Measuring Financial Well-being Over the Lifecourse

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Abstract

Financial well-being is a relatively new construct that attempts to measure subjective financial status and perceived future financial trajectory. Using a large public cross-sectional dataset, we find that a standardized financial well-being score generally tracks income, wealth, and participation in investment markets, as well as markers of positive and negative financial behaviour. However, financial well-being measures attributes that are distinct from general subjective well-being and financial literacy measures, especially over the life course. Financial well-being can be a useful construct to include in new surveys but can also be proxied in existing public datasets, as we demonstrate using separate survey data.

1 Introduction

The financial status of families is typically expressed using a measure such as income—families are labelled well-off if income levels are well above the median and poor if well below. These measures do not capture how well people are managing financial resources or how much financial strain they feel. Most readers can reflect on people who have relatively little income, yet appear to be financially secure, as well as those with relatively robust incomes who are financially stressed. Yet, in the household finance literature, financial well-being is generally not well measured, in part because there is a lack of standardized instruments to use in research. While prior studies attempt to proxy for financial well-being with measures ranging from assets or debt levels, to financial knowledge (or literacy), to the incidence of hardships, these are indirect indicators of how financially-healthy people perceive their situation. Understanding the financial well-being of households requires more holistic measures than account balances or paystubs can capture. This study explores a relatively new, subjective measure of financial perceptions called the Financial Well-Being (FWB) scale. We demonstrate how this broader measure of financial well-being can offer insights beyond traditional measures and how subjective financial well-being can potentially deepen our understanding of households' financial health.

Economists consider utility as a prime measure of individual's relative satisfaction from the consumption of goods and services. Seminal work by Angus Deaton points to subjective well-being as a measure of individual happiness (Deaton, 2008). This work is also reflected in social psychology, where subjective well-being is often the focus of happiness and life satisfaction research, including at the population level (Diener, 1984; Diener et al., 1999). Across fields, however, there is a consistent finding that while income and wealth are correlated with subjective well-being, there is still variation that economic resources do not explain (Diener and Biswas-Diener, 2002). This begs the question of what contributes to financial well-being over and above general subjective well-being.

In 2015, the federal Consumer Financial Protection Bureau (CFPB) in the United States released a new FWB scale. This new measure was designed to capture the subjective well-being people express related to their financial status developed from extensive consumer interviews and surveys. The scale is based on a definition of FWB that has four basic elements: (1) having control of day-to-day and month-to-month finances; (2) having capacity to absorb a financial shock; (3) being on track to meet financial goals; and (4) having the freedom to make choices that allow enjoyment of life.

To understand how this FWB scale score differs from other common measures of financial status, we use a cross-sectional dataset collected by the CFPB from more than 6,000 US households to estimate how demographic and a range of financial measures are related to FWB, as well as patterns of FWB at various ages. We also use another dataset to

reproduce a pseudo-FWB scale measure, showing that the FWB construct can be proxied even with surveys that do not include the specific FWB scale question items.

This study contributes to the literature in three ways. First, few prior studies have used a standardized scale to measure financial well-being. We are able to compare the FWB scale to general subjective well-being, as well as levels of income, wealth, financial literacy, and financial perceptions. Second, we show how levels of the FWB scale vary over the life course and that FWB captures attributes not well measured in financial measures alone. Third, we create a proxy for FWB to show how researchers can use measures that are already in existing datasets to construct a measure of financial well-being with similar performance characteristics.

2 Overview of Concepts and Measures

Studies in household financial research tend to use a handful of measures to indicate how financially secure people are—measures like relative income, net wealth or levels of consumption. These measures can capture some aspects of household financial conditions, but there are always anecdotes of wealthy people on the brink of financial collapse, as well as thrifty low-income people who are financially independent and secure. Previous work generally uses a variety of measures of financial conditions. We summarise some key aspects of each below, in part to define the differences across measures and illustrate the need for a distinct financial well-being measure.

Financial status is among the most commonly measured financial attribute used in many household surveys, including measures of assets, debt, and income. One data source with these measures is the Federal Reserve Survey of Consumer Finances, which has provided detailed estimates of household finances dating back to the 1980s (and earlier in some cases) (Bricker et al., 2017). These data are useful for describing patterns and changes in financial status of cohorts of households over time. For example, Poterba et al. (1994) examine retirement account balances, and Bergstresser and Poterba (2004) study the types of accounts people hold. There are hundreds of surveys that include related measures of income and wealth, although there remains variation in how these items are measured.

Financial inclusion is a newer concept drawn from development economics where access to basic banking services is viewed as a critical infrastructure for developing economies (Demirguc-Kunt et al., 2018). In the US, inclusion focuses more on access to banking and lending services. For example, Rhine et al. (2006) study the ownership of basic transactional bank accounts (checking accounts). The US Federal Deposit Insurance Corporation (FDIC) 'Unbanked Supplement' to the US Census Current Population survey was devel-

oped to track the rate of the population being banked or has access to financial services (Rhine and Greene, 2013). In developed countries, financial inclusion may also be broadened to include participation in stock, bond, and mutual fund markets (Lusardi et al., 2011).

Another domain of measures in household finance are related to material hardship (Short, 2005). Material hardships are measures of consumption; a lack of consumption of items considered a necessity is defined as a hardship (Bhattacharya et al., 2004). Hardship measures are often related to the cost and quality of food or housing (Desmond and Gershenson, 2016). Material deprivation measures are somewhat broader and include access to durable goods or other consumption (Beverly, 2001), such as basic health care (Lyons and Yilmazer, 2005). For example, Mayer and Jencks (1989) show that income thresholds mask the fact that some households have higher incomes but experience material hardships, while other households have incomes below poverty thresholds and face few or no hardships.

Financial capability is another newer construct. Capability measures focus on people's ability to take actions to manage their finances (Atkinson et al., 2007). Financial capability measures are more diffused, including measures of financial behaviour, confidence and satisfaction (Taylor, 2011; Xiao et al., 2014). Financial capability may also include aspects of financial inclusion to capture the ability of people to make financial decisions (Johnson and Sherraden, 2007). Financial capability is one of the newer incarnations of measures of consumers in financial contexts and in part reflects the need for measures that better capture financial well-being.

Other aspects of household financial capability can be captured in scales related to financial knowledge or 'literacy' (Hung et al., 2009). Financial literacy is measured through either perceived financial knowledge or actual factual knowledge, often using questions about topics like inflation, compound interest or investment types. Correct responses to objective items in financial knowledge tend to be associated with better financial behaviours (Knoll and Houts, 2012; Lusardi and Mitchell, 2014, 2007; Taft et al., 2013)

3 Financial well-being

Financial well-being is a relatively new concept in household or consumer finances. The concept is grounded by the literature on subjective well being, the subject of much study in psychology and economics over the last few decades, including pathbreaking work by Diener (1984) and Kahneman and Krueger (2006). For example, Kobau et al. (2010)

developed the five-item Satisfaction With Life Scale.[1] Income or wealth levels are often included in studies of subjective well-being, where well-being and economic resources are only weakly correlated (Diener and Biswas-Diener, 2002; Dolan et al., 2008). However, subjective well-being encompasses a wide range of non-financial factors like health, family situation and social influences. Only a subset of overall subjective well-being is related to finances and financial management.

The FWB scale was developed based on a consumer-defined meaning of financial well-being. Researchers conducted qualitative interviews and focus groups to define what is included in financial well-being and to draft and test survey items. This definition of financial well-being is measured at the individual level and is based on reports of feelings of (1) control over day-to-day, month-to-month finances; (2) the capacity to absorb a financial shock; (3) being on track to meet financial goals; and (4) having the financial freedom to make the choices that allow for the enjoyment of life. Being in control includes being able to pay bills on time, not having unmanageable debt, and being able to make ends meet. Absorbing a shock includes resilience by having a financial cushion, savings, health insurance, access to credit, or friends and family for financial assistance. Financial goals, which can vary based on the individual and his or her needs, are related to resource planning and being confident to make financial decisions. Financial freedom includes aspects of autonomy, where a lack of financial resources can limit basic life choices. This includes simple forms of discretionary consumption, such as being able to eat a meal out of home with family members.

The FWB scale was then tested to establish scoring procedures based on a 10-question scale with 5-point likert scales, as well as a scoring formula.[2] The FWB scale question items are displayed in Table 1. These 10 items are not simply summed from 0 to 50, as might be standard in a classical scale method of adding up raw score points. Instead the FWB scale uses item response theory (IRT) modelling where each response has a different meaning. Each question item and item response does not have equal weighting and may contribute in different ways to the scale. The use of IRT some question responses to provide a stronger (or weaker) indication of overall financial well-being. The IRT model estimates parameters for each response item to calculate a combined score (Edelen and Reeve, 2007).[3] The FWB score is transformed into a roughly 100 point score, ranging

[1]The scale has 5 questions with agree or disagree using a 1 to 7 scale, including: 'In most ways my life is close to my ideal, 'The conditions of my life are excellent,' 'I am satisfied with my life', 'So far I have gotten the important things I want in life,' 'If I could live my life over, I would change almost nothing.'

[2]See the CFPB website: `https://www.consumerfinance.gov/consumer-tools/financial-well-being/`

[3]The FWB score is estimated using software, flexMIRT 2.0 using a bifactor graded response model with one factor related to the latent financial well-being construct and one factor to account for whether each question was phrased negatively or positively.

from about 20 to 90. The FWB score IRT procedure is weighted separately for people in working ages (18-61) and those who are retired or close to retiring from work (62 and older). Older people respond to the same set of questions, but the relative weighting of questions shifts as people are out of the workforce, spending down savings, and on relatively fixed incomes with reduced discretionary consumption, a pattern commonly shown in prior studies of the economics of the household (Browning and Crossley, 2001; Gerrans et al., 2014).

The FWB scale questions have only been available for a few years, but are already being included in a growing number of studies in the US, including future editions of the FINRA Investor Education Foundation's National Financial Capability Study (NFCS) and the Federal Reserve Board Survey of Household Economic Decisionmaking (SHED).

4 Data

This analysis uses the 2016 CFPB National Financial Well-being Survey. These data are nationally representative and the first to collect such a sample of financial well-being for respondents in the US. The dataset represents a large public investment and was carried out in partnership with the nonprofit organization Prosperity Now, as well as researchers from Abt Associates, Vector Psychometric Group, and the University of Wisconsin-Madison's Center for Financial Security. More background on this survey is available in the Appendix.

In addition to the FWB scale, there are other attributes that make this dataset useful, such as a variety of measures to capture individuals' financial situation, ranging from subjective perceptions to objective responses on financial status. There are no administrative data linked to individual responses to validate self-reports of financial well-being in the data, however. The survey is cross sectional for 2016 with no plans for another survey. As a result, we try to show the constructs of the FWB scale relative to other measures, as well as patterns of the scale relative to the what we would predict from standard economic life cycle theories in economics.

Table 2 shows the means, standard deviations and range for each of the key variables we use in this study. Our main focus is the FWB scale, which has a mean of 54, ranges from 14 to 95, and has a standard deviation of 13. We also tabulate a FWB score without using the IRT, simply summing the score and adding 25 to center the distribution similarly to the IRT score. The the summation score has a mean of 57, a standard deviation of 6.7, and ranges from 39 to 71. This distribution is similar to the scale, but the IRT-scored scale expands the distribution, especially at the tails. Figure 1 shows the distribution of the FWB scale with IRT scoring, where lower scores imply lower financial well-being. The pattern

generally displays a normal distribution.

The financial literacy (Fin Lit) score is based on a 9-item quiz using multiple choice options covering (1) long-term investment returns, (2) volatility of investments, (3) benefits of diversification, (4) stock markets prices, (5) the role of life insurance, (6) housing values, (7) how credit card payments work, (8) bonds prices and interest rates, and (9) the relationship between mortgage term length and interest costs. The survey also has a 3-item scale by Lusardi et al. (2011); both scales perform similarly but we use the richer 9-item scale with more gradation in scores. The score is the number correct as a percentage in round numbers (0-100). The mean is 67, meaning on average respondents answered 67 percent of the items correctly.

The subjective well-being (SWB) scale is based on three commonly used survey items used in prior studies (Kahneman and Krueger, 2006). The items ask the respondent to agree or disagree with (1) I am satisfied with my life; (2) I am optimistic about my future; and (3) If I work hard today, I will be more successful in the future. Each question has a 7-point likert scale of levels of agreement or disagreement. In order to be able to compare FWB scales and SWB scales in our figures, we score the SWB scale in the same method as the FWB scale, using an IRT graded response model, transformed to center around 50. The mean is 52 with a standard deviation of 13, a minimum of 14, and maximum of 74.

We measure financial hardship as an indicator if the respondent has reported any of the following: not having enough food, not being able to afford housing, health care, or medications, and having had utilities (water, energy, telephone) shut off due to non-payment. About one-third of the respondents report some form of hardship in the last 12 months. We also have an indicator of the respondent having been a victim of financial fraud in the last 5 years (24 percent report they have been de-frauded). About 83 percent of the sample is banked—meaning they have a checking or savings account—and 14 percent have been contacted by a bill collector in the last year. About 12 percent of the respondents in the sample report receiving government food assistance, and 59 percent own their own home (including with a mortgage). Other measures are based on survey items that measure savings levels in 7 categories, ranging from $0 to over $75,000, with a mean of around $20,000. Income is measured in 9 categories, with a mean around $50,000.

Another set of questions in the survey measures respondents' perceptions of financial knowledge or 'know-how', including self reports (where 1 is yes and 0 is no) of knowing how to find financial advice (50 percent responding yes), how to make financial decisions (37 percent yes), how to invest (29 percent yes), how to budget (60 percent yes), and how to save (57 percent yes). The survey also includes a standard set of demographic characteristics. About two-thirds of the respondents report being white or Caucasian, with the remainder being people of color. About half of respondents are female, 46 percent are college graduates (including 2 and 4-year degrees), and 29 percent had a parent who

attended college. About half of respondents have children under age 18, and 56 percent are currently married. Only 5 percent are unemployed, and 21 percent are retired from work. About 15 percent of respondents are in the military or are a military veteran.

These data provide a rich set of characteristics with useful variation to be able to estimate the factors that are associated with FWB scores, as well as how high or low FWB scores are associated with key financial outcomes. We next turn to our procedures to estimate FWB scores and relationships across measures.

5 Methods

One way to better understand financial well-being as a construct and the FWB scale as a particular measure of well-being is to rely on descriptive approaches used in population science, sociology, and demography. Prior studies have examined how measured financial attributes track with gender, age or other fixed factors, as well as preferences and behaviours (for example see Gerrans et al. (2014), or Ruel and Hauser (2013) or the work of Halek and Eisenhauer (2001)). Age cohorts are of particular interest since the FWB was in part constructed to account for age-based differences among people of working versus retirement ages. There are also very predictable patterns of financial behaviour as people age, including accumulating savings and earning more income up until retirement, and de-cumulation after retirement.

To understand FWB scores over the lifecycle, we split our data into age cohorts of: 18-24, 25-34, 35-44, 45-54, 55-61, 62-69, 70-74, and age 75 or more. Since the scores are adjusted for those 62 and older, we intentionally split the data at that point. We begin with an OLS (ordinary least squares) regression of FWB scale scores in Equation 1.

$$\begin{aligned} Y_i = \alpha + \beta_1 \text{Age Cats}_i + \beta_2 \text{FinLit}_i + \beta_3 \text{SWB}_i + \gamma \text{Demo}_i \\ + \sigma \text{Resources}_i + \delta \text{Perceptions}_i + \theta \text{RegionFE}_i + \varepsilon_i \end{aligned} \tag{1}$$

Y_i is the financial well-being (FWB) scale for individual i. β_1 is an estimate of the FWB scale for each age category (25-34, 35-44, 45-54, 55-61, 62-69, 70-74, and 75+), where age group 18-24 is the omitted category. We would generally predict that as people age, they have established consumption and earnings patterns that will lead to higher levels of FWB scores. Our initial specification simply includes these age category dummies as a baseline set of estimates. We then add additional covariates to observe how these β_1 estimates change with more explanatory variables.

Based on the prior literature, we are interested in the estimates represented by β_2 and β_3 in Equation 1, which are financial literacy and subjective well-being, respectively. Financial literacy is measured using objective quiz questions developed by Knoll and Houts

(2012).[4] This scale is a percentage correct score represented by whole numbers (100 means all 9 questions were answered correctly, 0 means none). The subjective well-being scale is based on 3 commonly used survey items each with 7-point likert scales of levels of agreement or disagreement, drawn from scales used in prior studies, and scaled using an IRT method like the FWB scale.[5]

The estimates for γ are based on a vector of demographic characteristics, including gender, race, the highest education level in the household, the highest education level of the respondent's parents, the number of children under age 18, marital status, employment status (employed full or part time, unemployed, or retired from labor markets), and prior or current military service. These are included to account for most of the observed factors we predict might also influence the FWB scale score, although we have no specific priors on how these estimates should perform.

The estimates in σ are based on the household's reported economic or financial resources. This includes an indicator if the household has a bank account, if they own a home, if they have any investment accounts and if the household has any debt in collections (defined as having received a collector's notice in the last year). We measure financial inclusion by whether or not the individual has a formal checking or saving account, where we refer to this as banked. We also include participation in the stock, bond, or mutual fund markets. This vector also includes an indicator if the household was a victim of financial fraud in the last five years and separately if the household has received government assistance for obtaining food. Finally, this set of variables includes indicators of levels of savings (\$0, \$1-99, \$100-999, \$1k-5k, \$5k-20k, \$20k-75k, and \$75k-), and levels of income (0-\$20k, \$20-30k, \$30k-40k, \$40k-50k, \$50k-60k, \$60k-75k, \$75k-100k, \$100k-150k, and \$150k^{+}).

The final set of estimates include a vector of estimates in δ is based on a set of perceptions of financial knowledge or know-how, including self reports (where 1=yes) of knowing how to find financial advice, how to make financial decisions, how to invest, how to budget, and how to save. We also include a vector of estimates represented by δ based on nine US regional fixed effects.[6] The error term ε_i is the standard error, adjusted for heteroskadsity (Freedman, 2006). All estimates include national weights provided as part of the data distribution.

[4]The quiz items include: long-term returns; volatility; diversification; stock markets; life insurance; housing values; credit card payments; bonds and interest rates; and mortgage term length and interest costs.

[5]SWB items include: I am satisfied with my life; I am optimistic about my future; If I work hard today, I will be more successful in the future.

[6]The 9 divisions are: New England, Mid-Atlantic, East-North Central, West-North Central, South Atlantic, East-South Central, West-South Central, Mountain, and Pacific

5.1 Financial Well Being Levels and Financial Conditions

Studies of household financial decisions often use an array of financial outcomes, including financial status (savings), financial inclusion (whether or not an individual has access to financial products), financial hardship (experience of financial shocks), and financial knowledge (how financially 'literate' measured as individuals answer questions). We estimate coefficients for these types of outcomes using the following OLS specification:

$$Y_i = \alpha + \beta_1 \text{Low FWB}_i + \beta_2 \text{High FWB}_i + \gamma \text{Demo}_i + \theta \text{RegionFE}_i + \varepsilon_i \quad (2)$$

where Y_i is the financial outcome for individual i. We estimate six outcomes: financial literacy (using the 0-100, 9-item quiz described above), subjective well-being (using the same three items described above), savings levels (seven levels), having financial investments (0-1, using a linear probability OLS specification), and the experience of material hardships.[7].

The Low FWB measure is an indicator variable for a respondent in the lowest quarter of the FWB scale distribution (below 48), and the High FWB measure is an indicator for being in the top quarter (63 and above). Thus β_1 and β_2 are the estimates conditional on having low or high FWB, with medium FWB as the constant. The same controls for demographics are included, as well as the age and income categories used in Equation 1. Savings levels are omitted, as are the other variables used in Equation 1. As in Equation 1, Equation 2 also has δ regional fixed effects, and the adjusted error term ε_i, using survey provided weights.

6 Findings

We begin with a visual analysis of the FWB scale by age cohort, in order to compare these patterns to what we might predict based on standard life cycle explanations in household financial behaviours. Figure 2 shows that financial well-being increases with age, which is consistent with financial development as people's human capital improves and savings accrues. Each additional cohort sees an increase in financial well-being until age 75. Figure 3 shows a FWB summation score that uses the same measure for all age groups rather than the IRT score that uses different weighting after age 61; the patterns are similar. This is re-assuring that gains in FWB scores at older ages are not an artifact of the FWB scoring formula.

[7]Hardships include any of these: worried whether food would run out; experienced food that did not last and did not have money to get more; could not afford a place to live or get health care, stopped taking needed medications due to costs, or, had utilities shut off due to non-payment

Figure 4 shows the FWB score by income levels, relative to the overall mean FWB score. There is a mostly normal distribution across all the income levels, with lower incomes generally showing lower levels of the FWB scale. This is not surprising, since those with greater incomes potentially have additional resources and a larger cushion with which to protect against financial shocks. Still, it is clear income does not precisely explain FWB scores.

Furthermore, Figure 5 shows a scatterplot of SWB and FWB. These two measures are positively correlated, as shown by the fitted line, but there is a great deal of variation in FWB scores at any given level of SWB score. Simple pairwise correlation statistics of FWB Score are 0.41 with subjective well-being. FWB is one of many factors influencing individuals' overall subjective well-being; financial security does not always generate happiness. It is this variation in FWB we explore next using the OLS regression estimates described in Equation 1.

Table 3 shows the stepwise estimates for the FWB scale adding additional covariates, beginning with only the age cohorts. In Column (1) the estimates for FWB score increase with each age cohort (relative to 18-24, the omitted category). Adding in financial literacy and SWB scores in Column (2) reduce these age group estimates only slightly. Both financial literacy and SWB score estimates for FWB scores are significantly different from 0. After controlling for demographics and regional fixed effects in Column (3), a 10 percentage point increase in financial literacy is related to a 1 point increase in FWB scores. A 10 point increase in SWB scores is associated with about a 3 point increase in FWB scores. Adding in economic resources and savings in Column (4) and self-reported knowledge in Column (5) greatly reduces the financial literacy estimates. The SWB score estimates are cut in half but remain still statistically different from 0.

The other covariates generally show estimates that are consistent with higher or lower FWB in predictable ways. Being banked is associated with higher FWB scores, and having debt in collections is related to a lower score. Savings levels and income levels are strongly related to FWB scores, where more income and more savings are related to higher FWB scores. Self-reported financial know-how, especially related to savings, is also related to higher FWB scores. One exception is knowing how to make financial decisions, though this may not be a reliable measure as only 37 percent of respondents replied affirmatively. The lack of response may suggest a lack of confidence or a highly variable interpretation of the question.

Generally, Table 3 shows age patterns where people age 62 and older have higher measured FWB scores and higher income and savings levels. Financial problems, such as debt in collections or not having savings at all, are related to lower FWB scores. Measured financial literacy has a relatively small association with FWB scores, especially controlling for self-assessed know-how. These results suggest that resources, financial skills, debt, and

overall SWB are important correlates of FWB, whereas financial knowledge is likely only correlated with FWB through other factors (e.g., assets or skills).

Next we turn to FWB score levels. Summary Table 4 splits data by FWB levels. We can compare Column (1) for all respondents, to those in Column (2) with FWB scores in the lowest level, to those in the middle in Column (3), and to those in the highest level in Column (4).[8] Across all rows, the differences between Columns (2) and (4) are stark. Low-FWB score respondents have lower measured financial literacy scores, lower subjective well-being, lower savings levels, are less likely to have any investments, and have much higher rates of reporting material hardships.

We show estimates of financial outcomes using FWB score levels, as described in Equation 2, in Table 5. This table shows OLS estimates for indicators for people in the low-FWB and high-FWB groups. These estimates include covariates for age category, income level, race, gender, education level, parent's education, number of children, marital status, employment status, military service, and regional fixed effects. We exclude savings since it is a dependent variable in one estimate. All of these controls perform in a similar manner to the prior analysis.

Low-FWB is not statistically significant in terms of financial literacy in Column (1), but-high FWB is—where people in the top group of FWB scores have financial literacy scores that are about 2.9 points higher than the middle group, controlling for other factors. This suggests that those with confidence in their financial futures potentially also seek out more financial knowledge. Column (2) shows low-FWB respondents have lower SWB, have higher-FWB, and have higher SWB, relative to the middle-FWB group. This correlation displays a clear link between financial struggle and overall utility.

Savings levels and having investments in Columns (3) and (4) show the same pattern—low-FWB have fewer financial assets and asset types, and high-FWB respondents have more. This suggest that a greater cushion to shield against financial shocks is reflected in the FWB measure. The estimates in Column (5) are especially stark, with low-FWB group respondents having almost 40 percentage points higher rates of material hardship, while high-FWB have 12 points lower material hardship rates, relative to the middle-FWB group. Recall that the FWB scale is a newer measure of financial well-being, which captures a subjective sense of someone's financial condition and consideration for the future. The patterns we see in this table are generally consistent with this construct—people who fare worse on these measures would also be likely to fare worse in terms of financial well-being.

One problem with this exercise is we lack a clear benchmark for FWB scores. However, we can use the standard financial life cycle, widely used in economics and finance, to describe patterns of asset accumulation and decumulation through working and non-

[8]The lowest quartile are under 48, the middle are between 48 and 62, and the highest are above 62.

working years as a form of validation. We would expect these outcomes described in Table 5 would show predictable patterns by age group, including for FWB scores. We show the estimates for FWB score and these financial outcomes over the life course in Figure 6, using the same OLS estimation techniques as in Table 5. Each figure plots each outcome by age group, again controlling for other factors. The patterns are re-assuring that FWB follows the same age-group patterns as other measures. Notably, subjective well-being is more of a U shaped convex pattern across age cohorts, which may shine further light on differences between general subjective well-being and specific financial well-being measures over the life course. Younger people may feel initially higher general well-being despite their financial circumstances, then the reality of their finances settles in, lowering their sense of satisfaction. FWB scores follow a more positive path, increasing with age but not linearly. In general, financial well-being has a pattern of increasing over the life courses, and the life cycle patterns of financial well-being closely mimic what we observe in other measures.

Table 6 shows mean FWB score, savings levels, incomes and retirement rates by age group. The intent is to show the run up in FWB as retirement rates increase after age 50, even though income and savings levels are relatively flat.

7 Extension: Exogenously Predicting FWB Scores

Since this is cross-sectional data without detailed respondent information, we have limited ability to predict FWB scores. However, we do have the respondent's current Census area (nine districts), and age range. We can use this information to estimate FWB scores based on the unemployment rate when the respondent was age 18 to 24, the ages when young adults enter into the labour force. Prior studies show entering the workforce during more recessionary periods depresses later life economic status (Hershbein, 2012; Oreopoulos et al., 2012). Here we use area unemployment rates by age cohort with age and division fixed effects, so the unemployment variable can identify differences in FWB scores based on variation across areas within an age cohort. We only can obtain regional unemployment rates from 1976 onward, meaning people age 62 and older are excluded from this analysis. This is a group all scored using the same formula and likely to still be in the workforce. Figure 9 plots the average unemployment rates in a region when an individual was between 18 and 24 by age, using from respondents from the 2015 NFCS.

We can additionally control for respondent fixed characteristics that are unlikely to be related to regional unemployment rates (gender, race, and parental education). Finally, we can control for respondents' family discussions of financial matters (saving, credit, smart shopping, provided an allowance or a savings account) as children. This is based on a

series of questions in the survey we can include as controls. While FWB may influence response bias, generally these are activities that occurred before the respondent was 18 and would not be related to area unemployment rates. Figure 7 shows the estimates for each specification visually. All three estimates show lower FWB scores for age cohorts in regions with higher unemployment rates; these are statistically significant (relative to zero), although small in magnitude (as we would expect). This is consistent with FWB scores being influenced by economic contexts in formative early adulthood. While not an ideal identification strategy, given our limited data, this is re-assuring that FWB behaves generally as we would predict from prior studies.

8 Replicating Financial Well-being Measures in Existing Survey Data

Our last analysis is to try and replicate the FWB measure and the trends we see in these data with questions in another dataset. We use the National Financial Capability Study (NFCS) data (FINRA, 2018) to show how the FWB scale can be produced by proxy in other data. The United States Financial Industry Regulatory Authority (FINRA) Investor Education Foundation conducts the NFCS every three years. The survey was conducted online in 2018 among a representative sample of 27,091 adults. In 2018, NFCS did include the official FWB scale for the first time. The 2012, 2015, and 2018 NFCS data also include question items that approximate the types of topics that the FWB scale measures. We identified five questions that approximate items in the NFCS, capturing the abbreviated five-item scale the CFPB developed: (1) just getting by financially; (2) concern that money will not last; (3) never having the things you want in life; (4) financing controlling one's life; and (5) having money leftover at the end of the month. We then create a NFCS 'pseudo' FWB scale on the following survey items:

Mapping FWB Scale Items to NFCS Survey

FWB 5-Item Scale	NFCS Proxy Item
(1) I am just getting by financially	(1) How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?
(2) I am concerned the money I have or will save won't last	(2) Over the past year, would you say your household's spending was less than, more than, or equal to your household's income?
(3) Because of my money situation I feel like I will never have the things I want in life	(3) Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?
(4) My finances control my life	(4) I have too much debt right now
(5) I have money left over at the end of the month	(5) In a typical month, how difficult is it for you to cover your expenses?

We then estimate a FWB score using the same IRT graded response model with these proxy questions, where the estimated latent theta parameter is scaled the same way as the

official FWB score.[9] Although this is not a summation score, if we estimate the classical scale reliability coefficient using the Cronbach's alpha measure of internal consistency, the 0.79 value is acceptable.

We run the same style of estimates for FWB scores as in Equation 1, although we lack some of the same controls. Our age groups are more condensed, and the measurement of assets is based on number of investments rather than amounts. Still, we are able to use many of the same variables as in the prior analysis. In Figure 8, we show visually that our coefficients of Pseudo-FWB score by age mimic the patterns for those of the FWB scale shown in the prior tables.

We also show estimates by age for the official FWB score that is included in the 2018 NFCS data side by side with the pseudo score—both have the same levels for each age cohort. Although not shown, we are able to produce similar patterns by age with prior year's of the NFCS before the FWB scale was added. The pseudo FWB scores perform well. Our intent is not to suggest a substitute for the official FWB scale items, but rather that the general concept of financial well-being can be replicated even in surveys that do not formally include the CFPB FWB survey items and scoring. This could present a strategy for researchers using other datasets, or even data collected from field studies, in cases where broader measures of financial well-being are useful in addition to traditional measures of financial status, inclusion, or hardships.[10]

9 Conclusions

Using the Financial Well-being Survey we show that financial well-being generally tracks the life cycle, rising with income and savings levels and increasing with age. However, there is significant variation in FWB score, even by income and age. The FWB score is not strongly associated with financial literacy and follows subjective well-being only to an extent, especially after middle age. Negative financial events tend to be associated with worse financial well-being, and positive behaviours are associated with higher scores.

The FWB scale is based on a definition of financial well-being that includes (1) having control of day-to-day and month-to-month finances; (2) having capacity to absorb a financial shock; (3) being on track to meet financial goals; and (4) having the freedom to make choices that allow enjoyment of life. Directly measuring financial well-being to capture these factors may be a useful strategy for evaluations of interventions and in future surveys. However, we also show that the FWB score may also be a measure that researchers

[9] We use the Stata command `pfwb`, developed by Austin Nichols. See: `https://ideas.repec.org/c/boc/bocode/s458353.html`.

[10] See code at `https://github.com/jmcollinswisc/fwb`

can proxy for in existing surveys when proximate questions are available.

The concept of subjective financial well-being, and the FWB score as an applied measure using standardized items and scoring procedures, offers another construct to better understand household and consumer finances. The FWB score is an alternative way to estimate financial status, mainly as a complement to asset or income measures. It may offer more insights into mechanisms for policy analysis, as well as to understand the longer term, more subjective impacts of programs.

Being a new concept and new measure, much more work is needed to understand how the FWB score operates. There are potential self-reporting biases or systematic biases by race or gender that may be problems with non-response in surveys relative to more objective measures. While all measures have issues with reliability and validity, the FWB score has yet to be compared to administrative data, such as credit reports or account balances, which would provide a way to externally validate the measure. The FWB score has also not been tested in a longitudinal panel format, so changes within respondents have not been documented. For example, there may be relative temporal effects of measures of financial well-being where some people experience differential rates of change in FWB score over time and in response to positive and negative shocks.

We are hopeful this descriptive exercise introduces researchers to a new concept and measure of financial well-being, ultimately expanding the toolbox of outcomes that are analysed in household financial research. Financial well-being is a complementary way to capture how well people are doing financially, including their subjective perceptions of their financial health. We remain optimistic that measures like these will help the field to better understand the nuances of consumer financial behaviour and uncover a way that people's financial well-being can ultimately be enhanced.

References

Atkinson, Adele, Stephen McKay, Sharon Collard, and Elaine Kempson, "Levels of financial capability in the UK," *Public Money and Management*, 2007, *27* (1), 29–36.

Bergstresser, Daniel and James Poterba, "Asset allocation and asset location: Household evidence from the Survey of Consumer Finances," *Journal of Public Economics*, 2004, *88* (9-10), 1893–1915.

Beverly, Sondra G, "Measures of material hardship: Rationale and recommendations," *Journal of Poverty*, 2001, *5* (1), 23–41.

Bhattacharya, Jayanta, Janet Currie, and Steven Haider, "Poverty, food insecurity, and nutritional outcomes in children and adults," *Journal of health economics*, 2004, *23* (4), 839–862.

Bricker, Jesse, Lisa J Dettling, Alice Henriques, Joanne W Hsu, Lindsay Jacobs, Kevin B Moore, Sarah Pack, John Sabelhaus, Jeffrey Thompson, and Richard A Windle, "Changes in US family finances from 2013 to 2016: evidence from the survey of consumer finances," *Fed. Res. Bull.*, 2017, *103*, 1.

Browning, Martin and Thomas F Crossley, "The life-cycle model of consumption and saving," *Journal of Economic Perspectives*, 2001, *15* (3), 3–22.

Deaton, Angus, "Income, health, and well-being around the world: Evidence from the Gallup World Poll," *Journal of Economic perspectives*, 2008, *22* (2), 53–72.

Demirguc-Kunt, Asli, Leora Klapper, Dorothe Singer, Saniya Ansar, and Jake Hess, *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution*, The World Bank, 2018.

Desmond, Matthew and Carl Gershenson, "Housing and employment insecurity among the working poor," *Social Problems*, 2016, *63* (1), 46–67.

Diener, Ed, "Subjective well-being.," *Psychological Bulletin*, 1984, *95* (3), 542–575.

_ **and Robert Biswas-Diener**, "Will money increase subjective well-being?," *Social indicators research*, 2002, *57* (2), 119–169.

_ **, Eunkook M Suh, Richard E Lucas, and Heidi L Smith**, "Subjective well-being: Three decades of progress.," *Psychological bulletin*, 1999, *125* (2), 276.

Dolan, Paul, Tessa Peasgood, and Mathew White, "Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being," *Journal of economic psychology*, 2008, *29* (1), 94–122.

Edelen, Maria Orlando and Bryce B Reeve, "Applying item response theory (IRT) modeling to questionnaire development, evaluation, and refinement," *Quality of Life Research*, 2007, *16* (1), 5.

FINRA, "2018 National Financial Capability Study," 2018.

Freedman, David A, "On the so-called "Huber sandwich estimator" and "robust standard errors"," *The American Statistician*, 2006, *60* (4), 299–302.

Gerrans, Paul, Craig Speelman, and Guillermo Campitelli, "The relationship between personal financial wellness and financial wellbeing: A structural equation modelling approach," *Journal of Family and Economic Issues*, 2014, *35* (2), 145–160.

Halek, Martin and Joseph G Eisenhauer, "Demography of risk aversion," *Journal of Risk and Insurance*, 2001, pp. 1–24.

Hershbein, Brad J, "Graduating high school in a recession: Work, education, and home production," *The BE journal of economic analysis & policy*, 2012, *12* (1).

Hung, Angela, Andrew M. Parker, and Joanne Yoong, "Defining and Measuring Financial Literacy," *SSRN Electronic Journal*, 2009, *RAND Working Paper Series WR-708.*

Johnson, Elizabeth and Margaret S Sherraden, "From Financial Literacy to Financial Capability smong Youth," *J. Soc. & Soc. Welfare*, 2007, *34*, 119.

Kahneman, Daniel and Alan B Krueger, "Developments in the measurement of subjective well-being," *Journal of Economic perspectives*, 2006, *20* (1), 3–24.

Knoll, Melissa AZ and Carrie R Houts, "The financial knowledge scale: An application of item response theory to the assessment of financial literacy," *Journal of Consumer Affairs*, 2012, *46* (3), 381–410.

Kobau, Rosemarie, Joseph Sniezek, Matthew M Zack, Richard E Lucas, and Adam Burns, "Well-being assessment: An evaluation of well-being scales for public health and population estimates of well-being among US adults," *Applied Psychology: Health and Well-Being*, 2010, *2* (3), 272–297.

Lusardi, Annamaria and Olivia S Mitchell, "Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth," *Journal of monetary Economics*, 2007, *54* (1), 205–224.

_ and _ , "The economic importance of financial literacy: Theory and evidence," *Journal of economic literature*, 2014, *52* (1), 5–44.

_ , Maarten van Rooij, and Rob Alessie, "Financial Literacy and Stock Market Participation," *Journal of Financial Economics*, 2011, *102* (2), 449–472.

Lyons, Angela C and Tansel Yilmazer, "Health and financial strain: Evidence from the survey of consumer finances," *Southern Economic Journal*, 2005, pp. 873–890.

Mayer, Susan E and Christopher Jencks, "Poverty and the distribution of material hardship," *Journal of Human resources*, 1989, pp. 88–114.

Oreopoulos, Philip, Till Von Wachter, and Andrew Heisz, "The short-and long-term career effects of graduating in a recession," *American Economic Journal: Applied Economics*, 2012, *4* (1), 1–29.

Poterba, James M, Steven F Venti, and David A Wise, "Targeted retirement saving and the net worth of elderly Americans," *The American Economic Review*, 1994, *84* (2), 180–185.

Rhine, Sherrie LW and William H Greene, "Factors that contribute to becoming unbanked," *Journal of Consumer Affairs*, 2013, *47* (1), 27–45.

_ , _ , and Maude Toussaint-Comeau, "The importance of check-cashing businesses to the unbanked: Racial/ethnic differences," *Review of Economics and Statistics*, 2006, *88* (1), 146–157.

Ruel, Erin and Robert M Hauser, "Explaining the gender wealth gap," *Demography*, 2013, *50* (4), 1155–1176.

Short, Kathleen S, "Material and financial hardship and income-based poverty measures in the USA," *Journal of Social Policy*, 2005, *34* (1), 21–38.

Taft, Marzieh Kalantarie, Zare Zardeini Hosein, and Seyyed Mohammad Tabatabaei Mehrizi, "The relation between financial literacy, financial wellbeing and financial concerns," *International Journal of Business and Management*, 2013, *8* (11), 63.

Taylor, Mark, "Measuring financial capability and its determinants using survey data," *Social Indicators Research*, 2011, *102* (2), 297–314.

Xiao, Jing Jian, Cheng Chen, and Fuzhong Chen, "Consumer financial capability and financial satisfaction," *Social Indicators Research*, 2014, *118* (1), 415–432.

Table 1: The CFPB Financial Well-Being Scale

This statement describes me...					
1. I could handle a major unexpected expense.	Completely 5	Very well 4	Somewhat 3	Very little 2	Not at all 1
2. I am securing my financial future.	Completely 5	Very well 4	Somewhat 3	Very little 2	Not at all 1
3. Because of my money situation, I feel like I will never have the things I want in life.**	Completely 1	Very well 2	Somewhat 3	Very little 4	Not at all 5
4. I can enjoy life because of the way Im managing my money.	Completely 5	Very well 4	Somewhat 3	Very little 2	Not at all 1
5. I am just getting by financially.**	Completely 1	Very well 2	Somewhat 3	Very little 4	Not at all 5
6. I am concerned that the money I have or will save won't last.**	Completely 1	Very well 2	Somewhat 3	Very little 4	Not at all 5
How often would you say...					
7. Giving a gift for a wedding, birthday or other occasion would put a strain on my finances for the month.	Always 5	Often 4	Sometimes 3	Rarely 2	Never 1
8. I have money left over at the end of the month.**	Always 1	Often 2	Sometimes 3	Rarely 3	Never 4
9 I am behind with my finances.	Always 5	Often 4	Sometimes 3	Rarely 2	Never 1
10. My finances control my life.**	Always 1	Often 2	Sometimes 3	Rarely 3	Never 4

** reverse scored as shown.

Table 2: Summary Statistics, National Financial Well-being Survey

	mean	sd	min	max
FWB Score	54.25	(13.74)	14.00	95.00
FWB Sum	57.12	(6.74)	39.00	71.00
Financial Literacy Score	67.37	(20.81)	0.00	100.00
Subjective Wellbeing	52.53	(13.34)	14.00	74.00
Savings Level	3.42	(2.33)	0.00	7.00
Own Financial Investments	0.26	(0.44)	0.00	1.00
Material Hardship	0.34	(0.47)	0.00	1.00
Victim of Fin Fraud	0.24	(0.43)	0.00	1.00
Banked	0.82	(0.38)	0.00	1.00
Own Fin Investments	0.26	(0.44)	0.00	1.00
Debt in Collections	0.15	(0.35)	0.00	1.00
Food Assistance	0.12	(0.32)	0.00	1.00
Owns home	0.59	(0.49)	0.00	1.00
Income level	5.38	(2.78)	1.00	9.00
Know: find advice	0.50	(0.50)	0.00	1.00
Know: make fin dec	0.37	(0.48)	0.00	1.00
Know: to invest	0.29	(0.45)	0.00	1.00
Know: to budget	0.60	(0.49)	0.00	1.00
Know: to save	0.57	(0.50)	0.00	1.00
White	0.64	(0.48)	0.00	1.00
Female	0.52	(0.50)	0.00	1.00
College Grad	0.46	(0.50)	0.00	1.00
Parent College Grad	0.29	(0.45)	0.00	1.00
Kids under 18	0.50	(0.93)	0.00	6.00
Married	0.55	(0.50)	0.00	1.00
Unemployed	0.05	(0.22)	0.00	1.00
Retired	0.21	(0.41)	0.00	1.00
Military or Veteran	0.09	(0.29)	0.00	1.00
Census Division	5.21	(2.52)	1.00	9.00
Observations	6389			

CFPB National Financial Well-being Survey, 2016.

Table 3: Financial Well-being Levels

	(1) FWB Score	(2) FWB Score	(3) FWB Score	(4) FWB Score	(5) FWB Score
Ref: Age 18-25					
25-34	0.10	0.01	-0.09	0.44	0.53
	(0.81)	(0.71)	(0.72)	(0.64)	(0.65)
35-44	1.49	0.80	0.85	0.58	0.94
	(0.82)	(0.72)	(0.77)	(0.71)	(0.72)
45-54	2.52**	2.35***	1.56*	0.74	1.09
	(0.80)	(0.70)	(0.73)	(0.67)	(0.68)
55-61	3.58***	3.14***	1.46	0.30	0.72
	(0.86)	(0.75)	(0.77)	(0.70)	(0.70)
62-69	8.28***	7.65***	4.55***	3.58***	3.85***
	(0.84)	(0.73)	(0.83)	(0.76)	(0.76)
70-74	10.02***	8.39***	4.49***	3.20***	3.81***
	(0.93)	(0.81)	(0.97)	(0.87)	(0.86)
75+	8.88***	7.99***	4.40***	3.07***	3.45***
	(0.91)	(0.82)	(0.98)	(0.89)	(0.89)
Financial Literacy Score		0.15***	0.09***	0.02	0.01
		(0.01)	(0.01)	(0.01)	(0.01)
Subjective Wellbeing		0.42***	0.39***	0.30***	0.25***
		(0.01)	(0.01)	(0.01)	(0.01)
Female			0.06	-0.14	-0.18
			(0.35)	(0.30)	(0.30)
College Grad			2.67***	-0.26	-0.39
			(0.41)	(0.38)	(0.37)
Parent College Grad			2.03***	0.22	0.13
			(0.43)	(0.36)	(0.35)
Kids under 18			-1.41***	-0.42*	-0.36
			(0.22)	(0.19)	(0.19)
Married			2.81***	0.16	0.17
			(0.39)	(0.36)	(0.35)
Unemployed			-3.33***	-1.29	-1.22
			(0.82)	(0.71)	(0.72)
Retired			2.73***	2.23***	2.00***
			(0.60)	(0.51)	(0.50)
Military or Veteran			1.24*	0.89	0.59
			(0.55)	(0.46)	(0.44)
Victim of Fin Fraud				-0.78*	-0.64*
				(0.32)	(0.31)
Banked				1.82***	1.63***
				(0.44)	(0.44)
Own Financial Investments				2.05***	1.57***
				(0.35)	(0.34)
Debt in Collections				-5.06***	-4.69***
				(0.46)	(0.47)
Food Assistance				-0.66	-0.81
				(0.55)	(0.55)
Ref: Missing Savings					
$0 Saving				-9.13***	-8.04***
				(0.73)	(0.73)
$1 to 99				-9.41***	-8.45***
				(0.65)	(0.66)
$100 to 999				-6.92***	-6.15***
				(0.56)	(0.55)
$1k to 4999				-3.90***	-3.38***
				(0.50)	(0.49)

Table 3: Financial Well-being Levels

	(1) FWB Score	(2) FWB Score	(3) FWB Score	(4) FWB Score	(5) FWB Score
$5k to 19999				0.54	0.37
				(0.48)	(0.47)
$20k to 74999				3.60***	3.09***
				(0.52)	(0.51)
$75k–				6.94***	6.13***
				(0.55)	(0.53)
Owns home				0.35	0.13
				(0.40)	(0.39)
Ref: 0-$20k Income					
$20-30k				-0.55	-0.12
				(0.67)	(0.67)
$30k to 40k				0.64	1.17
				(0.65)	(0.64)
$40k to 50k				1.74*	2.20**
				(0.71)	(0.72)
$50k to 60k				2.27**	2.68***
				(0.72)	(0.72)
$60k to 75k				2.30***	2.78***
				(0.65)	(0.64)
$75k to 100k				2.84***	3.26***
				(0.65)	(0.65)
$100k to 150k				3.41***	3.82***
				(0.63)	(0.62)
$150k-				4.55***	4.75***
				(0.71)	(0.71)
Know: find advice					1.51***
					(0.33)
Know: make fin dec					-0.19
					(0.35)
Know: to invest					1.04**
					(0.38)
Know: to budget					0.83*
					(0.35)
Know: to save					3.19***
					(0.37)
Constant	50.99***	19.31***	21.73***	34.46***	34.05***
	(0.66)	(1.10)	(1.36)	(1.28)	(1.27)
Region FE	No	No	Yes	Yes	Yes
Controls	No	No	Yes	Yes	Yes
Observations	6389	6389	6389	6350	6345
Mean	54.25				
StDev	13.74				
r2	0.06	0.29	0.33	0.52	0.54

CFPB National Financial Well-being Survey, 2016.
Standard errors in parentheses. Controls include race, gender, education, parent education, number of children, marital status, employment status, military service.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Well-being, Savings, Investing, and Hardship by FWB Levels

	(1)	(2)	(3)	(4)
		Lowest	Middle	Highest
	All	FWB Group	FWB Group	FWB Group
FWB Score	54.25	38.95	55.61	72.23
	(13.74)	(7.85)	(4.40)	(7.31)
Financial Literacy Score	67.09	60.44	67.16	75.94
	(21.11)	(20.31)	(20.71)	(19.65)
Subjective Wellbeing	52.47	46.08	53.48	59.10
	(13.37)	(13.46)	(12.14)	(11.70)
Savings Level	3.40	2.48	3.42	4.60
	(2.34)	(1.67)	(2.33)	(2.56)
Own Financial Investments	0.26	0.10	0.25	0.51
	(0.44)	(0.30)	(0.43)	(0.50)
Material Hardship	0.34	0.70	0.24	0.05
	(0.47)	(0.46)	(0.42)	(0.21)
Observations	6389	1703	2918	1768

CFPB National Financial Well-being Survey, 2016. Means. Robust standard errors in parentheses. Lowest FWB scores are under 48; Middle FWB scores are 48 – 62; Highest FWB scores are 63 and greater.

Table 5: Financial Well-being Level Estimates for Other Outcomes

	(1) Financial Literacy Score	(2) Subjective Well-being	(3) Savings Level	(4) Own Financial Investments	(5) Material Hardship
Ref: Med FWB					
Low FWB	-1.02	-7.14***	-0.44***	-0.07***	0.39***
	(0.69)	(0.46)	(0.07)	(0.01)	(0.02)
High FWB	2.93***	6.18***	0.70***	0.16***	-0.12***
	(0.65)	(0.43)	(0.09)	(0.02)	(0.01)
Constant	42.59***	57.08***	1.40***	-0.15***	0.48***
	(1.80)	(1.16)	(0.19)	(0.03)	(0.04)
Region FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Observations	6389	6389	6389	6389	6367
Mean	67.09	52.47	3.40	0.26	0.34

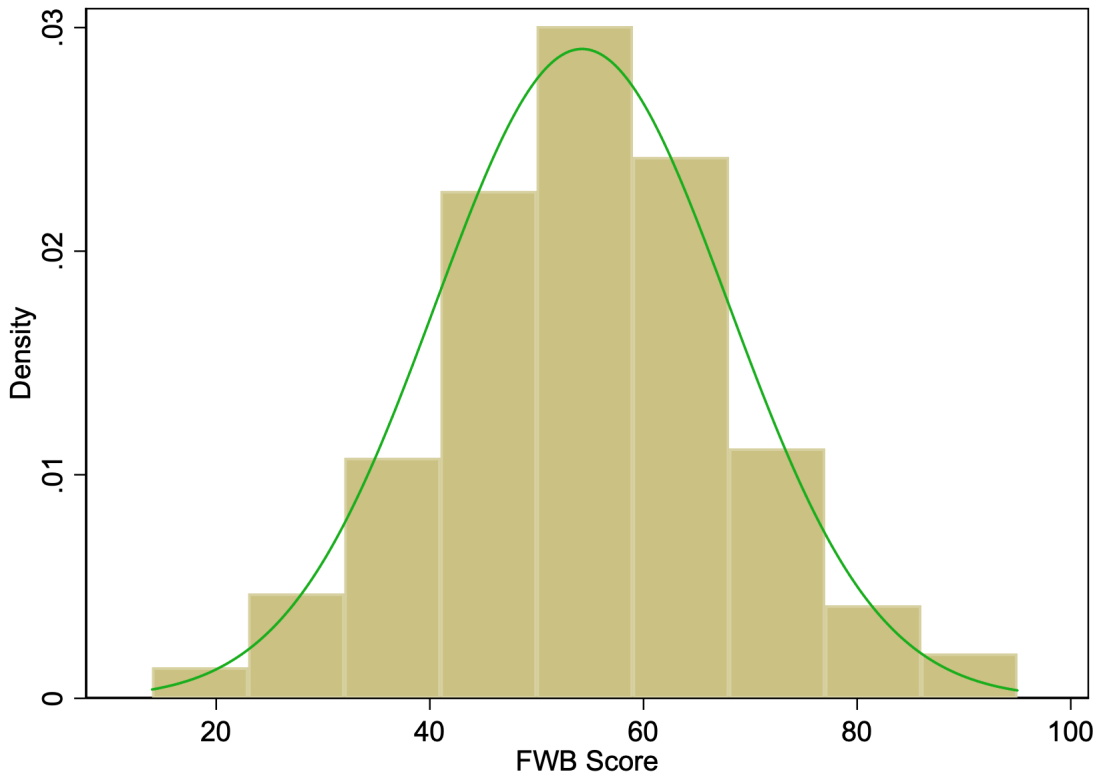
CFPB National Financial Well-being Survey, 2016. Robust standard errors in parentheses
Controls include age, income, race, gender, education, parent education,
number of children, marital status, employment status, military service.
Low FWB scores are under 48; High FWB scores are 63 and greater.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Mean Financial Well-being, Savings, Income and Retirement Status by Age Ranges

	18-24	25-34	35-44	45-54	55-61	62-69	70-74	75-
FWB Score	50.99	51.09	52.48	53.51	54.57	59.27	61.02	59.87
	(11.61)	(13.36)	(12.73)	(13.49)	(13.30)	(14.80)	(13.17)	(13.89)
Savings Level	2.96	3.11	3.28	3.44	3.66	3.74	3.71	3.77
	(1.88)	(2.12)	(2.25)	(2.35)	(2.45)	(2.54)	(2.66)	(2.61)
Income level	5.71	5.26	5.59	5.91	5.62	5.11	4.83	3.95
	(2.78)	(2.75)	(2.68)	(2.76)	(2.82)	(2.77)	(2.71)	(2.49)
Retired	0.00	0.00	0.01	0.03	0.16	0.62	0.86	0.92
	(0.05)	(0.06)	(0.08)	(0.17)	(0.37)	(0.49)	(0.34)	(0.27)
Observations	414	1113	828	1074	707	1021	496	736

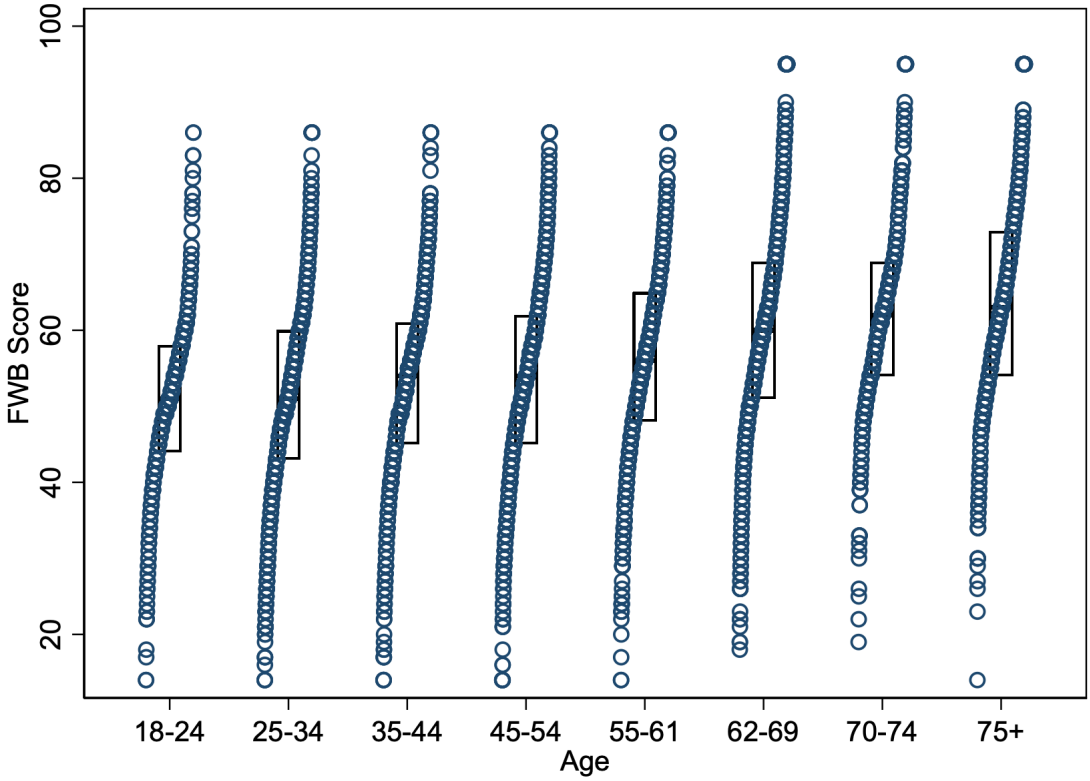
CFPB National Financial Well-being Survey, 2016. Standard errors in parentheses
Seven savings levels from 0-75k; Nine income levels from 0-150k.

Figure 1: Financial Well-being Score Distribution



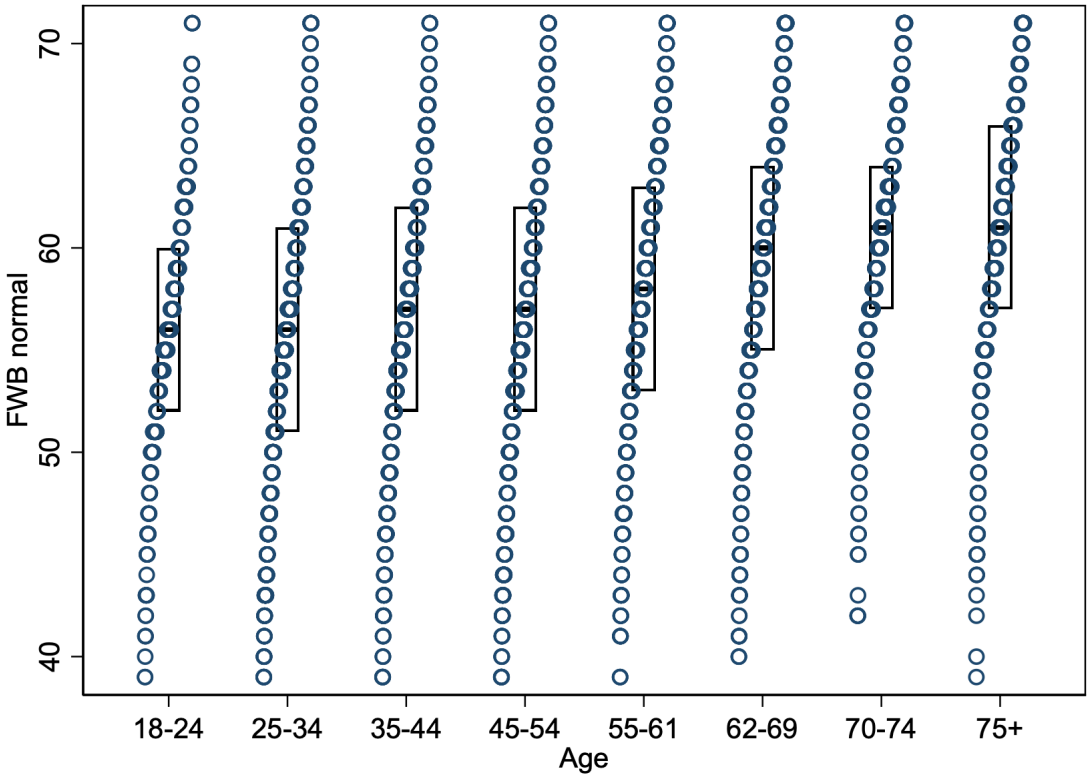
CFPB National Financial Well-being Survey, 2016.

Figure 2: IRT Financial Well-Being Scale by Age



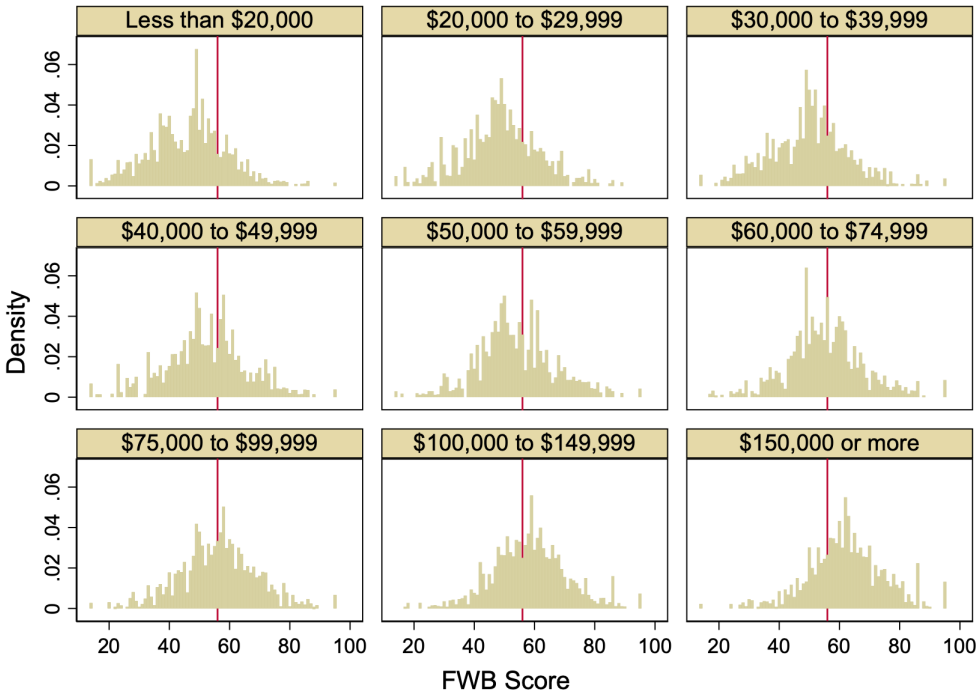
CFPB National Financial Well-being Survey, 2016.

Figure 3: Summative Financial Well-Being Scale by Age



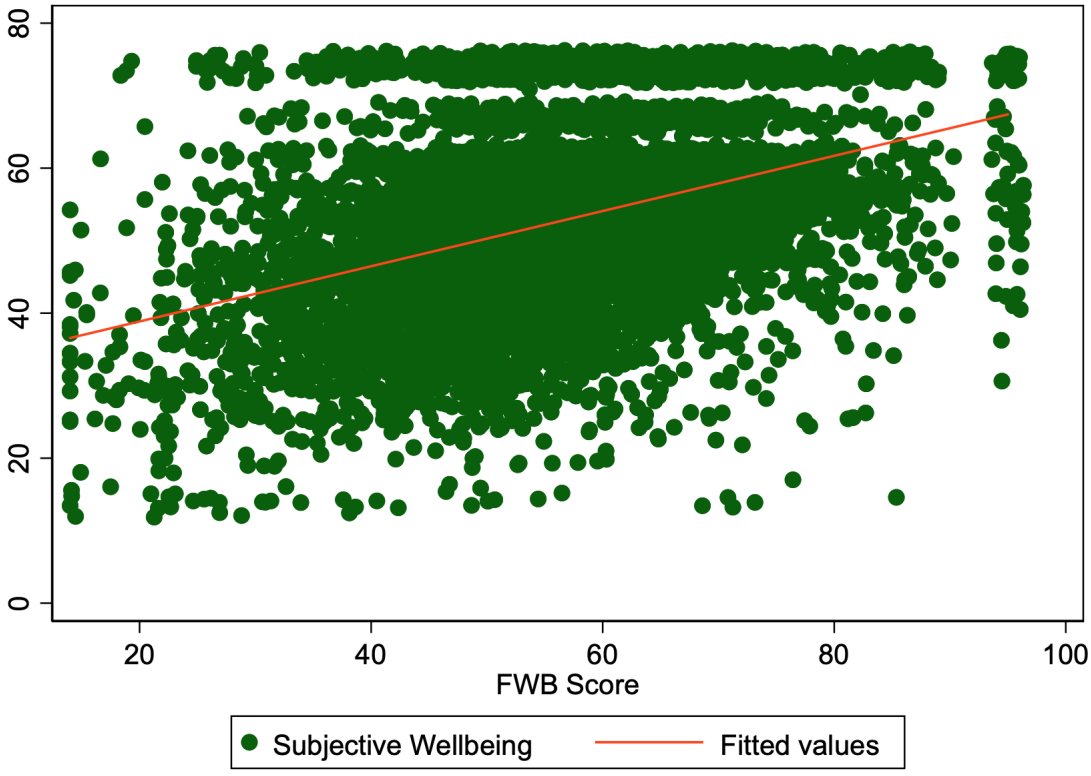
CFPB National Financial Well-being Survey, 2016.

Figure 4: FWB Distribution by Income, FWBS 2016



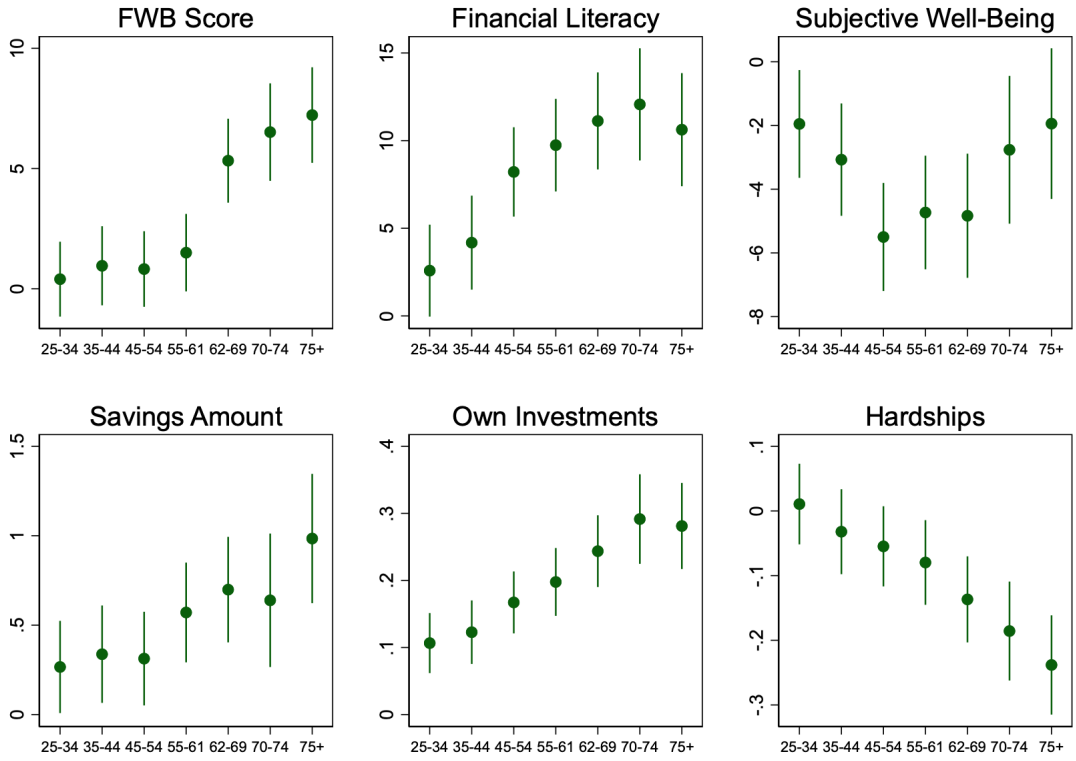
CFPB National Financial Well-being Survey, 2016.

Figure 5: Financial Well-Being and Subjective Well-Being



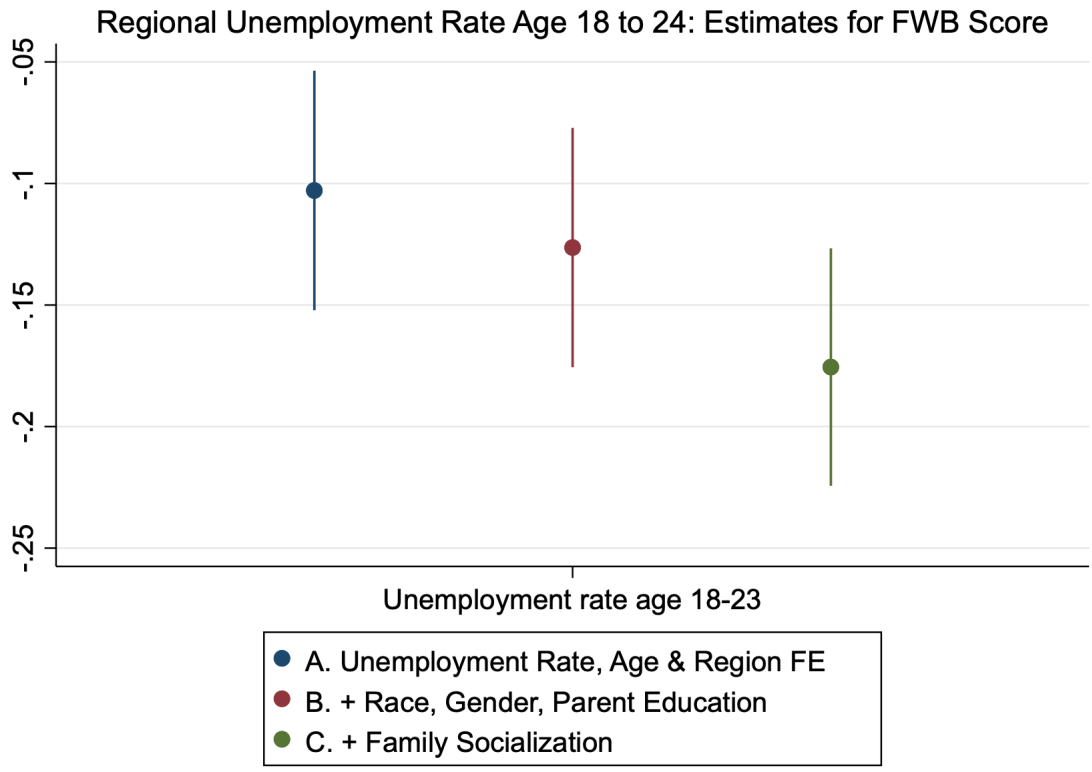
CFPB National Financial Well-being Survey, 2016.

Figure 6: OLS Estimates by Age for Financial Outcomes



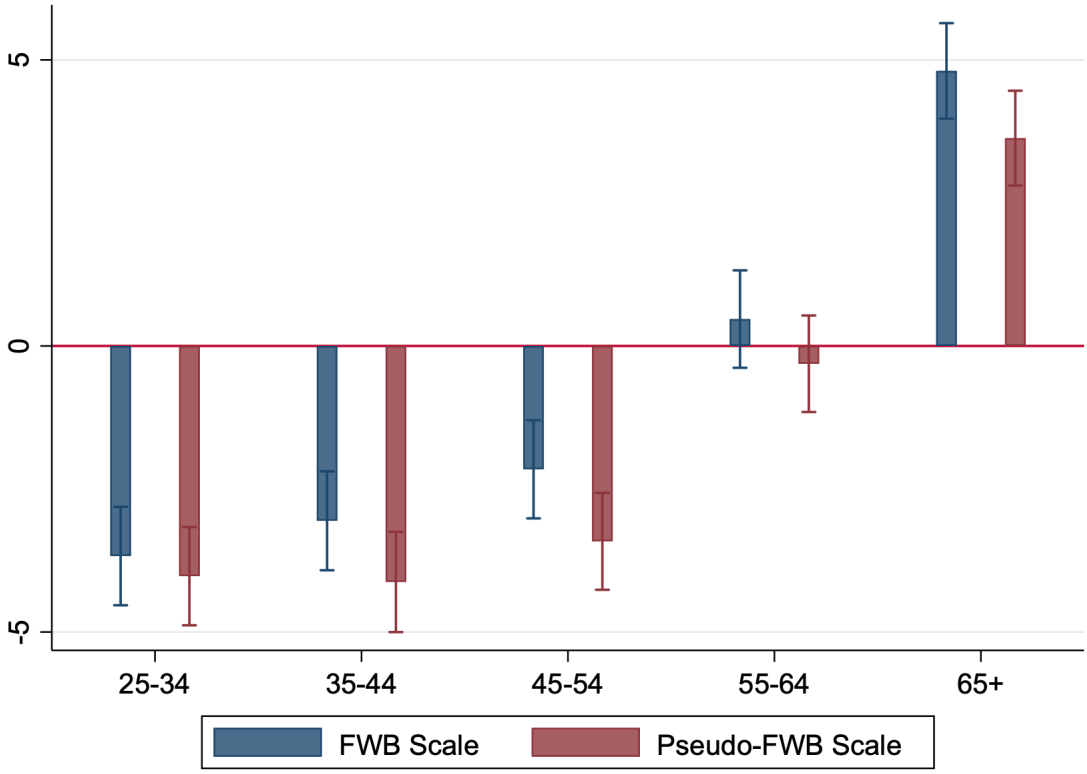
CFPB National Financial Well-being Survey, 2016. Similar specification for each estimate as is used in Column (4) of Table 3, without savings levels. Controls include income level, race, gender, education and parent education levels, marital status, number of children, employment status, military status and regional fixed effects. Point estimate and 95% confidence intervals.

Figure 7: OLS Estimates of FWB Score based on Unemployment Rate by Census Division Age 18-24



CFPB National Financial Well-being Survey, 2016. Respondents age 61 and younger are included. A estimate only includes age cohort and Census division fixed effects. B estimate adds controls for race, gender, and parent education level. C estimate adds in family socialization controls based on respondent recalling that their family discussed saving, credit, smart shopping, or being provided an allowance or a savings account when they they were young. Point estimate and 95% confidence intervals.

Figure 8: Financial Well-Being Scale Approximated Using FINRA National Financial Capability Survey



FINRA National Financial Capability Survey, 2018. Pseudo FWB based on graded response model IRT: Can fund an emergency, poor credit, expenses less than income, confidence in financial future, financial satisfaction. IRT latent theta score using FWB scale methodology. Point estimate and 95% confidence intervals.

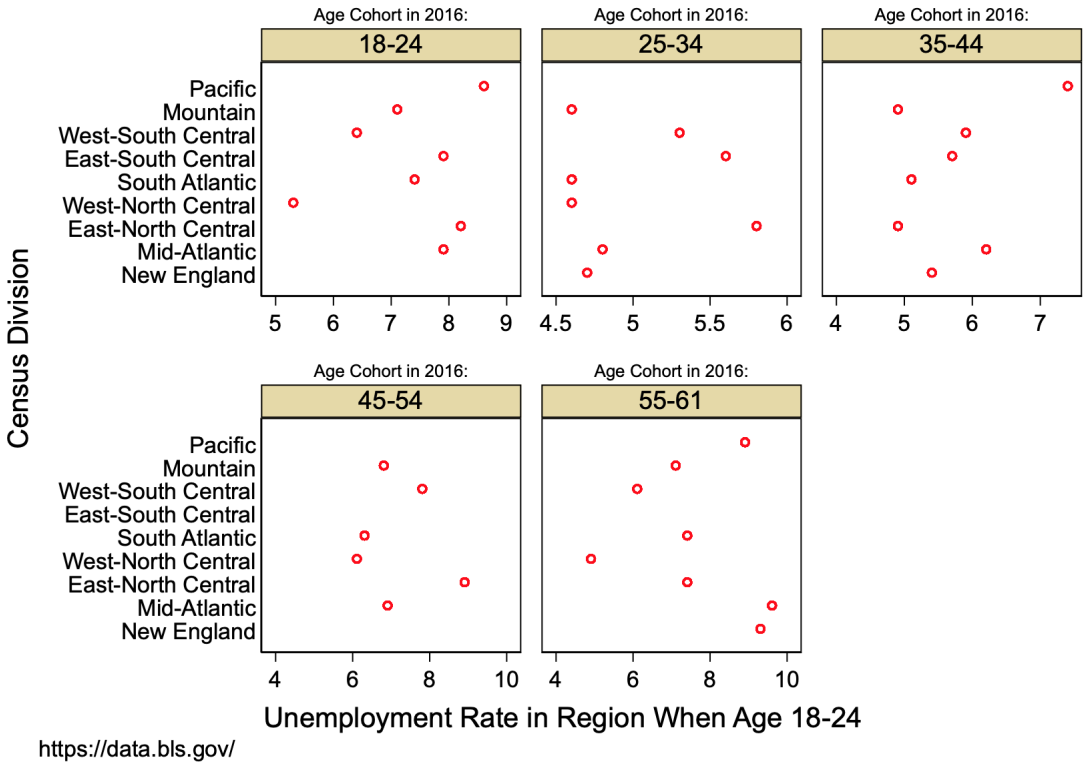
10 Appendix: National Financial Well-Being Survey Background

The National Financial Well-Being Survey was conducted in English and Spanish via web mode between October 27, 2016 and December 5, 2016. Overall, 6,394 surveys were completed: 5,395 from the general population sample and 999 from an oversample of adults aged 62 and older. The survey was designed to represent the adult population of the 50 U.S. states and the District of Columbia. The survey was fielded on the GfK KnowledgePanel using address-based sampling and dual-frame landline and cell phone random digit dialling methods. The survey sample was drawn from a recruited sample designed to be nationally representative of U.S. households. The GfK panel is the largest U.S. probability-based non-volunteer Internet panel, with a total of about 55,000 panel members. Recruitment is in both English and Spanish in order to ensure that different levels of language proficiency and acculturation are represented. GfK provides non-Internet households with a web-enabled computer and free Internet service so that they can participate as online panel members. The weighted GfK panel matches the U.S. adult (age 18 and older) Hispanic population on gender, age, marital status, housing ownership, education, region, Internet access, household size, language proficiency, and place of birth.

The sample for the National Financial Well-Being Survey from the KnowledgePanel called for 5,000 completed surveys of adults in proportion to the U.S. population with respect to age, race/ethnicity, and household income below 200 percent of the federal poverty level, as well as an additional oversample of 1,000 completed surveys of adults age 62 and older. The sample targets were specified with the percentages from the Current Population Survey (CPS) 2016 Annual Socioeconomic Supplement. Overall, 14,402 panellists were selected: 11,513 initially for the general population sample, 1,647 for the age 62 and older oversample, and another 1,242 focused on adults below 200 percent of the Federal poverty level, African American non-Hispanic, and Hispanic. From these 14,402 panellists, 6,394 surveys were completed: 5,395 from the general population sample (5,000 from the general population sample originally drawn and 395 from the additional sample added focusing on panel members below 200 percent of the federal poverty level or who were African American non-Hispanic or Hispanic) and 999 from the age 62 and older oversample. The count of completed surveys excludes 72 panel members who completed the survey but were removed due to response quality concerns (70 from the original general population sample, 2 from the age 62 and older oversample, and 0 from the additional sample added later in the field period). For example, respondents who completed a survey in a substantially shorter than average amount of time were removed.

More detail on the National Financial Well-Being Survey is available at `https://www.consumerfinance.gov/documents/5588/cfpb_nfwbs-puf-user-guide.pdf`

Figure 9: Unemployment Rate in Census Division in Early Adulthood by Age Cohort



FINRA National Financial Capability Survey, 2015.