial well-being.

Table 4 descriptively examines the financial well-being of households who did and did not experience a given financial shock or hardship between the first and second survey waves. The first thing we observe is that, other than eviction, the experience of most financial shocks and hardships is relatively common over the short-term for our sample. In the six months between survey waves, only 1.2 percent of households were forced to move by a landlord, and the prevalence of all other shocks ranged between 12.1 percent (unexpected medical expenses) and 30.0 percent (car repairs). The experience of hardships was more common than shocks, and hardship prevalence ranged between 11.3 percent (skipped rent) and 43.8 percent (experienced any food insecurity).

[TABLE 4 HERE]

The relationship between the experience of adverse financial events and financial well-being in both waves exhibits interesting patterns. The experience of a shock or hardship between Wave 1 and Wave 2 of the survey was strongly associated with reported financial well-being in either wave of the survey. Individuals experiencing a shock or hardship reported significantly and substantially lower levels of financial well-being in both waves than did individuals not experiencing a shock or hardship. At the same time, we also observe that financial well-being was very stable for individuals who experienced a shock or hardship between survey waves; the change in financial well-being between waves was insignificant for both those who did and did not experience shocks or hardships.

The observation that shocks and hardships appear strongly correlated with lower levels of financial well-being (in each survey wave) but not with declines in financial well-being (between survey waves) is interesting. It may be that households who are more likely to experience shocks or hardships are more likely to report lower levels of financial well-being, or that households who experienced a shock or

hardship between survey waves were also more likely to have past shocks or hardships that already lowered their reported financial well-being.

To explore the degree to which individual characteristics and the prior experience of shocks and hardships govern the relationship between shocks and financial well-being, Tables 5 and 6 present a series of regression models that incorporate control variables in an iterative fashion. Table 5 begins by showing the results of an OLS regression that only includes indicators for the experience of shocks between Wave 1 and Wave 2 of the survey. Unsurprisingly, given the strong relationships between the experience of shocks and lower levels of financial well-being observed in Table 4, we see that the experience of each shock is significantly predictive of lower levels of financial well-being. Coefficient estimates in this model range from –3.508 for an unexpected home repair expense to –7.824 for an unexpected drop in income. However, when we incorporate an individual's baseline level of financial well-being in Model 2—which also means we shift from modeling the *level* of Wave 2 financial well-being to modeling the *change* in financial well-being between waves—all coefficient estimates attenuate substantially and the relationship between several shocks and financial well-being becomes insignificant; only the coefficients on an unexpected income drop and an unexpected medical expense remain strongly significant.

Indeed, all other modeled characteristics appear to have a minimal impact on the relationship between Wave 2 shocks and Wave 2 financial well-being, after controlling for Wave 1 financial well-being. Incorporating controls for the Wave 1 experience of shocks, demographic characteristics, and financial characteristics (Models 3, 4, and 5, respectively) does not lead to notable changes in the coefficients on most of the shocks. One exception is the coefficient on experiencing an unexpected home repair, which becomes more significant with the inclusion of demographic and financial controls.

Model 6 uses a panel regression approach rather than OLS to assess the relationship between experiencing a shock between survey waves and changes in financial well-being, after controlling for all time-invariant factors (through the use of household fixed effects). In this model, we see that only the coefficients on an unexpected drop in income (-2.926) and an unexpected home repair (-1.488) remain

significant, while the relationship between all other modeled shocks and changes in financial well-being are insignificant and weaker than in the OLS models.

[TABLE 5 HERE]

[TABLE 6 HERE]

The relationship between the experience of hardships and changes in financial well-being (Table 6) exhibits similar patterns to that of the relationship between shocks and changes in financial well-being. In Model 1, we observe that all modeled hardships, with the exception of overdrafting a bank account, are significantly related to Wave 2 financial well-being at the 0.1 percent level. When we control for the baseline level of financial well-being in Model 2, the coefficients on all modeled hardships attenuate and the coefficient on skipping medical care becomes statistically insignificant. Once we control for the Wave 1 experience of hardship in Model 3, demographic characteristics in Model 4, and financial characteristics in Model 5, we see that the coefficients on several hardships actually increase in magnitude; the experience of skipping bills, skipping medical care, being rejected for credit, and experiencing food insecurity are all negative and strongly significant, while the coefficient on skipping rent is negative and marginally significant. In Model 6, which presents the results of a fixed effects panel regression, we see that the coefficients on the experience of food insecurity, credit rejection, skipping medical care, and skipping bills remain strongly significant after accounting for all time-invariant characteristics. However, the experience of skipping rent, which had one of the strongest cross-sectional correlations with financial well-being (in Model 1), becomes insignificantly related to changes in financial well-being in the panel regression model.

Robustness Check: First-Differences Regression Estimates

Each of the regression models in the main analysis control for the baseline level of financial well-being. This approach allows us to estimate the average change in financial well-being between survey waves across a variety of household characteristics, independent of households' initial financial well-being levels. However, if household characteristics are predictive of lower (or higher) financial well-being and the initial level of financial well-being is predictive of subsequent changes in financial well-being (as we

observe in Figure 2), it is possible that controlling for baseline financial well-being is obscuring some of the volatility in financial well-being associated with household characteristics or adverse financial events. To investigate this, we re-estimated the full OLS models in our main analysis using first differences regression models that did not control for baseline financial well-being.[10] In these models, the dependent variable was the difference between Wave 2 and Wave 1 financial well-being, and all household characteristics, shocks, and hardships were measured as in the main analysis.

Generally speaking, this estimation strategy did not notably change the results from the main analysis.[11] The vast majority of household characteristics remain unassociated with significant changes in financial well-being, and the relationships between adverse financial events and financial well-being exhibit similar coefficient patterns, though the relationships are slightly more attenuated than those in the main analysis. The one exception to the similarities between the models in the main analysis and the first differences regressions is, interestingly, the relationship between access to $2,000 in an emergency and changes in financial well-being. In the main analysis models, which control for baseline financial well-being, baseline access to $2,000 was associated with positive and marginally significant changes in financial well-being. In the first differences model that does not control for baseline financial well-being, baseline access to $2,000 is associated with significant declines in financial well-being. For example, households that were certain they *could* come up with $2,000 in an emergency at baseline experienced a 3.36-point decline in financial well-being relative to those who were certain they *could not* ($p<0.05$). This is likely because access to $2,000 in an emergency is by far the strongest predictor of baseline financial well-being (see Table 2b). As such, it is likely that this observed pattern is capturing the fact that households without access to $2,000 start from a much lower baseline financial well-being and, thus, have more of a tendency to exhibit financial well-being improvements (as in Figure 2) than households with access to $2,000 and, consequently, higher average baseline financial well-being levels. This finding also

[10] The first differences models estimated for this section correspond to the OLS estimates in: Table 3, Model 4; Table 5, Model 5; and Table 6, Model 6.
[11] The full output for each of these models is available upon request.

speaks to the validity of using models that control for baseline financial well-being, as in the main analysis, in order to estimate the relationship between household characteristics themselves and financial well-being changes.

DISCUSSION

To-date, there has been very little research on how a household's level of financial well-being changes over time. To address this gap, this paper uses a two-wave longitudinal survey of low- and moderate-income tax filers to assess the stability of financial well-being over a six-month period, as well as the key predictors of changes in financial well-being over this period. The most basic finding in this paper—that financial well-being is very stable on average in the short-term—is also one of the most important. Financial well-being in our sample at Wave 1 of the survey was 49.04 and 48.96 at Wave 2; a statistically insignificant difference of -0.08 points. This stability speaks to the reliability of financial well-being as a construct, as we would not expect that the average household in our sample would experience a large shift in financial well-being over the course of six months in a relatively stable economic environment.

We also observe that most demographic and financial indicators do not correspond with changes in financial well-being over the short-term in either our bivariate or OLS regression analyses. While there were some exceptions to this, including identifying as Hispanic, having less than a high school education, having some college education (but not a degree), using credit-based AFS in the prior six months, and having part-time employment status, the magnitudes of changes in financial well-being associated with these indicators were not large. The stability of financial well-being across most measured indicators, in conjunction with the observed stability for the full sample, provides evidence that the CFPB's measure of financial well-being is measuring something relatively fundamental about a household's holistic financial outlook rather than something more easily changed by circumstance.

At the same time, we do observe that financial well-being can be relatively unstable for households at the high and low ends of the financial well-being distribution. Households in the bottom quartile of financial well-being at Wave 1 experienced a 4.8-point increase in financial well-being six months later at Wave 2, while households in the top quartile experienced a 5.0-point decrease in financial

well-being between waves. The change in financial well-being for those in the middle quartiles was flat. For the most part, these changes at the high and low-ends of the financial well-being distribution were not significantly correlated with observed demographic and financial characteristics. We do, however, observe that older (but pre-retirement age) LMI households at the bottom of the financial well-being distribution were more likely to experience additional financial well-being declines while, at the top of the financial well-being distribution, Hispanic households and households who could not easily access $2,000 in an emergency appeared more vulnerable to declines in financial well-being.

The causes of these changes at the high and low ends of the financial well-being distribution are to a degree unclear. Part of the explanation may simply be a regression to the mean of financial well-being scores. Households who have exceptionally low levels of financial well-being at Wave 1 may have experienced some substantial financial shock or hardship prior to Wave 1 that they have recovered from by Wave 2. Similarly, households who have exceptionally high levels of financial well-being at Wave 1 may have experienced some particularly positive financial event (for example, a salary bonus or an exceptionally high-earnings period) for which the effects have dissipated by Wave 2. However, the average shift in financial well-being for these quartiles (+/- five points) is larger than the coefficient estimates on the relationship between shocks and hardships and financial well-being changes in our fixed-effects panel regressions, which indicates that this may not be entirely accounted for by the experience of negative (or positive) financial events. Another possibility is that there are subgroups of households that have inherently more volatile perceptions of their own financial well-being, but an investigation of that possibility is outside the scope of this study.

In terms of the experience of financial shocks and hardships, our analysis reveals several interesting dynamics. The first is that, descriptively, shocks and hardships do not appear to be associated with changes in financial well-being even though they are strongly associated with lower levels of financial well-being. Put differently, households that experience shocks or hardships between Wave 1 and Wave 2 already have lower levels of Wave 1 financial well-being, and the experience of an additional shock or hardship is not associated with additional declines in their financial well-being.

In exploiting the panel structure of our data to further explore these dynamics, however, we do see that several financial shocks and hardships are significantly associated with declines in financial well-being. After accounting for all time-invariant factors through fixed effects regression we see that the experience of unexpected income drops and unexpected home repairs, as well as the experience of food insecurity, credit rejection, skipped medical care, and skipped essential bills, were associated with significant declines in financial well-being. By contrast, the experience of eviction, unexpected car repairs, unexpected medical expenses, skipped rent, and overdrafting an account were not associated with significant declines in financial well-being. This finding, however, should not be taken as indicating that these experiences are not deleterious for an individual's financial well-being. Cross-sectionally, eviction, skipped rent, and unexpected medical expenses were among the strongest correlates with lower levels of financial well-being. It may be that households who experience these shocks and hardships may have already factored their eventuality into their financial well-being at Wave 1. Alternately, it is possible that they can defer the consequences of these events beyond our six-month observation window. Skipped housing payments, for example, may not result in an eviction or foreclosure for many months, while unexpected medical expenses may not need to be paid immediately. Skipping essential bills, income declines, and food insecurity, by contrast, may result in immediate changes in one's sense of well-being in the form of, respectively, service shut-offs, reduced buying power, and hunger.

These findings have interesting implications for the use of the financial well-being score in program and policy evaluation. While the short-term stability of financial well-being in our sample speaks to the reliability of the construct, the coefficient estimates on the relationships between shocks and hardships and financial well-being changes may point to a limitation of the score for use in program and policy evaluation. The largest significant coefficient on any shock or hardship was -3.151 (for experiencing credit rejection). This is roughly 0.34 standard deviations of the change in financial well-being between waves. Other major financial events, such as a substantial income decline or skipping essential medical care, were associated with smaller financial well-being declines. Given that these fairly major financial events have only modest impacts financial well-being (in the short-term, at least), it may

be that programs or policies that seek to provide financial assistance in the form of financial education, small amounts of emergency liquidity, matched savings, modest tax credits, and so on, may not be sufficient enough to substantially improve financial well-being over the short-term.

While this study makes several contributions to understanding the dynamics surrounding financial well-being in LMI households, it also has some limitations that we note here. The first is that our sample is drawn from a population of LMI tax filers rather than from the general U.S. population. Though we employ survey weights to make our sample representative of the general U.S. LMI population on observable characteristics, this fact limits the generalizability of our findings. Our survey also only employs two waves over a relatively short timeframe (six months). While this short timeframe allows us to determine the degree to which financial well-being is stable in an intrayear period, a longer period of observation or additional survey waves would allow us to investigate the ramifications of shocks and hardships on financial well-being over the longer-term, as well as allow us to better understand the trajectories of financial well-being for different populations. Finally, we only measure a subset of the shocks and hardships a household may face. While our measures of these experiences are reasonably comprehensive and intersect with income, expenses, health, food, credit, and housing, there may be other negative financial events that also have important implications for household financial well-being.

DISCLAIMER

Statistical compilations disclosed in this document relate directly to the bona fide research of, and public policy discussions concerning, financial security of individuals and households as it relates to the tax filing process and more generally. Compilations follow Intuit's protocols to help ensure the privacy and confidentiality of customer tax data.

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TABLES

Table 1. Variable Descriptions

Variable	Description	Type	Survey Wave
Financial well-being	Normalized financial well-being score ranging between 14 and 95; the Wave 1 measure of this variable is used as an independent variable and the Wave 2 measure is the dependent variable	Continuous	Wave 1 and Wave 2
Demographic Characteristics			
Gender	Respondent's gender identification (male, female)	Dummy	Wave 1
Race/ethnicity	Respondent's identified race and ethnicity (White, Black, Asian, Hispanic, or Other/Multiracial)	Categorical	Wave 1
Relationship status	Marital status of respondent (single, married/living with a partner)	Dummy	Wave 1
Number of children	Number of children in a household (0, 1, 2, 3+)	Categorical	Wave 1
Age	Age of respondent (18-24, 25-34, 35-44, 45-54, 65+)	Categorical	Wave 1
Student status	Respondent's enrollment in school (non-student, part-time student, full-time student)	Categorical	Wave 1
Educational attainment	Respondent's highest educational attainment (less than high school, high school degree, some college or technical degree, bachelor's degree, graduate degree)	Categorical	Wave 1
Housing status	Respondent's living situation (own, rent, neither own nor rent); neither own nor rent may capture situations such as living with family or friends rent-free	Categorical	Wave 1
Self-rated health status	How a respondent rates their health relative to their peers (good, poor); "good" refers to having better health than peers, "poor" refers to having worse health than peers	Dummy	Wave 1
Financial Circumstances			
Employment status	The type of employment a respondent has (unemployed, self-employed part-time, self-employed full-time, employed part-time, employed full-time)	Categorical	Wave 1
Income	Household's self-reported income for the prior year ($0-$5,000 , $5,001-$10,000, $10,001-$20,000, $20,001-$30,000, $30,001-$40,000, $40,001+)	Categorical	Wave 2
Access to $2,000 in an emergency	Household's ability to come up with $2,000 within a month in the case of an emergency (definitely could, probably, probably could not, definitely could not).	Categorical	Wave 1
Health insurance status	Whether or not respondent has any health insurance (has insurance, no insurance)	Dummy	Wave 1
Debt ownership	An array of indicators capturing ownership of credit card debt, student debt, medical debt, an past-due bills (yes, no)	Dummies for each debt type	Wave 1
Alternative financial service usage	Whether households report usage of credit-based alternative financial services such as payday loans, title loans, or pawn shops in the prior six months (used, did not use)	Dummy	Wave 1
Financial Shocks			
Income decline	Whether households experienced the unexpected loss of a job or an unexpected reduction in income in the last six months (yes, no)	Dummy	Wave 1 and Wave 2
Home repair	Whether households experienced an unexpected major house or appliance repair in the last six months (yes, no)	Dummy	Wave 1 and Wave 2
Car repair	Whether households experienced an unexpected major repair to a vehicle they owned in the last six months (yes, no)	Dummy	Wave 1 and Wave 2

Medical expense	Whether households experienced an unexpected major out-of-pocket medical expense in the last six months (yes, no)	Dummy	Wave 1 and Wave 2
Eviction	Whether households or a person they were living with were forced to move by a landlord when they did not want to (yes, no); this variable is measured over the last 12 months at Wave 1 and over the last 6 months at Wave 2	Dummy	Wave 1 and Wave 2
Hardships			
Skipped rent	Whether households did not pay the full amount of the rent or mortgage in the last six months because they could not afford it (yes, no)	Dummy	Wave 1 and Wave 2
Skipped bills	Whether households skipped paying a bill or paid a bill late in the last six months due to not having enough money (yes, no)	Dummy	Wave 1 and Wave 2
Skipped medical care	Whether households needed to see a doctor, see a dentist, or could not fill a prescription when they needed it in the last six months because they could not afford it (yes, no)	Dummy	Wave 1 and Wave 2
Overdrafted account	Whether households overdrafted their bank account or wrote a check for more than what was in their account in the last six months (yes, no)	Dummy	Wave 1 and Wave 2
Credit rejection	Whether households had a credit card declined because they were over the limit, applied for credit and were turned down, or did not apply for credit because they thought they would be turned down in the last six months (yes, no)	Dummy	Wave 1 and Wave 2
Food insecurity	An indicator variable capturing whether or not households positively identified experiencing any of the food insecurity measures in the USDA's six-item food insecurity screener (USDA Economic Research Service, 2012) (yes, no)	Dummy	Wave 1 and Wave 2

Table 2a: Financial Well-Being in Each Survey Wave, by Demographic Characteristics

Characteristic	Weighted Sample % (Wave 1)	Financial Well-Being Score		
		Wave 1 Mean	Wave 2 Mean	Difference (Wave 2 - Wave 1)
Total	100.0%	49.04	48.96	-0.08
Age				
18-24	18.8%	52.36	51.44	-0.92
25-34	19.8%	46.67	46.75	0.08
35-44	15.3%	43.36	43.47	0.11
45-54	14.3%	47.54	46.17	-1.37
55-64	13.0%	46.15	46.69	0.54
65+	18.9%	55.97	56.92	0.95
Gender				
Female	55.7%	47.24	47.48	0.24
Male	44.3%	51.31	50.82	-0.49
Race/ethnicity				
White (%)	61.7%	48.82	49.23	0.41
Black (%)	12.2%	46.06	47.17	1.11
Hispanic (%)	15.1%	50.95	47.70	-3.25
Asian (%)	7.9%	51.21	51.07	-0.14
Other (%)	3.1%	50.28	51.23	0.95
Relationship status				
Married/lives with partner	41.4%	48.11	48.48	0.37
Single	58.6%	49.70	49.30	-0.4†
Number of children in household				
0	61.2%	51.65	51.43	-0.22
1	16.4%	44.27	44.39	0.12
2	12.7%	44.59	44.02	-0.57
3+	9.7%	46.48	47.53	1.05
Student status				
Full-time student	15.6%	52.98	52.13	-0.85†
Part-time student	3.5%	48.17	45.99	-2.18†
Non-student	80.9%	48.32	48.47	0.15
Education				
Less than high school	13.6%	44.71	44.97	0.26
High school degree	30.6%	50.19	50.65	0.46
Some college or technical degree	36.4%	48.28	47.55	-0.73†
Bachelor's degree	13.7%	51.64	51.66	0.02
Graduate degree	5.8%	51.85	51.84	-0.01
Housing status				
Own	33.8%	51.14	51.77	0.63
Rent	42.6%	45.99	45.98	-0.01

Neither own nor rent	23.6%	51.55	50.32	-1.23
Self-rated health				
Good	77.2%	51.70	51.31	-0.39
Poor	22.9%	40.07	41.02	0.95†
Observations		3,324	3,324	

Note: †p<0.1

Table 2b: Financial Well-Being in Each Survey Wave, by Financial Characteristics

Characteristic	Weighted Sample % (Wave 1)	Financial Well-Being Score		
		Wave 1 Mean	Wave 2 Mean	Difference (Wave 2 - Wave 1)
Full sample	100.0%	49.04	48.96	-0.08
Employment status				
Unemployed	33.8%	51.10	50.79	-0.31
Self-employed part-time	2.9%	48.63	48.87	0.24
Self-employed full-time	4.8%	45.36	44.47	-0.89
Employed part-time	21.5%	49.85	50.16	0.31
Employed full-time	37.0%	47.21	47.18	-0.03
Income				
$0-$5,000	11.3%	48.32	47.12	-1.2†
$5,001-$10,000	8.4%	46.56	46.29	-0.27
$10,001-$20,000	27.0%	48.07	48.58	0.51
$20,001-$30,000	25.6%	48.59	48.32	-0.27
$30,001-$40,000	17.1%	49.41	50.02	0.61
$40,001+	10.7%	54.71	53.77	-0.94
Access to $2,000 in an emergency				
Definitely could access $2,000	39.3%	58.84	57.03	-1.81**
Probably could access $2,000	19.1%	49.09	49.05	-0.04
Probably could not access $2,000	18.5%	44.33	45.92	1.59†
Definitely could not access $2,000	23.1%	36.12	37.58	1.46
Health insurance status				
Has insurance	88.4%	49.32	49.30	-0.02
No insurance	11.7%	46.93	46.36	-0.57
Debts				
Has credit card debt	67.0%	49.16	49.29	0.13
No credit card debt	33.0%	48.80	48.29	-0.51
Has student debt	30.5%	45.96	46.22	0.26†
No student debt	69.5%	50.39	50.16	-0.23
Has medical debt	25.0%	39.29	41.53	2.24*
No medical debt	75.0%	52.28	51.43	-0.85*
Has past-due bills	19.3%	35.37	37.06	1.69*
No past-due bills	80.7%	52.32	51.81	-0.51
Alternative financial service usage				
Used credit-based AFS	10.9%	35.40	35.46	0.06
Did not use credit-based AFS	89.1%	50.70	50.60	-0.1
Budgeting				
Keeps a budget	73.3%	48.74	48.45	-0.29
Does not keep a budget	26.8%	50.55	51.52	0.97
Observations		3,324	3,324	

Note: **p<0.01; *p<0.05; †p<0.1

Table 3. Predictors of Short-Term Changes in Financial Well-Being

Model	1	2	3	4
Wave 1 financial well-being	0.759 (0.027)***	0.715 (0.029)***	0.697 (0.030)***	0.664 (0.031)***
Gender (*Female*)				
Male		0.469 (0.606)		0.539 (0.563)
Education (*High school*)				
Less than high school		-1.784 (1.560)		-2.403 (1.433)†
Some college/tech degree		-1.416 (0.686)*		-1.415 (0.666)*
Bachelor's degree		0.329 (0.662)		0.099 (0.668)
Graduate degree		0.121 (0.914)		-0.011 (0.926)
Current student (*No*)				
Yes, Part-Time		-1.147 (1.054)		-1.371 (1.069)
Yes, Full-Time		0.948 (0.743)		0.974 (0.768)
Race/Ethnicity (*White*)				
Black		1.267 (1.306)		1.511 (1.276)
Asian		-0.470 (1.186)		-0.810 (1.043)
Other/multiracial		1.344 (1.042)		1.422 (1.045)
Hispanic		-2.140 (0.741)**		-2.201 (0.761)**
Relationship status (*Single*)				
Married/living with partner		0.824 (0.728)		0.452 (0.678)
Age (*18-24*)				
25-34		0.824 (0.728)		0.452 (0.678)
35-44		-0.518 (0.846)		-0.442 (0.878)
45-54		-1.579 (1.112)		-1.366 (1.120)
55-64		-1.447 (1.165)		-1.673 (1.173)
65+		-0.045 (1.184)		0.218 (1.143)
Number of children (*None*)				
1		-0.333 (0.733)		-0.340 (0.802)
2		-0.745 (1.303)		-1.234 (1.564)
3+		0.675 (1.309)		0.258 (1.662)
Health (*Poor Health*)				
Good health		1.098 (0.754)		0.585 (0.697)
Employment (*Unemployed*)				
Self-employed part-time			0.275 (1.477)	1.136 (1.435)
Self-employed full-time			-1.895 (1.138)†	-0.898 (1.302)
Employed part-time			0.934 (0.709)	1.862 (0.794)*
Employed full-time			-0.527 (0.851)	1.010 (0.968)
Access $2k in emergency (*Definitely could*)				
Probably could			-0.641 (0.733)	-0.570 (0.685)
Probably could not			-0.155 (1.008)	-0.274 (0.964)
Certainly could not			-2.107 (1.234)†	-2.005 (1.160)†
Income (*$0 - $5,000*)				
$5,001 - $10,000			0.700 (0.900)	0.550 (0.923)
$10,0001 - $20,000			1.198 (0.921)	0.894 (0.922)
$20,0001 - $30,000			1.100 (0.922)	0.502 (0.926)
$30,001 - $40,000			2.263 (1.378)	2.228 (1.039)*
>$40000			1.845 (1.127)	1.602 (1.088)
Health insurance (*Uninsured*)				

Yes			0.907 (1.433)	-0.804 (1.015)
Have credit card debt (*No*)				
Yes			0.141 (0.745)	-0.409 (0.611)
Have student debt (*No*)				
Yes			-0.434 (0.622)	-0.430 (0.551)
Have medical debt (*No*)				
Yes			0.852 (0.981)	0.505 (0.882)
Have past-due bills (*No*)				
Yes			-1.080 (1.125)	-0.869 (0.975)
Used credit-based AFS (*No*)				
Yes			-3.135 (0.966)**	-2.776 (0.870)**
Keeps budget (*No*)				
Yes			0.329 (0.644)	0.205 (0.572)
Constant	11.721 (1.478)***	14.095 (1.645)***	14.361 (2.547)***	17.175 (2.247)***
Observations	3,324	3,324	3,324	3,324
R-Squared	0.650	0.673	0.666	0.686

Note: This table presents a series of OLS regressions predicting the change in financial well-being conditional on an array of demographic and financial characteristics. The reference group for each category of variables is in italics. Models with financial variables also control for tax refund characteristics. Robust standard errors in parentheses.
***p<0.001; **p<0.01; *p<0.05; †p<0.1

Table 4. Financial Well-Being in Each Survey Wave, by Wave 2 Experience of Shocks and Hardships

Characteristic		Financial Well-Being Score		
	Sample %	Wave 1 Mean	Wave 2 Mean	Difference (Wave 2 - Wave 1)
Shocks (Wave 2)				
Income decline, yes	16.0%	41.50***	40.57***	-0.93
Income decline, no[a]	84.0%	50.47	50.55	0.08
Home repair, yes	17.5%	44.31**	43.73**	-0.58
Home repair, no[a]	82.5%	50.05	50.07	0.02
Car repair, yes	30.0%	43.95***	43.83***	-0.12
Car repair, no[a]	70.0%	51.23	51.15	-0.08
Medical expense, yes	12.1%	42.15***	41.56***	-0.59
Medical expense, no[a]	87.9%	49.99	49.97	-0.02
Eviction, yes	1.2%	38.01***	39.29***	1.28
Eviction, yo[a]	98.8%	49.18	49.07	-0.11
Hardships (Wave 2)				
Skipped rent, yes	11.3%	34.16***	33.44***	-0.72
Skipped rent, no[a]	88.7%	50.93	50.93	0.00
Skipped bills, yes	28.8%	38.13***	37.82***	-0.31
Skipped bills, no[a]	71.2%	53.46	53.47	0.01
Skipped medical care, yes	36.9%	39.39***	40.11***	0.72
Skipped medical care, no[a]	63.1%	54.68	54.12	-0.56
Overdrafted account, yes	17.2%	38.14***	38.36***	0.22
Overdrafted account, no[a]	82.8%	51.32	51.17	-0.15
Credit rejection, yes	34.0%	39.18***	39.24***	0.06
Credit rejection, no[a]	66.0%	54.11	53.95	-0.16
Food insecurity, yes	43.8%	40.33***	40.39***	0.06
Food insecurity, no[a]	56.2%	55.83	55.63	-0.2
Observations		3,324	3,324	

Notes: ***Group that experienced shock/hardship is different from group that did not experience shock/hardship; $p<0.001$. No Wave 2-Wave 1 differences are significant for any group. [a] Indicates reference group.

Table 5. The Relationship between Income and Expense Shocks and Changes in Financial Well-Being

	Change in Financial Well-Being					
Model	1	2	3	4	5	6
Wave 2 Shock						
Income drop	-7.824***	-2.875***	-3.100***	-2.495***	-2.395***	-2.926**
	(1.081)	(0.734)	(0.812)	(0.725)	(0.705)	(1.035)
Home repair	-3.508*	-1.298†	-1.527†	-2.169**	-1.961*	-1.488**
	(1.473)	(0.775)	(0.782)	(0.808)	(0.785)	(0.547)
Car repair	-4.915***	-1.207	-1.046	-0.858	-1.044†	0.236
	(1.101)	(0.740)	(0.705)	(0.690)	(0.634)	(0.673)
Medical expense	-6.540***	-2.160*	-1.846†	-1.974†	-2.029†	-0.229
	(1.181)	(1.012)	(1.028)	(1.014)	(1.040)	(0.940)
Eviction	-7.061**	-0.840	-0.616	0.206	0.335	0.414
	(2.300)	(2.501)	(2.620)	(2.418)	(2.482)	(1.939)
Model	OLS	OLS	OLS	OLS	OLS	Panel
Controls						
Wave 1 financial well-being	No	Yes	Yes	Yes	Yes	No
Wave 1 shocks	No	No	Yes	Yes	Yes	No
Demographics	No	No	No	Yes	Yes	No
Financial characteristics	No	No	No	No	Yes	No
Individual fixed effects	n/a	n/a	n/a	n/a	n/a	Yes
Observations	3,324	3,324	3,324	3,324	3,324	6,648
Unique households	3,324	3,324	3,324	3,324	3,324	3,324
R-squared	0.133	0.663	0.665	0.686	0.699	0.028

Note: This table presents a series of regressions examining the relationship between financial shocks and changes in financial well-being. Model 1 does not control for baseline shocks or baseline financial well-being, and its coefficients should thus be interpreted as the difference in Wave 2 financial well-being for households that experienced each shock, relative to those that did not. All other models control for Wave 1 financial well-being, and coefficients should thus be interpreted as the change in financial well-being for households who experienced each shock, relative to those that did not. While Models 1 through 5 are OLS regressions that control for an array of Wave 1 characteristics, Model 6 is a panel regression that controls for all time-invariant characteristics through household fixed effects. Models with financial variables also control for tax refund characteristics. ***p<0.001; **p<0.01; *p<0.05; †p<0.1

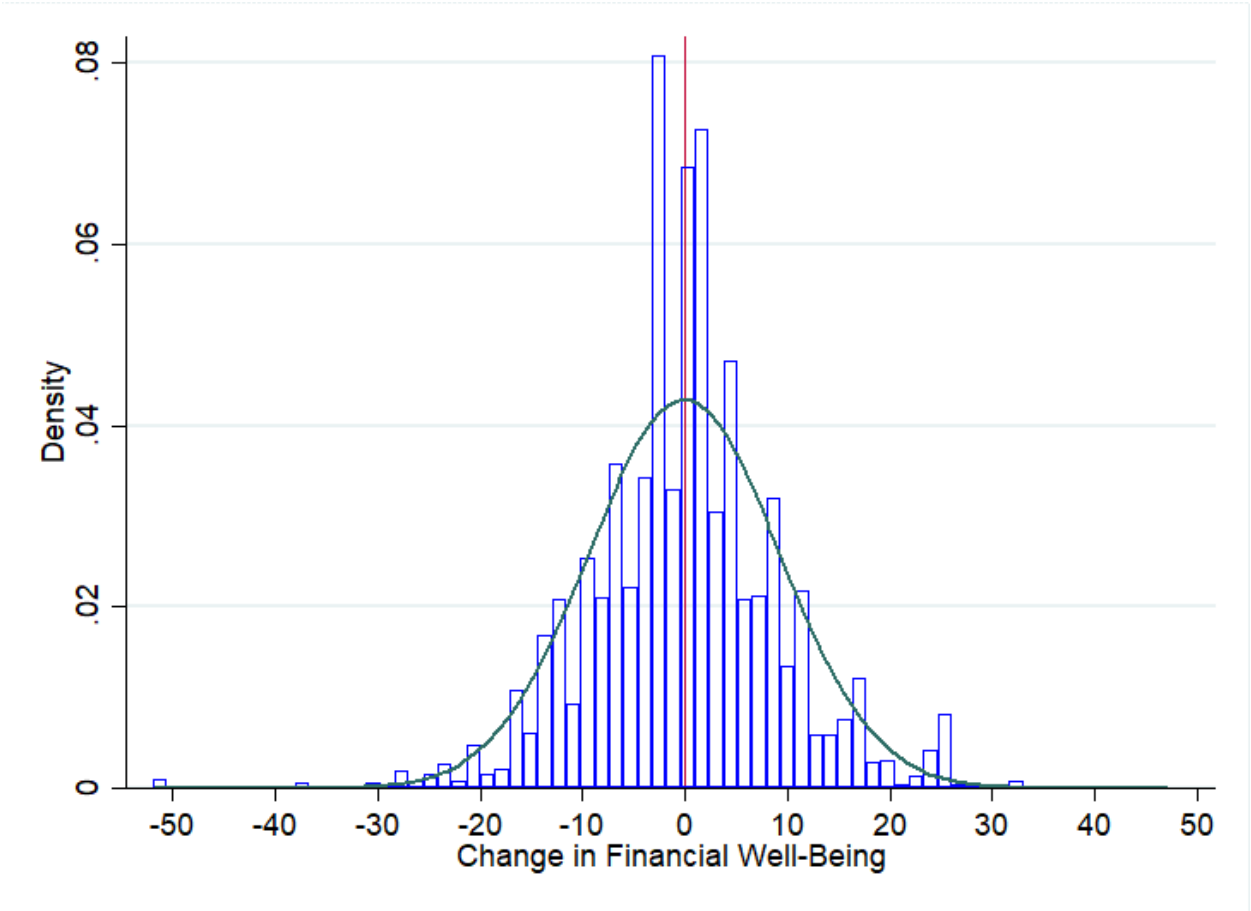
Table 6. The Relationship between Hardships and Changes in Financial Well-Being

	Change in Financial Well-Being					
Model	1	2	3	4	5	6
Wave 2 Hardship						
Skipped rent	-6.133***	-2.848*	-2.102†	-2.306†	-2.069†	-0.214
	(1.307)	(1.128)	(1.184)	(1.193)	(1.149)	(1.014)
Skipped bills	-3.695***	-2.046*	-2.518*	-2.330*	-2.923**	-3.132*
	(1.009)	(0.885)	(1.133)	(1.003)	(0.929)	(1.405)
Skipped medical Care	-5.605***	-1.177	-2.145**	-2.095*	-2.499**	-2.103**
	(0.983)	(0.855)	(0.812)	(0.833)	(0.815)	(0.730)
Overdrafted account	-1.060	-0.184	0.344	0.187	-0.148	0.967
	(1.020)	(0.887)	(0.923)	(0.909)	(0.883)	(0.804)
Credit rejection	-5.314***	-1.952*	-3.167***	-2.732**	-2.608**	-3.151**
	(0.930)	(0.934)	(0.948)	(0.841)	(0.824)	(0.974)
Food insecurity	-8.381***	-3.286***	-3.789***	-3.627***	-3.462***	-2.943***
	(1.092)	(0.800)	(0.808)	(0.777)	(0.757)	(0.691)
Model	OLS	OLS	OLS	OLS	OLS	Panel
Controls						
Wave 1 financial well-being	No	Yes	Yes	Yes	Yes	No
Hardships	No	No	Yes	Yes	Yes	No
Demographics	No	No	No	Yes	Yes	No
Financial characteristics	No	No	No	No	Yes	No
Individual fixed effects	n/a	n/a	n/a	n/a	n/a	Yes
Observations	3,324	3,324	3,324	3,324	3,324	6,648
Unique households	3,324	3,324	3,324	3,324	3,324	3,324
R-squared	0.438	0.689	0.699	0.714	0.722	0.087

Note: This table presents a series of regressions examining the relationship between an array of hardships and changes in financial well-being. Model 1 does not control for baseline hardships or baseline financial well-being, and its coefficients should thus be interpreted as the difference in Wave 2 financial well-being for households that experienced each hardship, relative to those that did not. All other models control for Wave 1 financial well-being, and coefficients should thus be interpreted as the change in financial well-being for households who experienced each hardship, relative to those that did not. While Models 1 through 5 are OLS regressions that control for an array of Wave 1 characteristics, Model 6 is a panel regression that controls for all time-invariant characteristics through household fixed effects. Models with financial variables also control for tax refund characteristics. ***p<0.001; **p<0.01; *p<0.05; †p<0.1

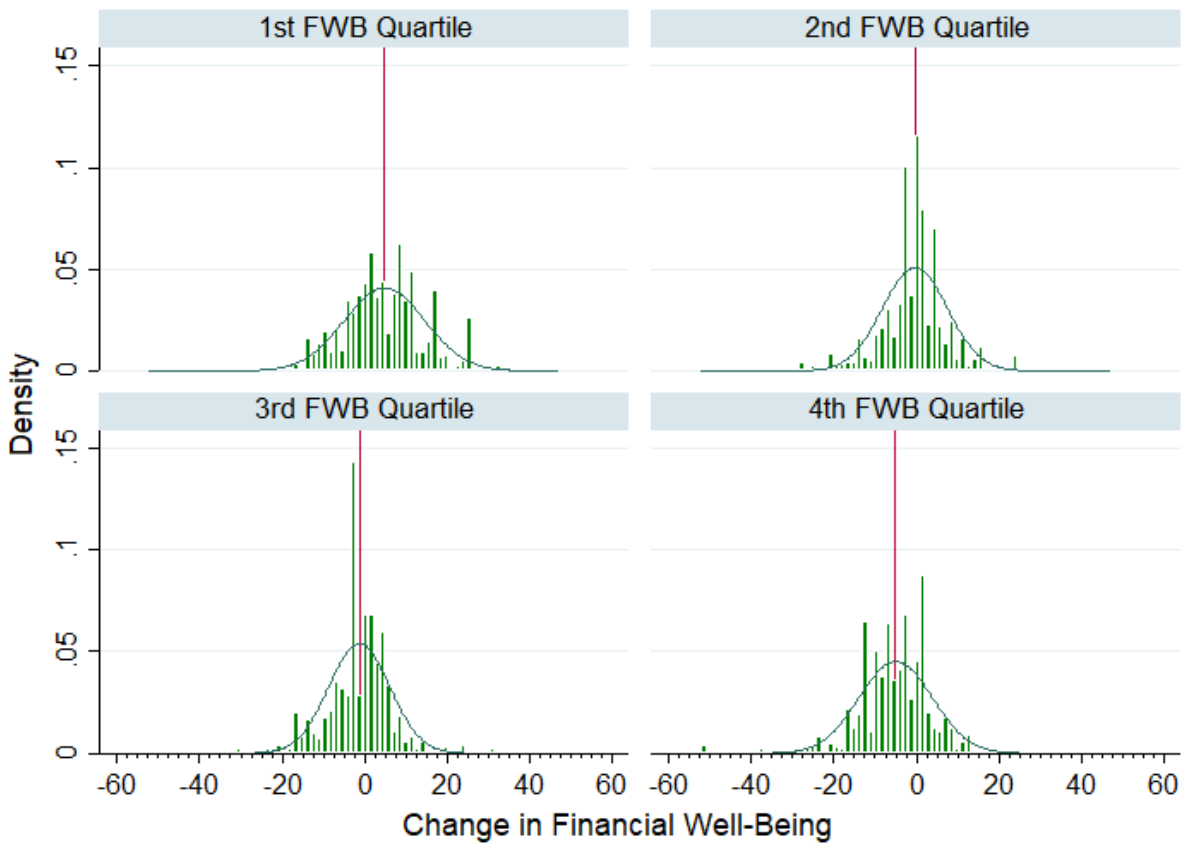
Figures

Figure 1. The Distribution of Short-Term Changes in Financial Well-Being



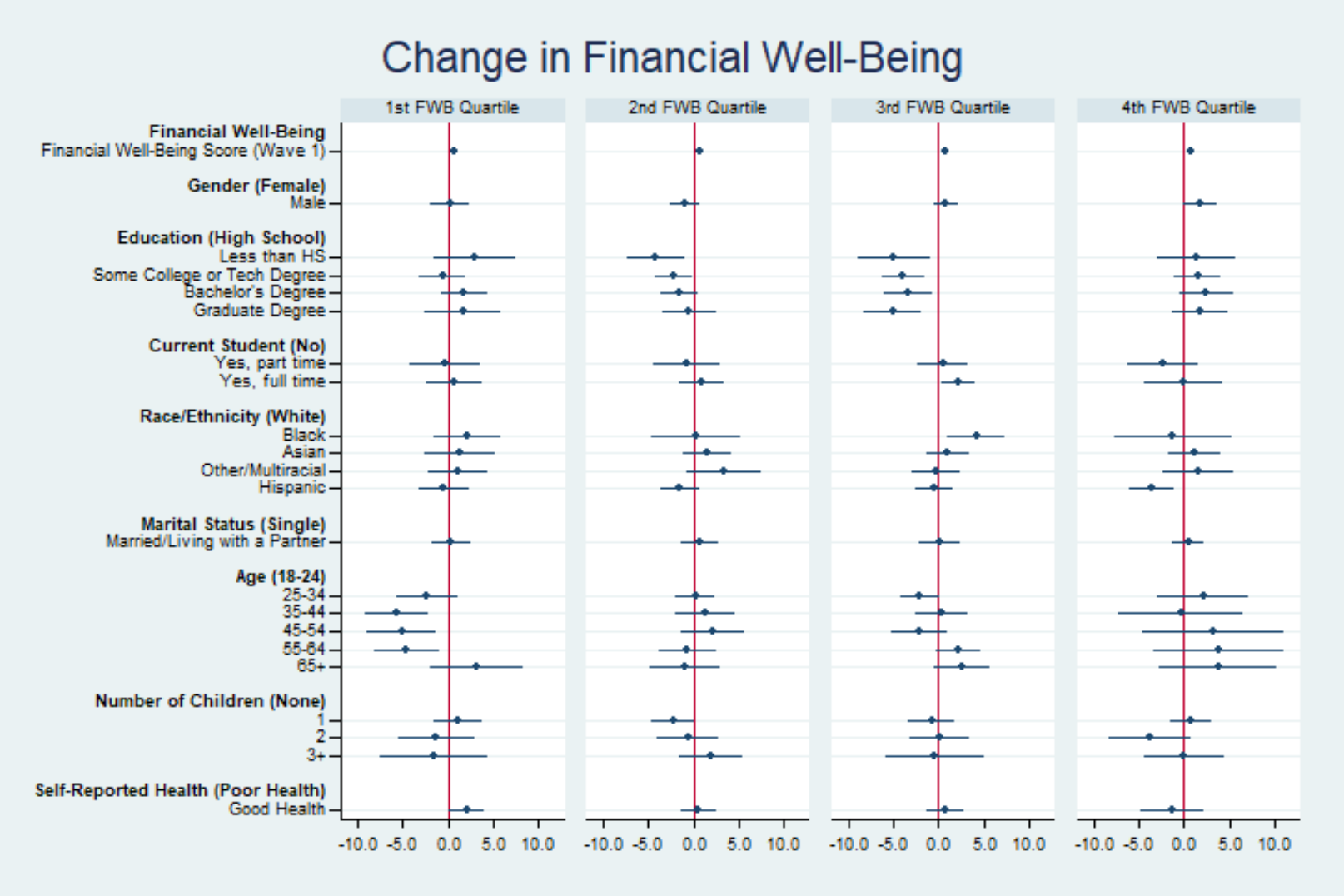
Note: This Figure presents a histogram of the change in financial well-being in our sample between Wave 1 and Wave 2 of the survey. The vertical red line indicates the mean change (-0.08 with a standard deviation of 9.32), and the green curve represents a normal distribution. N=3,324.

Figure 2. The Distribution of Short-Term Changes in Financial Well-Being, by Wave 1 Financial Well-Being Quartile



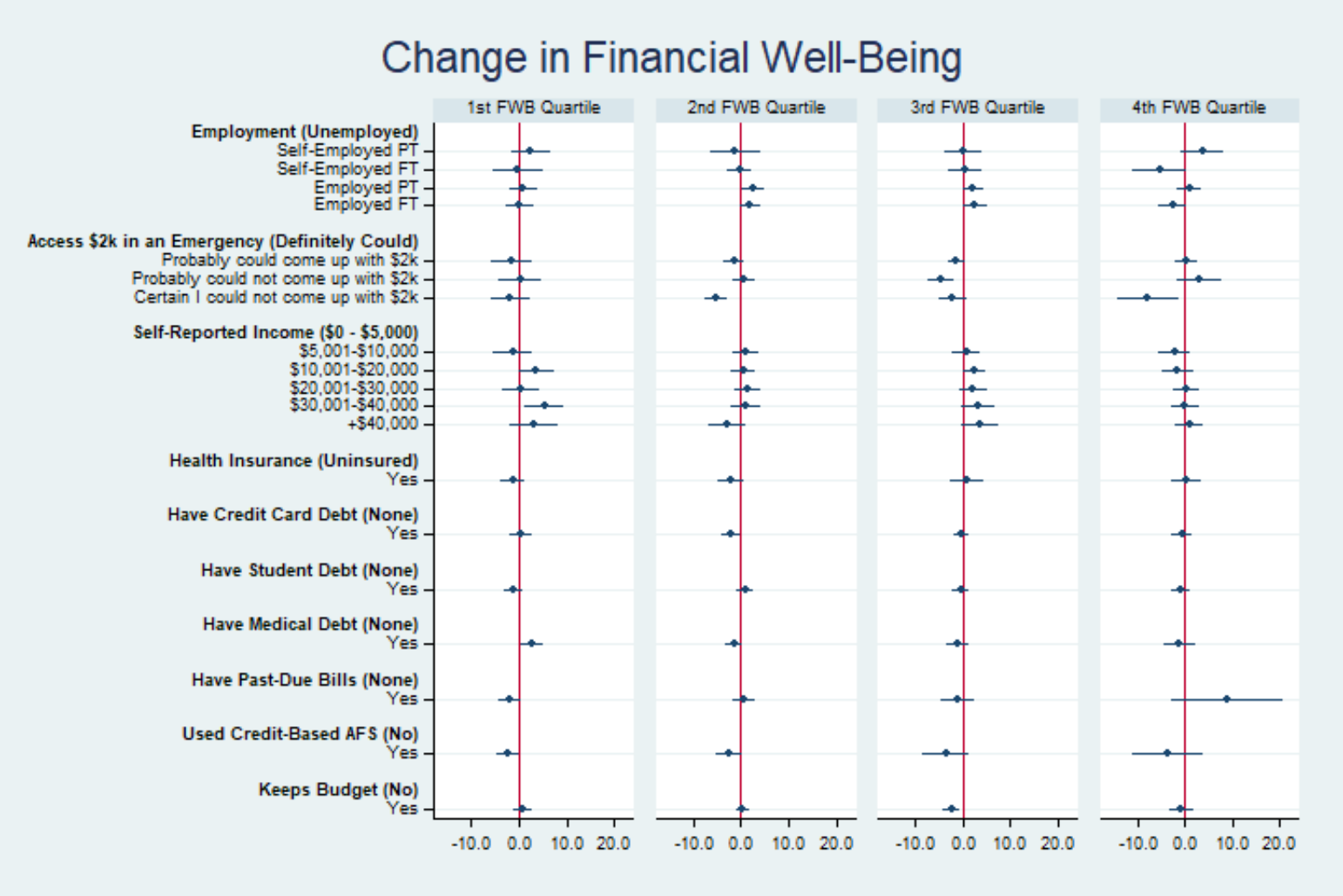
Note: This Figure presents histograms of the change in financial well-being in our sample between Wave 1 and Wave 2 of the survey for households in each quartile of the financial well-being distribution at Wave 1. The vertical red line indicates the mean change in financial well-being for each quartile, and the green curve represents a normal distribution. Overall N=3,324.

Figure 3a. Demographic Predictors of Short-Term Changes in Financial Well-Being, by Wave 1 Financial Well-Being Quartile



Note: This Figure presents the results of a series of OLS regressions examining the demographic predictors of changes in financial well-being for households in each quartile of the Wave 1 financial well-being distribution. The regression models for each quartile are identical to Model 4 in Table 3. The points in each row of the figure represent coefficient estimates, while the lines represent the 95 percent confidence intervals. Models also control for tax refund characteristics. N=3,324.

Figure 3b. Financial Predictors of Short-Term Changes in Financial Well-Being, by Wave 1 Financial Well-Being Quartile



Note: This Figure presents the results of a series of OLS regressions examining the financial predictors of changes in financial well-being for households in each quartile of the Wave 1 financial well-being distribution. The regression models for each quartile are identical to Model 4 in Table 3. The points in each row of the figure represent coefficient estimates, while the lines represent the 95 percent confidence intervals. Models also control for tax refund characteristics. N=3,324.