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By *Jeremy Burke, J. Michael Collins, Carly Urban*

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Abstract

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1 Introduction

Many people struggle with personal finances—from managing money to keeping up with bills. According to the Federal Reserve Board's 2018 Survey of Household Economics and Decisionmaking (SHED), 39 percent of households reported not being able to cover a $400 unexpected expense (using cash, savings, or a credit card to be paid off in full the subsequent month). Further, 18 percent of households reported that they are just getting by financially. While these statistics paint a bleak portrait of household finances, one popular conception is that people might express stronger financial well-being if they just had more financial knowledge and stronger financial skills. Indeed, this has underpinned calls for a stronger role for financial education in public schools (Atkinson and Messy, 2013).

School-based financial education, a policy that many states in the US have pursued in recent years, could lead young people to have more financial knowledge, and stronger long-run financial well-being. Such education may do more than teach people how to balance a budget; financial education may give people confidence to take control of their finances. A 2015 US Consumer Financial Protection Bureau (CFPB) report even suggests that financial education programs improve financial well-being, or specifically "how well your current money situation is providing you with financial security and freedom of choice, today and for the future." Of course, ignorance about finances may otherwise lead some people to feel good about their finances, even if reality is not as positive. More knowledge may result in a lower, more realistic sense of financial well-being. This begs the question: Does requiring financial education in high school improve later life financial well-being?

Whether financial education affects financial well-being, and the mechanisms through which this occurs, are important questions and may be particularly important for two targeted populations: non-college goers and women. Young people with a college degree are likely to be better able to confidently make financial decisions. However, a large segment of the population never attends college. One-in-three high school graduates in 2017, roughly 970,000 young adults, did not attend a post-secondary school, such as a college or university (Bureau of Labor Statistics, 2018). Without a college education, young people may find their financial outlook is more challenged than they may have otherwise expected. Financial education potentially will make this financial reality more salient for these students. While college-goers have to manage foregone earnings and potentially student loan debt, the benefits of college will outweigh these costs for most.

The other population who may experience different effects of financial education on financial well-being are women. Women tend to live longer than men but tend to earn less over a lifetime, are more likely to work part-time, and have fewer working years (Mottola, 2013; Munnell and Soto, 2007; Wettstein and Zulkarnain, 2019). Added to these

financial headwinds is that fact that relative to men, women tend to have lower levels of financial knowledge as reported in surveys (Lusardi, 2008; Hung and Yoong, 2009). These factors suggest that women's financial well-being will be impacted by financial education in different ways from men.

This study estimates the effect of state-mandated high school financial education courses on financial well-being using data from the FINRA Investor Education Foundation's National Financial Capability Study (NFCS). We measure subjective financial well-being using a scale that captures: (1) having control over one's finances, (2) having the capacity to absorb a financial shock, (3) being on track to meet financial goals, and (4) being able to make choices that allow one to enjoy life. We pair this with a second scale that measures more objective financial conditions and behaviors. Together these measures to allow us to estimate how changes in state financial education policies influence the financial situations of young adults, and how subjective feelings mirror people's actual financial situation.

Prior studies show that state high school financial education requirements have positive effects on a variety of outcomes, at least based on requirements enacted in the last 20 years.[1] For example, Stoddard and Urban (2020) find that high school financial education graduation requirements make college students more strategic borrowers, shifting from high-cost to low-cost borrowing. Mangrum (2022) builds on this, showing that colleges and universities where greater fractions of their students come from high schools with financial education requirements have higher student loan repayment rates. While these two papers focus exclusively on the college-going population, other work has looked at the population as a whole. For example, Brown et al. (2016) show that financial education improves credit scores, reduces delinquencies, and reduces non-student debt. Urban et al. (2020) corroborate these results in two states with rigorous financial education requirements, showing increased credit scores and lower credit delinquencies. Harvey (2019) finds that financial education requirements reduce payday borrowing.

This study contributes to the literature in household finance in four ways. First, we show the effects of financial education on subjective outcomes. We use a new dependent variable—financial well-being (FWB). FWB more closely mimics a measure of people's expected utility than measures of financial behavior, making it a compelling outcome to study. The prior literature documents an improvement in objective financial situations, but does financial education improve how people feel about their financial situation and their expected lifetime utility?

The second contribution of this study is that we are able to detect longer-run effects of

[1] An earlier literature examined the effects of financial education mandates from 1957-1982 (Bernheim, Garrett and Maki, 2001; Tennyson and Nguyen, 2001; Cole, Paulson and Shastry, 2016), though these policies were quite different. States had weak requirements; only one state in this era actually required coursework.

personal finance education requirements on objective financial outcomes.[2] While authors like Bernheim, Garrett and Maki (2001) and Cole, Paulson and Shastry (2016) document the long-run effects of 13 personal finance education policies before 1982, only one state in that period actually required a course in personal finance. The remainder had very basic requirements or recommendations embedded into other curricula. In the last two decades, states have shifted to education mandates that require a full high school course, require personal finance curricula in an existing course, or require students to meet standards in personal finance prior to graduation. We are able to study these more recent and rigorous policies on young and middle-aged adults after graduating from high school. While we refer to these as longer-run outcomes, a simple two-period lifecycle model would still consider our time period to be in period one of one's life, where they are still in prime working years.

The third contribution of this study is that we focus on the effects of financial education for women and people who do not attend college. There are two studies that examine differences in the effects of school-based financial education by gender. Frisancho (2020) considers differences across gender in a randomized control trial in Peruvian schools, finding no differences between men and women. Similarly, Harvey (2019) finds no difference in the effects of financial education graduation requirements on payday lending by gender. Other studies focus exclusively on the overall population (Cole, Paulson and Shastry, 2016; Bernheim, Garrett and Maki, 2001; Tennyson and Nguyen, 2001; Urban et al., 2020; Brown et al., 2016) or the college-going population (Stoddard and Urban, 2020; Mangrum, 2022), no research has yet studied the impacts of financial education on the population who end their education at high school. If state-mandated financial education improves outcomes for the college-going population but leaves outcomes unchanged for those who end their education with high school diplomas, these policies may be unintentionally increasing inequality across the two groups.

Only one study of financial education policies in the US examines differential effects of state mandates by education levels, and only tangentially. Harvey (2019) studied the effects of financial education on alternative financial services (AFS) use by race. Though Harvey did not specifically study the high school only population, under-represented minorities[3] are more likely to be non-college goers. Harvey's study finds that financial education decreases AFS use for her groups of interest, though the effect size is not different across race.[4]

[2]Mangrum (2022) looks at long-run effects in studying student-loan repayment, though he does not have individual-level data and thus cannot give the specific ages of those the results are reflecting.

[3]Harvey categorizes Black/African American, Hispanic/Latino, or American Indian/Alaska Native people as under-represented minorities.

[4]Harvey also has a 2020 working paper that does a subgroup analysis for the population of high school only young adults using the Survey of Income and Program Participation. Here, she finds that financial

The fourth contribution of this study is that in the process of this research, we have updated the financial education graduation requirements data from Urban and Schmeiser (2015) to correct the mandate status information for several states and years. There are two main corrections: (1) states that intended to have graduation requirements that were delayed or not implemented as intended, and (2) states that have implemented graduation requirements after the Urban and Schmeiser (2015) data ended in 2014.

We find that the overall effects of high school financial education graduation requirements on subjective financial well-being are positive, between 0.75 and 0.80 points, or roughly 1.5 percent of mean levels. These overall effects are driven almost entirely by males, for whom financial education increases financial well-being by 1.86 points, or 3.8 percent of mean financial well-being. There is no change for women within the overall sample. Strikingly, we find that financial education lowers financial well-being for those who end their schooling with a high school diploma by 3.0 points. In contrast, we find positive effects of financial education on financial well-being among college-educated populations, increasing by about 2.0 points. Heterogeneity in outcomes across the educational attainment spectrum appear to be driven by differential effects on expectations. Financial education requirements appear to dampen the subjective financial expectations of high school graduates while elevating these expectations for those who go on to receive a college degree. This heterogeneity is particularly striking given that our estimates are likely attenuated due to poor compliance by schools subject to new financial education curriculum mandates. Urban (2020) finds evidence that less than half of affected schools may have complied. As a result, our estimated overall and differential effects may be less than half the true effects, and disparities between high school graduates and those who attend college may be even larger than those suggested here.

The mechanisms underlying the heterogeneity in effects are instructive for the design and implementation of financial education policies in general. Prior studies on financial education in high school find positive effects among young adults writ large (Urban et al., 2020; Harvey, 2019, 2020; Stoddard and Urban, 2020; Mangrum, 2022; Brown et al., 2016). However, this may not result in all high school graduates feeling more financially in control, especially those who face greater financial precarity. For these populations, financial education may highlight financial risks, hardships, and lower their expectations about potential lifetime earnings and asset accumulation than their college-going counterparts. While policies requiring financial education in high school are designed, in part, to improve outcomes explicitly for the non-college going population, our results suggest that, paradoxically, they may exacerbate inequalities at least in terms of subjective financial well-being across educational attainment.

education increases the propensity to save for this group.

2 Theoretical Predictions

We modify the life-cycle model with endogenous financial literacy developed in Lusardi, Michaud and Mitchell (2017). In their model, acquiring financial literacy improves the interest rate, R, with a cost of π for each unit R increases (see Appendix D for more detail). In its simplest form, total utility equals:

$$u(c) + \beta u(a),$$

where c is first period consumption and a is wealth (and consumption) in period two. In their model, $a = Rs$, where s is savings in period one. Further, $c = y - \pi R - \frac{a}{R}$, where y is income in period one. In our setting, the mandates are exogenous shocks to financial literacy that occur before someone becomes financially independent, or prior to period one. We therefore assume that π is sufficiently low and consists predominantly of the opportunity cost of other potential coursework in high school. Additionally, since our population is comprised of young adults, total period one income is uncertain and consumption decisions must be made based on each person's expectation of income, $E[y]$.

In this framework, optimal consumption in period two is determined by $a^\star = \frac{R\beta}{1+\beta}E[y]$. If financial literacy education mandates only increase R, then total lifetime expected utility unambiguously increases (assuming $\beta > 0$). However, financial education in high school may also influence expectations about asset accumulation and income, $E[y]$. If the mandates temper expectations of lifetime income, total expected utility may decrease. Notice that expected utility may decrease even if the realization of y is unaffected, so long as expectations are reduced. While it may be plausible that financial education in high school could directly affect income, there is no relationship between financial education mandates and income in Figure A.3.[5]

While this model is instructive regarding how financial education may affect lifetime wealth expectations and expected utility, we only observe individuals during their first period consumption—through age 45 at the oldest. The crux of our work relies upon the comparison of objective and subjective financial well-being measures. We use two scales, one well-defined financial well-being scale created based on extensive qualitative work by the CFPB. A second measure mimics the FWB scale with more objective behavior questions. While the latter measures a clear depiction of one's financial condition, the former measures expected utility based on their financial situation. Expectations are central to the subjective FWB measure. In particular, there are two scale items related to expectations: (1) "are you worried the money you have or will save won't last" and (2) the degree to

[5]Other research has also shown that requiring financial education does not directly affect educational attainment (Stoddard and Urban, 2020; Mangrum, 2022).

which you agree that "because of your money situation, you will never have the things you want in life." If high school financial education mandates lead to more pessimism on these questions, at least for some individuals, expected utility may decrease.

3 Financial Well-being Scale

The financial status of families is typically expressed using a measure such as income—families are labeled well-off if their income levels are well above the median, and labeled poor if below certain cutoffs. These measures do not capture how much financial strain people 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.

More broadly, subjective well-being is a measure of individual happiness (Deaton, 2008) and life satisfaction (Diener, 1984; Diener et al., 1999). Income and wealth are correlated with subjective well-being, but economic resources alone do not seem to determine general well-being—lower income (or wealth) households can have high subjective well-being or vice versa (Diener and Biswas-Diener, 2002).

As a proxy for financial security, studies often use measures ranging from savings, debt levels, credit scores, financial mistakes,[6] financial knowledge, or the incidence of hardships. While important, these are indirect indicators of how 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 (henceforth, FWB) scale. This broader measure of financial well-being can offer insights beyond traditional measures and can potentially deepen our understanding of households' financial security and their overall expected utility.

The CFPB developed the FWB scale based on qualitative research to comprehensively measure subjective financial well-being. The researchers in this project consistently heard in interviews and focus groups that individuals' goals varied extensively, from owning chickens in a small town to living in a loft in a big city. Based on the qualitative evidence, the researchers identified four themes for what financial well-being is for most people, regardless of income: (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 one to enjoy life. Being in control in-

[6] Financial mistakes refer to situations when individuals choose a strictly dominated option.

cludes feeling confident about being able to pay bills on time, only having manageable 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 who can provide financial assistance. Being on track for 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.

More details on the FWB scale, including the development process, specific questions, and scale items, are included in Appendix C. Each item is measured on a five-point Likert response scale.[7] These items are not simply summed, but instead scored using item response theory (IRT). With IRT, each item response has unique weights and contributes in different ways to the score (Edelen and Reeve, 2007).[8] The FWB score is transformed into a score ranging from about 20 to 90, with a central tendency around 50. The CFPB has an abbreviated five-item FWB scale that performs similar to the longer set of ten survey questions.

Since the FWB scale has a very specific set of questions that reflect subjective financial measures, we design a second scale that pairs each question with a more objective version of itself. These 'proxied financial well-being' measures are discussed in the next section and included in Table 1. This pairing will tell us more about what outcomes financial education is most likely to affect, both objective and subjective, in terms of lifetime wealth and expected utility.

4 Data

We use the 2012, 2015, and 2018 waves of the FINRA Investor Education Foundation's National Financial Capability Study (NFCS) for our analysis. The 2018 NFCS includes the actual five-item FWB scale developed by the CFPB. The proxied financial well-being (PFWB) measure mimics the actual financial well-being measure using all three years of the NFCS, providing a more objective financial outcome estimate. We also use data from the 2016, 2017, and 2018 survey waves of the Understanding America Survey (UAS) as a

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

[8] The FWB score is estimated using a bi-factor 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. The scale is weighted separately for people in working ages (18-61) and those who are retired or close to retiring from work (62 and older).

secondary estimate included as a robustness check and included in Appendix B.[9]

Further, we update the financial education graduation requirements data from Urban and Schmeiser (2015) to correct the mandate status information for several states and years. There are two main corrections: (1) states that intended to have graduation requirements that were delayed or not implemented as intended, and (2) states that have implemented graduation requirements after the Urban and Schmeiser (2015) data ended in 2014. The current mandates are in Table 2.

The NFCS data are repeated cross sections. In addition to being nationally representative, the data include samples of at least 500 individuals per state each year. The NFCS data include many questions on types of debt, credit, assets, and financial decisions in addition to the demographic characteristics of households. While the NFCS data have many advantages, the data do not contain the state in which the respondent attended high school. This makes it challenging to assign the policy environment for each respondent. For this reason, we restrict the sample to adults under age 45, where the probability of leaving the state of residence since high school (at the most about 27 years prior) is relatively low. Brown et al. (2015) show that the probability of living in the same state from 18-29 is 82 percent. Molloy, Smith and Wozniak (2011) report that 4 percent of 18-24 year olds moved to another state, and 3 percent of 25-44 year olds moved to a new state over the same period. Geographic mobility is lower for individuals who end their education with a high school diploma, one of the key sub-groups we examine (Molloy, Smith and Wozniak, 2011; Schouten, 2020). For example, the average annual migration rate from 1981 to 2010 was 1.5 percent for individuals who ended their education with high school (Molloy, Smith and Wozniak, 2011).

Figure 1 uses data from the 2018 NFCS to plot the FWB scale over the life course by gender and education, where we separate those who end their education with a high school diploma, those who attend at least some college (or are in college at the time of the survey), and those who have a four-year degree or additional higher education. These graphs display patterns that are consistent with our general expectations. People have low financial well-being when just starting out as young adults, and show improvements as they age, with relatively stronger financial well-being in later middle ages, when careers plateau. Two clear trends emerge from these plots. First, the top panel shows that women have lower levels of FWB than men at all ages, with the largest gaps from ages 35-54 and age 70 onward. Second, the bottom panel shows that individuals with only a high school diploma and those with some college education have nearly indistinguishable FWB over the life-cycle. Those with college degrees or higher have FWB scores nearly five points

[9]While the Federal Reserve Board's Survey of Household Economics and Decisionmaking (SHED) is another dataset that has both state of residence and financial well-being, the data only include FWB in one year and the samples are too small to employ our empirical strategy for that one year of data alone.

higher at almost every age cohort when compared to the other two education levels plotted. This gap is larger than the gender gap in FWB scores plotted in the top panel. These figures motivate the exploration of heterogeneity in the effects of financial education across gender and education.

To create the PFWB scale, we pair survey questions asked in the 2012, 2015, and 2018 NFCS with survey items from the FWB scale.[10] Table 1 matches these questions, based on prior research (Collins and Urban, 2020). Each FWB question ranges from one to five, where responses are "completely," "very well," "somewhat," "very little," and "not at all."[11] All responses are re-scaled such that increases in the number represent improved well-being.

The overall correlation between the FWB and PFWB measures in our 2018 NFCS sample is 0.613, and the correlation within gender is 0.624 and 0.571 for females and males, respectively. We further plot the average FWB and PFWB by gender and education in Figure A.1, as well as the distribution of each in Figure 2.[12] In both cases, the FWB measure is scaled slightly lower on average than the PFWB measure, but both follow similar, normal distributional patterns. For example, the distribution is shifted to the left for both men and women in Figure 2. The PFWB question items are intended to be more objective than the original FWB scale. We also present results individually from each question included in the scales, as well as the overall scores.

In Figure 3, we examine the correlates of FWB and PFWB in the NFCS. Specifically, we regress (P)FWB on state fixed effects, survey year fixed effects (for PFWB only, since the FWB is only available in 2018), demographic characteristics, income categories, homeownership, and use of alternative financial services. When compared to households making over $100,000 annually, lower income households tend to have lower (P)FWBs. In all income classifications except for those earning under $25,000, the estimates for FWB and PFWB overlap confidence intervals. This suggests the measures capture similar trends. While income is correlated with (P)FWB, the measure is intended to be independent of income itself. Indeed, Collins and Urban (2020) show that there is a full distribution of FWB for each income category, and each of those distributions is similar in shape. Homeownership is correlated with higher (P)FWB scores and use of alternative financial services in the last five years is correlated with lower (P)FWB scores.[13]

[10] For code that creates the FWB and PFWB measures, please visit `http://www.montana.edu/urban/NFCS_PseudoFWB_forposting.do`.

[11] Note that the FWB and PFWB scales are estimated even if one or more items are missing—this is another feature of the IRT scoring method. A non-response to an item is used as information to contribute to the composite score.

[12] Table A.1 reports the average FWB and PFWB, as well as the answers to each question by whether or not the state had financial education requirements over our time period of interest.

[13] For more on the correlates of FWB scores, see the CFPB's 2017*b* report on scores and the 2019 report

5 Empirical Strategy

After validating the FWB and PFWB as measures of financial well-being in the NFCS, we estimate how these measures vary based on exogenous high school financial education mandates. Our identification relies on observing the year of birth and state of residence for each respondent. Based on age, we can match the timing of financial education requirements to compare those people graduating before and after financial education was required in high school across states with and without graduation requirements. We use a two-way fixed-effect difference-in-difference strategy, where the fixed effects capture state and graduation year.[14]

We estimate Equation 1 for our dependent variable of interest $\text{FWB}_{i,s,t}$, for individual i living in state s at the age someone is typically graduating from high school (18) in year t. Our independent variable, $\text{PF}_{i,s,t}$, equals one if individual i in state s graduated from high school in a year t after the state mandated a personal finance graduation requirement. We further control for individual-level characteristics ($\boldsymbol{X_i}$), which include race and gender indicators, as well as state fixed effects (δ_s) and graduation year fixed effects (γ_t). When we expand our analysis to 2012, 2015, and 2018 NFCS samples, we additionally control for survey year fixed effects. In those specifications, our dependent variable of interest is PFWB. Standard errors are clustered at the state level, the level of policy variation, throughout the analysis.

$$\text{FWB}_{i,s,t} = \alpha_0 + \alpha_1 \text{PF}_{i,s,t} + \boldsymbol{\beta X}_i + \delta_s + \gamma_t + \varepsilon_{i,s,t} \tag{1}$$

We also show event study graphs to visually inspect the plausibility of the parallel trend assumption required for a difference-in-differences estimate. We further note that school districts in states without mandates can require personal finance courses be completed prior to graduation. Indeed, using 2019–2020 data, Urban (2020) shows that 23 percent of schools within states without graduation requirements still require personal finance coursework. It is also a possibility that before implementing a graduation requirement, many school districts within a state already require personal finance. In both cases, our estimates will understate the true effect of personal finance graduation requirements on (P)FWB.

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that shows average FWB score is not very different by state.

[14] Recent research on two-way fixed-effects models raise concerns about this method (Goodman-Bacon, 2021; Sun and Abraham, 2020; Baker, Larcker and Wang, 2022; Callaway and Sant'Anna, 2020). A Bacon decomposition shows that 89 percent of our variation comes from newly treated states vs. never treated states, which assuages most concerns (Goodman-Bacon, 2021). Further, we do not see or expect heterogeneity in effect sizes. If we create a natural experiment with four states whose requirements began in 2005, our results remain consistent (Sun and Abraham, 2020).

6 Results

This section shows the event study specification and documents the results of the difference-in-difference estimations. We then focus on the results by gender and educational attainment. The splits by education are valid, as Stoddard and Urban (2020) show that financial education graduation requirements do not change whether students attend college or where they go to school if they choose to attend (2-year vs. 4-year, public vs. private, in-state vs. out-of-state, higher or lower cost, and part-time vs. full-time). We further show that financial education does not affect educational attainment across our splits in Table A.5. Throughout, the dependent variables are scaled such that higher numbers reflect improvements in (P)FWB; the same is true for each individual question within the (P)FWB scales.

Initial event studies to show the plausibility of the parallel trends assumption in Figure 4 for all 18–45 year olds and each of the scale's scores, where the period before the graduation requirement goes into effect is the excluded group. For both the full sample and the sample split by gender, there is no clear trend in FWB before the start of the graduation requirement. This is consistent with inspections of parallel pre-trends in prior work in this literature (Stoddard and Urban, 2020; Brown et al., 2016; Urban et al., 2020; Mangrum, 2022). After the financial education graduation requirements intervention, FWB seems to rise slightly, though that rise appears to be completely driven by males, with no real change for females. If we replicate our results with state-specific linear trends, our results remain robust throughout (Table A.2). The second column of Figure 4 replicates this exercise for the PFWB score. Again, there is no clear pre-trend for the overall or specific samples. However, PFWB does seem to increase for those impacted by the financial education graduation requirement. The rise is again more pronounced for men but suggestively positive for women as well. Finally, Figure 5 shows pre-trends split by education level, where there is no clear evidence of pre-trends for any sample for either (P)FWB measures.

We provide our estimates of α_1 in Table 3, where the top panel's dependent variable is the subjective FWB score and each question used to develop the scale, and the bottom panel is objective PFWB score and each question used to create that scale. As mentioned earlier, we only have FWB for one year in the NFCS, 2018, while we have PFWB for three years, including the 2012, 2015 and 2018 surveys. This gives us additional power in the PFWB sample, though we replicate our PFWB results using only 2018 data and our results remain consistent (Table A.3 and Figure A.2). While our overall coefficients on FWB and PFWB are both positive and similar in magnitude, only PFWB is statistically different from zero at the 90 percent level due to the increased precision in the larger PFWB sample. The magnitude suggests financial education increases PFWB by 0.76 points, a 1.5 percent increase relative to the mean of 51.

Table 3 shows how financial education changes the answers to specific questions in

the two scales. Beginning with the bottom panel, individuals are less likely to spend more than they earn (Column (3)) and less likely to find it difficult to cover all monthly bills and expenses after exposure to financial education graduation requirements. At the same time, financial education requirements make people more likely to be satisfied with their current assets, debts, and savings. Financial education requirements do not change the likelihood of having an emergency savings account to cover a $2,000 shock. These improvements in financial situations point to an overall positive picture of financial education and behavior during prime working years. We next ask if these objective improvements are reflected in more subjective measures.

While all items in the FWB scale suggest improvements to subjective financial well-being, only two are statistically different from zero. After financial education mandates are put in place, individuals are less likely to say the money they have or will save won't last—a question that relates to expected future savings or assets. This suggests that wealth, and expected utility, is likely to be higher in the second period (retirement) given their position in the first period (working). Further, individuals are less likely to say they won't have the things they want in life because of money. This increase could mean that their goals changed after the education, or that their expectations regarding their future asset accumulation have shifted. These questions signal increased expected wealth in period two, and increased therefore expected utility.

Table 4 shows evidence of heterogeneous impacts by gender. For men, the effect on FWB is 1.86 points (3.7 percent marginal effect) and statistically different from zero at the 95 percent level, while the estimated effect for women is actually negative (though close to zero and imprecisely estimated). Moreover, we find evidence that men benefit differentially from the education. The difference between the estimates for men and the estimates for women is marginally significant (p-value $= 0.065$). Similarly, we observe larger increases from financial education graduation requirements on PFWB for men; PFWB increases on average for men by 1.22 points (2.3 percent), yet we find no statistical evidence of an increase for women.

We find evidence that, on average, financial education improves financial well-being more for men than women. To examine possible drivers of this heterogeneity, we first plot the overall and by gender effects of financial education on each component of (P)FWB in the (bottom) top panel of Figure 6. For women, two objective measures improve: (Q3) being satisfied with their current levels of assets, debt, and savings and (Q5) having difficulty paying bills and keeping up with expenses. Women are also less likely to feel like they have too much debt, though this is not significantly different from zero. At the same time, women see no improvements in any subjective measures. Taken together, this means that while women's objective markers improve after education, their expected utility—and expectations for having higher wealth in retirement—does not change.

In contrast, men experience increases in both objective and subjective dimensions, particularly regarding future assets, and see increases in expected utility. Figure 6 suggests that men's objective financial well-being improves by spending less than their income (Q2), being more satisfied with their overall financial situation (Q3), and having less difficulty with their bills (Q5). These improvements in objective financial situation comes with improved subjective FWB. Financial education graduation requirements reduce the likelihood that men think the money they have or will save won't last—again, a measure indicating that they are confident about having enough assets in the future (Q2). Financial education also reduces the likelihood men feel like they will not have what they want in life because of money (Q3), suggesting that they either revised their goals or were more likely to expect to meet them with increased future assets. Men are also less likely to say that their finances control their lives after exposure to financial education requirements. Thus, we observe meaningful differences in subjective expectations across genders, contributing to the gender differences in gains to expected utility. This could be because financial education helps men recognize they will, on average, have higher future earnings and retirement wealth than women, contributing to the gender differences.

Next, we split our sample by the highest level of education respondents completed: high school, some college, and college or more. For this analysis, we restrict the sample to those 23 and over, as it takes time to sort through educational channels. While financial education policy is often pitched to policymakers as differentially benefiting those that will end formal education with high school, research has not determined the overall effects for this group. Table 5 shows the result for this population, when compared to other education levels.[15] The overall effect of financial education on FWB flips directions for those ending their education after high school. Requiring financial education in high school reduces FWB by 3.0 points (6.7 percent) for those whose highest level of education is a high school diploma. Strikingly, the effects of financial education on FWB are positive for both those who attend some college (a 1.9 point or 4.2 percent increase) or complete college (a 2.0 point or 3.9 percent increase). The effects on PFWB, which includes more objective measures, are close to zero in magnitude for the high school only sample and positive and statistically different from zero for the college completion sample (a 1.5 point or 2.6 percent increase). Our results show that financial education requirements (as currently implemented) actually increase subjective financial well-being disparities across the educational gradient.

Why might subjective financial well-being be lower among those with only a high school education after being exposed to the mandates? While they are less likely to spend

[15] We note that the sample with "some college" could also be in college when surveyed. This is part of the reason we restrict the sample to those 23 and over, but all individuals in the sample may have not completed educational pursuits at this point.

above their annual means after the financial education, Figure 7 shows that this group is also more likely to say they will never have the things they want in life because of money, which suggests that they have tempered expectations regarding lifetime asset accumulation. They are more likely to say the money they have or will save won't last (Q2), though this is not statistically different from zero. Financial education also increases the likelihood they say their finances control their lives and they have no money left over at the end of the month, pointing to a situation where those who end their education with a high school diploma are worse off during their working years. Overall, exposure to financial education graduation requirements may make people more focused on their current and future financial situations. This may lead people who only have a high school degree to realize they are less likely to experience the same financial trajectory in the future relative to their college-going peers, reducing their expectations regarding the future and their overall subjective well-being.

In contrast, the effects of financial education on (P)FWB for those who complete college are positive and statistically different from zero. These findings are consistent with previous literature on similar populations, where financial education improves student loan borrowers' financing decisions (Stoddard and Urban, 2020; Mangrum, 2022). Table 5 shows that while FWB improves for the some college population as a whole, the PFWB measure is not statistically different from zero. For this population, Figure 7 shows improvements in most FWB questions, with little to no gains in the PFWB questions. Those with a college degree or more—on the other hand—see improvements in nearly ever measure. This is consistent with the finding in Lusardi, Michaud and Mitchell (2017) that investing in financial literacy makes the most sense for people who have resources in period one to save for period two.

6.1 Other Potential Mechanisms

These estimates point to two main findings. First, state-mandated financial education results in higher financial well-being for men but not women. Second, state-mandated financial education improves financial well-being for college graduates but does not improve financial well-being for those who do not complete higher education. Our evidence suggests that this heterogeneity is driven by differential effects on expectations. Financial education increases men's and college graduates' expectations regarding future economic security, yet does not change women's expectations and lowers high school graduates' expectations regarding future financial well-being.

While it is possible that other mechanisms may contribute to the patterns of heterogeneity we observe, we find little evidence of differential impacts on income, financial literacy, or other markers of objective financial situations. For example, Appendix A, Fig-

ure A.3 shows that financial education does not change income levels for any group. There is a small negative estimate on making under $35,000 per year for women, though this is only statistically different from zero at the 90 percent level.

Next, we examine if financial education (differentially) changes financial literacy. We measure financial literacy with the Lusardi and Mitchell (2014) five-item scale. Since women are more likely to answer "don't know" than men, we also provide an additional specification where we randomize a guess for each "don't know" answer.[16] As in Mangrum (2022), we find some evidence that financial education improves financial literacy in Table 6 for the overall sample, though this is only statistically different from zero when we simulate guesses and even then not when we split by education. Estimates on financial literacy by gender and education are all positive, but the standard errors are large, and there are no systematic differences between men and women or the most and least educated.

We also examine the extent to which our data show that financial education changes additional markers of objective financial situations in Table 7. For the overall sample (Column 1), there is some evidence of increased ownership of checking or savings accounts and holding rainy day accounts.[17] While some point estimates are larger for the male or female samples (Columns 2 and 3, respectively), none of the sub-group coefficients are statistically different from the average overall effect. Across education samples (Columns 4-6), the overall effects on holding checking and savings accounts and maintaining a rainy day account are not statistically different from zero or each other.[18]

6.2 Robustness

We carry out four robustness checks to validate our results. First, we probe the robustness of including state-specific linear trends in high school graduation year in Table A.2; results remain consistent, but standard errors become larger. Second, to be sure that some form of household formation is not driving our estimates, we restrict our sample to only never-married respondents and confirm that our results remain consistent (Table A.9), though again sample sizes are small. Third, to be sure that our estimates are not driven by a single

[16]We provide an alternate specification in Table A.6 where we instead use factor analysis as in Lusardi, Maarten van Rooij and Alessie (2011) to accommodate the "don't know" responses. The findings are consistent with our overall findings: the magnitudes are all positive but none are statistically different from zero at the 90 percent level.

[17]Harvey (2020) uses the Survey of Income and Program Participation to show that state-mandated financial education increases liquidity and the likelihood of having savings over $400 for a high school-only sample of low-income 18-24 year old respondents. While our sample covers a larger range of ages and incomes, our results are largely consistent with the signs and magnitudes in her study.

[18]Table A.4 shows that controlling for income does not change the effects of financial education on (P)FWB.

state, Figures A.4-A.5 plot the coefficient estimates from Tables 4 and 7 dropping one state at a time. There is no evidence that our results are driven by a single state. Fourth, we replicate our results in the Understanding America Survey (UAS) in Appendix B. The UAS includes the FWB scale and also includes the state where individuals attended high school. The UAS sample is much smaller than the NFCS, which results in estimates with large standard errors. However, using the UAS data we do not see any evidence that would counter the estimates from the NFCS sample.

We also examine whether results in the NFCS differ across the FWB distribution, in part to rule out our estimates being driven by a small number of observations. Table A.7 shows the effects at the median, 25th percentile, and the 75th percentile by gender. The effects at the median are comparable to the average effects, but the confidence intervals are more precise. The effects at the 25th percentile and 75th percentile are not statistically different from each other, suggesting that there is not a clear part of the distribution from which our effects derive. If anything, the effects of financial education on FWB for women are more likely to be positive for those from the bottom of the FWB distribution (25th percentile). Table A.8 replicates this exercise but splits the sample by education. While the effects are again not statistically different from each other across the 25th, 50th, and 75th percentiles, the 25th percentile shows the largest coefficient magnitudes (meaning improvements) across all education levels. The median effects are relatively similar to the average effects, suggesting outliers are not driving the findings.

6.3 Magnitudes Discussion

Using a subset of the UAS from 2018–2019, as in Burke and Perez-Arce (2020), we ran an analysis examining how job loss influences one's level of FWB, controlling for FWB prior to job loss to account for unobserved heterogeneity. Restricting to UAS respondents under the age of 45 (a sample of 1,768 individuals), we estimate that job loss is associated with a reduction in FWB of 4.2 points for the full population. The effect of financial education on FWB for men is 1.86, which is 44 percent of the magnitude of the change due to job loss. We do not mean to compare a job loss—which is an immediate negative shock—to not having financial education in high school. The education likely has lifelong effects, while the job loss is more episodic. Still, the relative size of these two estimates is helpful to position financial education effects, controlling for other factors. The negative effect for the high school only population is also sizable: a decrease of 3.03 points or 72% of the effect of job loss. Job losses are generally transient events. The long-run effects of financial education on the subjective financial well-being of this population are sizable.

Our difference-in-difference estimates assume that all people who likely attended high school in states with a financial education graduation requirement are likely to have been

exposed to a financial education course. This means our estimates would be attenuated if schools failed to fully implement these education policies as intended. Urban (2020) collected local high school course requirements for the 2019–2020 academic year, which may shed light on how frequently schools comply with state mandates. Data from school course catalogs show that only 48 percent of schools within states that have graduation requirements have either a stand-alone personal finance course or a course with personal finance content that is required for graduation. This means that the treatment effect on the treated could be as much as twice the size estimated if all students in mandated states actually received financial education in high school.

7 Conclusion

Young people transitioning into adulthood develop financial independence as they establish a career and earnings trajectory. Young adults who enter the workforce with no further education beyond high school will have income sooner than those who attend college full-time, but also will be more susceptible to income shocks and lower average lifetime earnings. Prior studies show that financial education helps young people better manage cash flows and pay bills on time (Brown et al., 2016; Urban et al., 2020; Harvey, 2019; Mangrum, 2022). This may not result in all young adults developing stronger subjective financial well-being, however.

This study shows that high school financial education mandates improve young adults' objective financial situation and increase their subjective financial well-being, on average, though there is substantial heterogeneity across the population. In particular, we find that financial education requirements result in *lower* financial well-being for individuals who do not go to college, yet results in improvements for men and those who attain a college degree. Examining mechanisms, we find little evidence of differential effects on measures of financial behavior and objective financial status. Rather we find that financial education causes individuals who end their education after high school to have lowered financial expectations regarding future economic security, resulting in reduced expected utility, while expectations improve for those who graduate from college. Policies promoting financial education in high school may actually *increase* inequalities in subjective financial well-being across education levels. Financial education may raise awareness of financial fragility and result in lower expectations about one's financial future for some people, particularly for individuals from more economically disadvantaged groups. As a result, policies promoting financial education in high school may actually be increasing the subjective financial well-being gap between those with and without a college education by contributing to differences in future expectations.

While financial education lowers expectations regarding future economic security for those who end their education after high school, and raises expectations for college graduates, whether these expectations are well calibrated is an important question for future research. Financial education leads to lower expected utility for high school graduates during their working years due to increased pessimism about future asset levels. It is possible that late in life utility may be improved if these individuals are better able to predict and prepare for their future economic circumstances. It is also possible, however, that the education leads to overly pessimistic predictions, distorting current consumption decisions and decreasing lifetime utility. How the mandates influence lifetime financial wellbeing is an open question that deserves more attention from researchers.

The financial issues of non-college going young adults also warrants special attention for research and policy. This group is likely to face greater financial risks and lower objective financial well-being. The fact that our results suggest that financial education may lead to differentially worse subjective well-being for people who do not attend college suggests that current curricula may not be sufficiently tailored for this population. Financial education for this group may need to stress ways to deal with potential shocks, better prepare people for financial stresses, and highlight what a secure financial future without a college degree may look like. It may be advantageous for state-mandated financial education to focus less on managing student debt and more on topics that pertain to young adults who will not pursue education beyond high school, such as credit use (Harvey, 2019), managing budgets, reducing expenses, understanding costs associated with parenting and childcare, and paying taxes (Stoddard and Urban, 2020; Mangrum, 2022). Non-college goers may also need the help of direct assistance programs that can effectively reduce the risks of financial shocks, support emergency savings, and help manage debt.

Requiring financial education in high school does not change the financial well-being of women. Women objectively face added risks in the labor market, as well as greater longevity. The measures of financial well-being we use may reflect that women exposed to financial education mandates better understand the reality of their context and are honest in their self-assessments in surveys. It is also possible men and women incorporate information differently as they develop a sense of financial well-being. Men may be overconfident relative to women (Barber and Odean, 2001), in which case having higher financial well-being may not be a positive outcome. For example, studies show women take fewer financial risks (Bannier and Neubert, 2016), which could be prudent but could also reduce lifetime wealth. More research on gender differences in household finance could help expand our understanding of the interactions between financial education and gender. This research might also inform innovations in financial products and services to better serve women and other sub-populations at greater risk of financial setbacks later in life.

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8 Tables and Figures

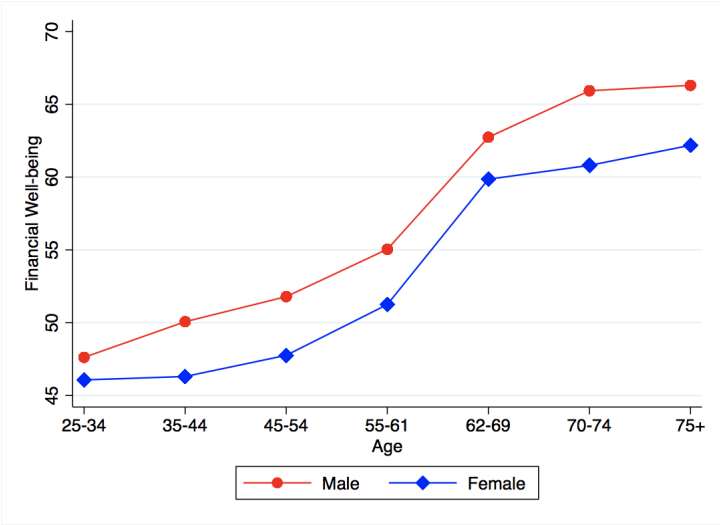
Table 1: Financial Well-being (FWB) Scale and Proxy FWB Measure

Number	CFPB FWB Question	NFCS Proxy Question
Q1	I am just getting by financially	How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?
Q2	I am concerned that the money I have or will save won't last	Over the past year, would you say your household's spending was less than, more than, or equal to your household's income?
Q3	Because of my money situation, I feel like I will never have the things I want in life	Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?
Q4	My finances control my life	I have too much debt right now
Q5	I have money left over at the end of the month	In a typical month, how difficult is it for you to cover your expenses and pay all your bills?

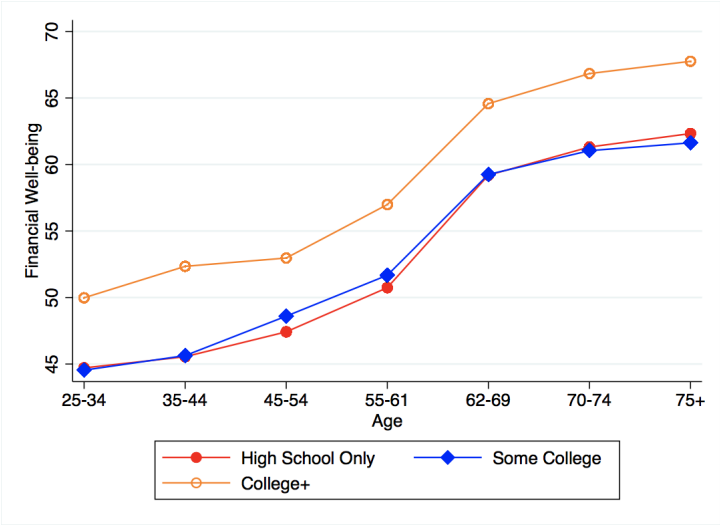
Notes: Each question is re-scaled such that higher values represent positive outcomes. For example, "I am just getting by financially" is the specific question asked, but we recode the answers such that those who strongly agree with that statement would have the lowest values.

Figure 1: Financial Well-being Across Education and Gender

By Gender



By Education



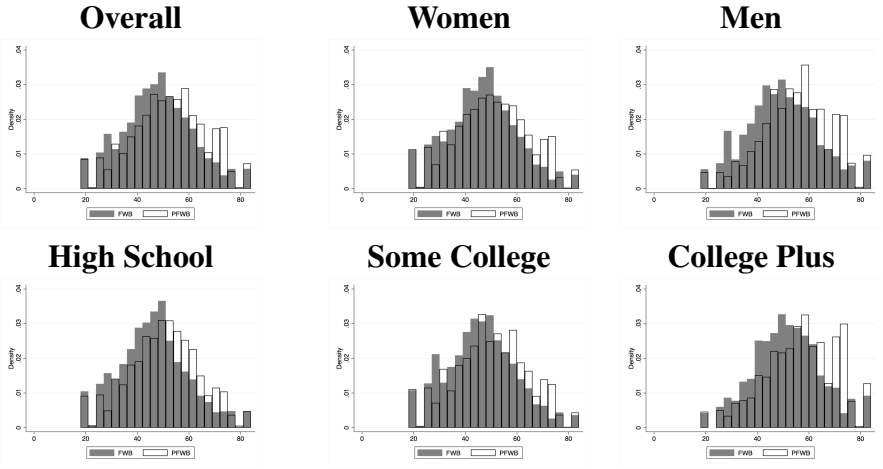
Notes: Data from 2018 NFCS.

Table 2: Graduation Requirements

State	Graduation year	State	Graduation year
AL	2017	NC	2005
AR	2005	ND	2011
AZ	2005	NE	2014
CO	2009	NH	1993
FL	2018	NJ	2014
GA	2007	NV	2022
IA	2011	NY	1996
ID	2007	OH	2014
IL	1970	OK	2014
IN	2013	OR	2013
KS	2012	SC	2009
KY	2024	TN	2011
LA	2005	TX	2007
ME	2017	UT	2008
MI	1998	VA	2015
MN	2015	WV	2020
MO	2010	WY	2002

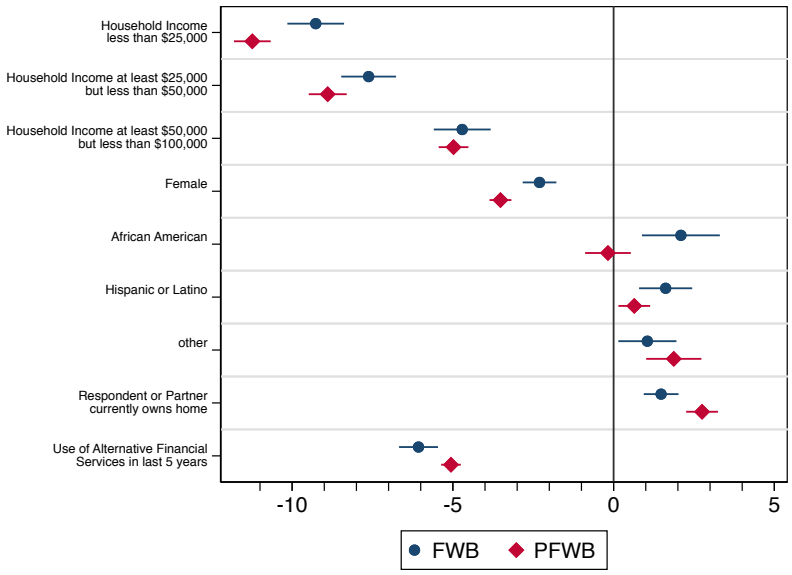
Notes: Hand collected data updating Urban and Schmeiser (2015). Graduation years represent the first cohort required to complete personal finance coursework prior to graduation. However, some of the states have since repealed their requirements. For the full dataset, visit `http://www.montana.edu/urban/Policies_Panel.xlsx`.

Figure 2: Histograms of Financial Well-being and Proxied Financial Well-being



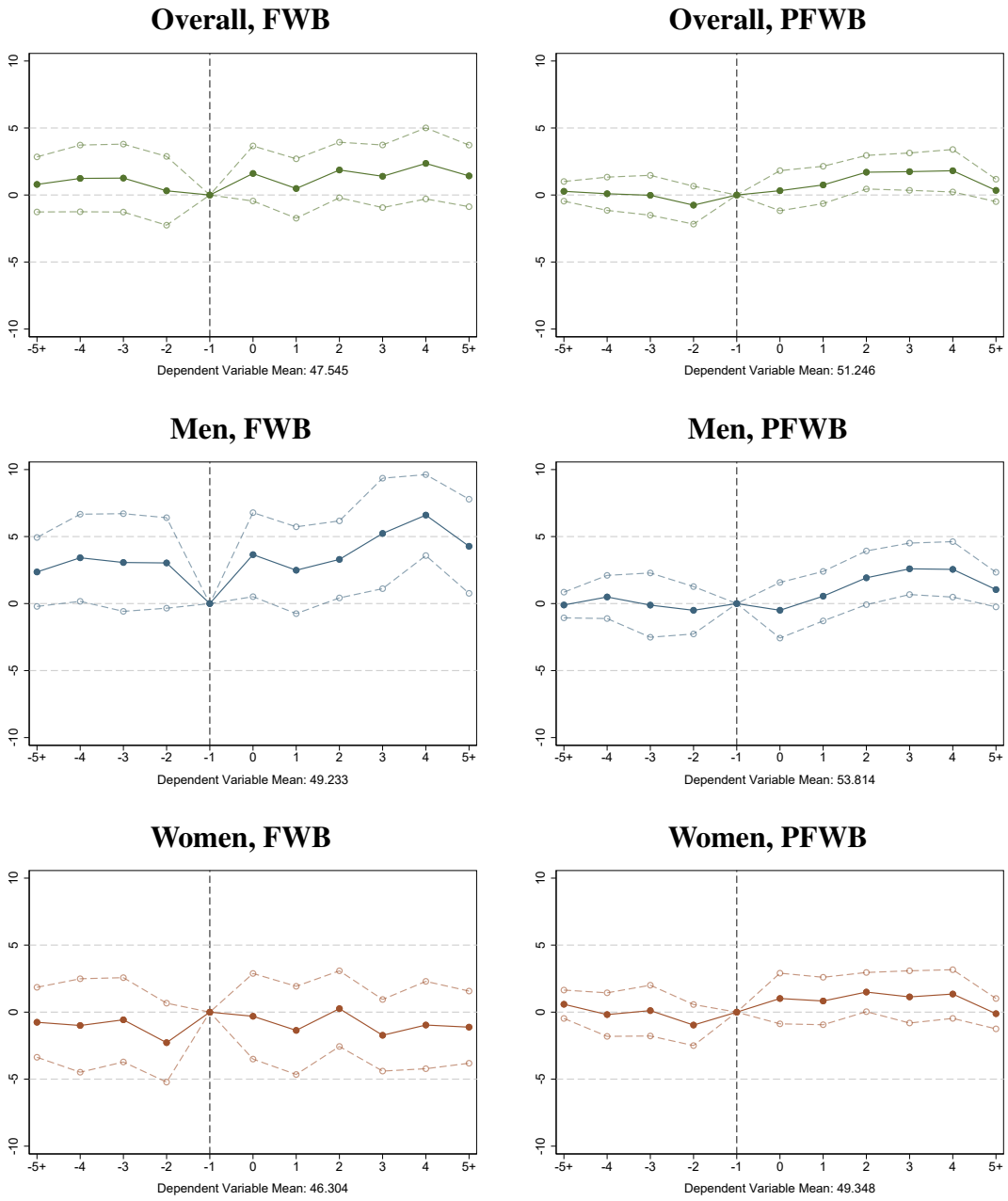
Notes: Data from 2018 NFCS.

Figure 3: Factors that Predict (P)FWB



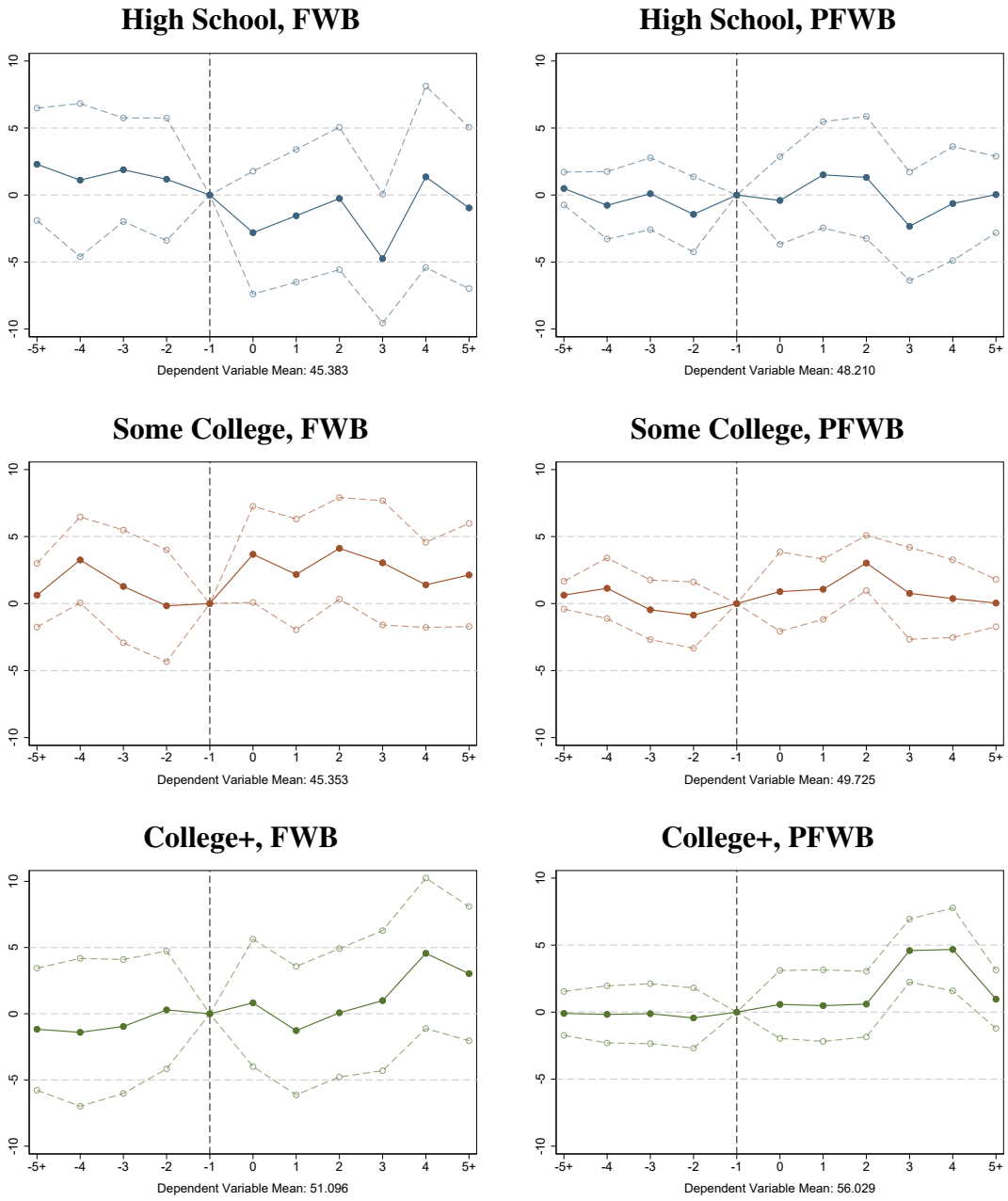
Notes: The income group coefficients are relative to those making $100,000 or above. The demographic coefficients are relative to those that do not fall in any of the displayed groups. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB.

Figure 4: Financial Well-being Event Studies



Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2018 NFCS (FWB) and 2012, 2015, and 2018 NFCS (PFWB). The y-axis represents the difference in (P)FWB across the treatment and control groups in each period. The sample includes 18-45 year olds of all education levels.

Figure 5: Financial Well-being Event Studies (Split by Education)



Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2018 NFCS (FWB) and 2012, 2015, and 2018 NFCS (PFWB). The y-axis represents the difference in (P)FWB across the treatment and control groups in each period. The sample includes 18-45 year olds of all education levels.

Table 3: Effects of Financial Education Requirements on P(FWB) by Question

	(1) FWB	(2) Q1	(3) Q2	(4) Q3	(5) Q4	(6) Q5
Fin Ed	0.777	0.031	0.095*	0.087*	0.052	0.055
	(0.532)	(0.039)	(0.055)	(0.050)	(0.058)	(0.049)
N	12,228	11,989	12,089	11,928	11,940	11,887
Topic	Scale	Getting by	Money won't last	Won't have things	Control my life	Money left over
Birthyear FE	X	X	X	X	X	X
Survey Year FE	X	X	X	X	X	X
	(1) PFWB	(2) Q1	(3) Q2	(4) Q3	(5) Q4	(6) Q5
Fin Ed	0.755**	-0.011	0.060*	0.085**	0.049	0.087**
	(0.358)	(0.041)	(0.035)	(0.042)	(0.036)	(0.034)
N	37,086	36,488	35,396	35,508	36,487	36,057
Topic	Scale	Emergency Savings	Spending $\leq$ Income	Satisfied w assets, debt, savings	Too much Debt	Difficulty expenses
Birthyear FE	X	X	X	X	X	X
Survey Year FE	X	X	X	X	X	X
Controls	X	X	X	X	X	X

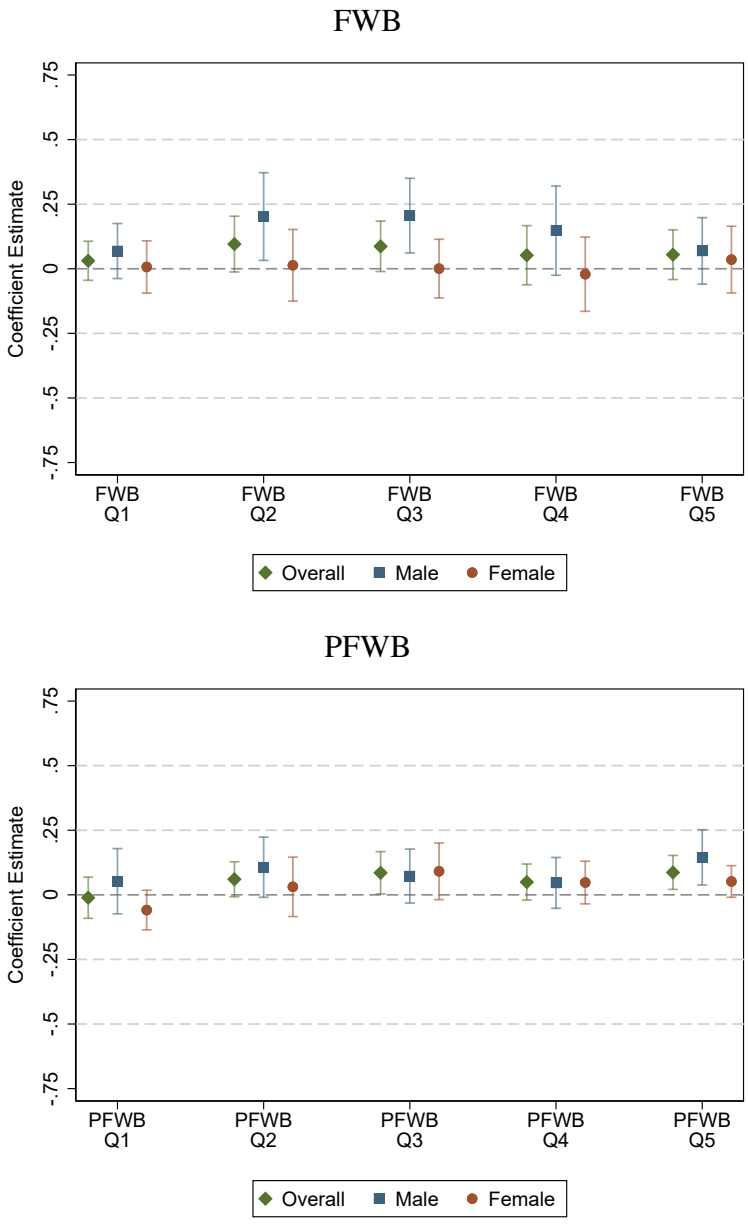
Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Effects of Financial Education Requirements on (P)FWB

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.777	1.858**	-0.049	0.755**	1.220***	0.421
	(0.532)	(0.735)	(0.714)	(0.358)	(0.453)	(0.423)
N	12,228	5,182	7,046	37,086	15,762	21,324
R^2	0.019	0.018	0.009	0.038	0.017	0.018
DV Mean	47.54	49.23	46.30	51.25	53.81	49.35
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 6: Effects of Financial Education Requirements on (P)FWB Components



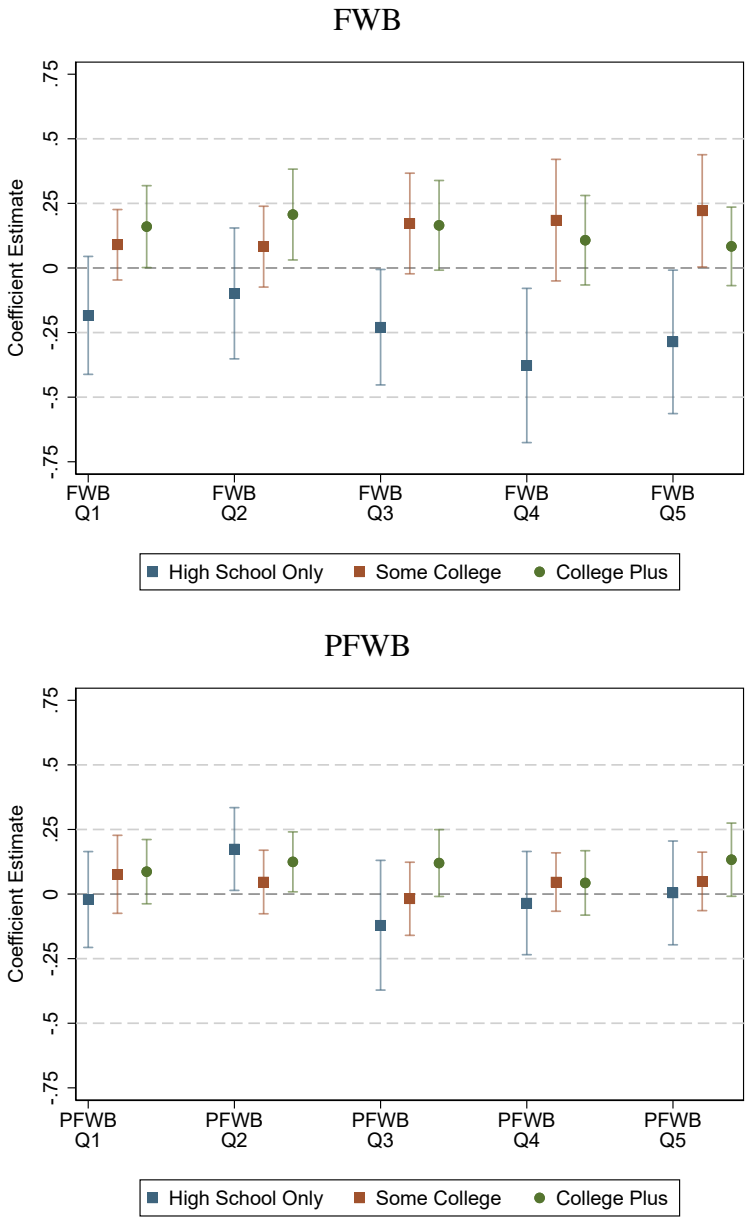
Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1. Each question is reported in Table 1.

Table 5: Effects of Financial Education Requirements on P(FWB) by Education

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-3.025**	1.921*	2.007*	0.011	0.539	1.508**
	(1.413)	(1.066)	(1.060)	(1.025)	(0.675)	(0.702)
N	2,258	3,893	3,951	6,553	13,470	10,008
R^2	0.040	0.031	0.018	0.033	0.034	0.038
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 7: Effects of Financial Education Requirements on (P)FWB Components by Education



Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1. Each question is reported in Table 1.

Table 6: Effects of Financial Education Requirements on Financial Knowledge

(a) **Overall Effects**

	No Response = 0			No Response = Random Guess		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.056	0.057	0.060	0.092***	0.099**	0.092*
	(0.038)	(0.049)	(0.052)	(0.032)	(0.045)	(0.047)
N	37,175	15,796	21,379	37,175	15,796	21,379
R^2	0.083	0.086	0.044	0.093	0.088	0.097
DV Mean	2.50	2.74	2.31	3.00	3.14	2.89

(b) **Split by Education**

	No Response = 0			No Response = Random Guess		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-0.036	-0.022	0.014	0.064	-0.013	-0.028
	(0.083)	(0.052)	(0.054)	(0.080)	(0.042)	(0.046)
N	6,580	13,496	10,023	6,580	13,496	10,023
R^2	0.071	0.118	0.082	0.098	0.079	0.049
DV Mean	1.98	2.62	3.05	2.61	3.05	3.51

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1. All models include birth year FE, survey year FE, state FE, gender, and demographic controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Effects of Financial Education on Objective Financial Situation

(a) **Checking/Savings Account**

	Overall Effects			Split by Education		
	(1)	(2)	(3)	(4)	(5)	(6)
	Overall	Male	Female	High School	Some College	College+
Fin Ed	0.018**	0.014	0.022**	-0.037	-0.003	0.003
	(0.007)	(0.012)	(0.010)	(0.025)	(0.009)	(0.008)
N	36,188	15,341	20,847	6,340	13,255	9,863
R^2	0.019	0.027	0.018	0.014	0.008	0.007
DV Mean	0.89	0.89	0.89	0.82	0.92	0.97

(b) **Rainy Day Account**

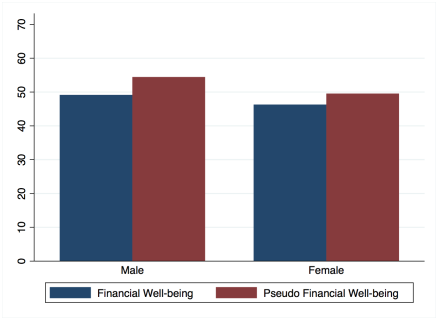
	Overall Effects			Split by Education		
	(1)	(2)	(3)	(4)	(5)	(6)
	Overall	Male	Female	High School	Some College	College+
Fin Ed	0.027**	0.036**	0.020	0.010	-0.010	0.040
	(0.011)	(0.018)	(0.013)	(0.037)	(0.023)	(0.026)
N	35,371	14,991	20,380	6,203	12,987	9,636
R^2	0.025	0.016	0.014	0.029	0.022	0.021
DV Mean	0.40	0.47	0.35	0.28	0.37	0.56

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2012, 2015, and 2018 NFCS. Each outcome is a dummy variable, and we estimate linear probability models. Our models report α_1 from Equation 1 but change the dependent variables. All models include birth year FE, survey year FE, state FE, gender, and demographic controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

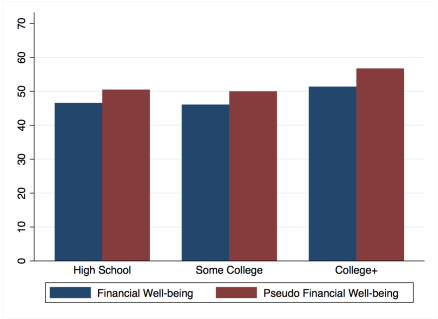
Appendix A: Summary Statistics and Robustness Checks

Figure A.1: Financial Well-being and Proxied Financial Well-being

By Gender



By Education



Notes: Data from 2018 NFCS.

Table A.1: Financial Well-being Summary Statistics

	States with Fin Ed		**States without Fin Ed**		**Overall**		
	Mean	N	Mean	N	DifTest	Mean	N
FWB	47.85	2,627	47.46	9,601	-0.38	47.54	12,228
FWB Q1	1.74	2,577	1.74	9,412	-0.00	1.74	11,989
FWB Q2	2.19	2,594	2.09	9,495	-0.09***	2.11	12,089
FWB Q3	1.75	2,549	1.73	9,379	-0.02	1.73	11,928
FWB Q4	1.86	2,561	1.88	9,379	0.02	1.87	11,940
FWB Q5	1.59	2,558	1.54	9,329	-0.05*	1.55	11,887
PFWB	52.51	5,197	51.04	31,889	-1.47***	51.25	37,086
PFWB Q1	2.07	5,101	1.77	31,387	-0.30***	1.81	36,488
PFWB Q2	2.36	4,927	2.33	30,469	-0.03	2.33	35,396
PFWB Q3	2.16	4,970	2.23	30,538	0.08***	2.22	35,508
PFWB Q4	1.99	5,112	1.89	31,375	-0.10***	1.91	36,487
PFWB Q5	2.57	5,008	2.49	31,049	-0.08***	2.50	36,057

Notes: Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. Difference reports the difference across individuals who lived in a state with and without a financial education graduation requirement when they were in their teen years ** and *** depict that the difference is statistically different at the 5% and 1% levels, respectively. The remainder are not statistically different at the 10% level.

Table A.2: Effects of Financial Education Requirements on (P)FWB Including State Specific Linear Trends

(a) **Overall Effects**

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.559	1.624	-0.193	0.814*	1.106**	0.592
	(0.669)	(0.975)	(0.995)	(0.410)	(0.462)	(0.527)
N	12,228	5,182	7,046	37,086	15,762	21,324
R^2	0.024	0.026	0.018	0.041	0.021	0.021
DV Mean	47.54	49.23	46.30	51.25	53.81	49.35

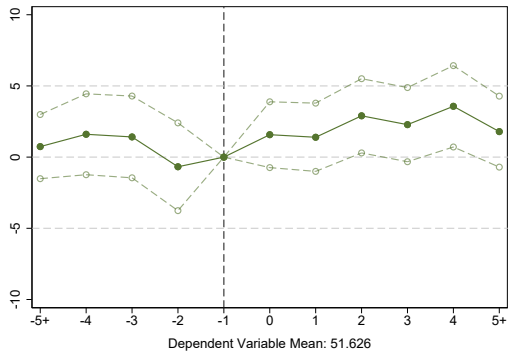
(b) **Split by Education**

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-1.876	1.988*	0.884	1.221	0.488	1.633*
	(1.624)	(1.077)	(1.220)	(1.122)	(0.764)	(0.886)
N	2,258	3,893	3,951	6,553	13,470	10,008
R^2	0.068	0.045	0.037	0.041	0.039	0.046
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03

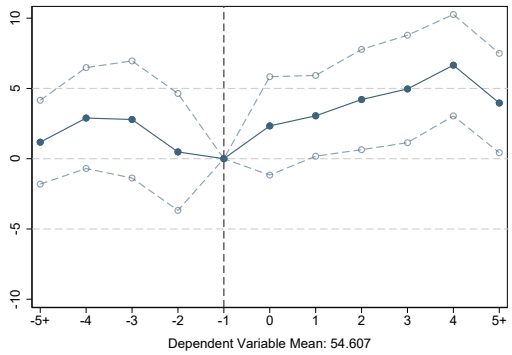
Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1, and this model additionally includes state-specific linear trends.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A.2: PFWB Event Studies (Survey Year 2018 Only)

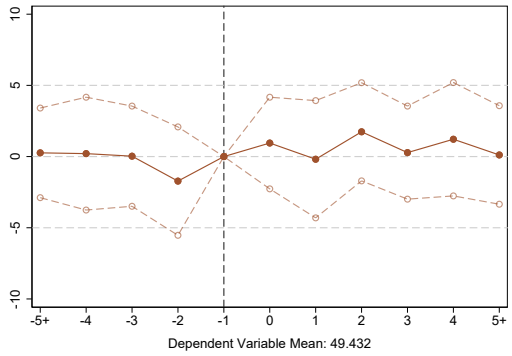
(a) **Overall**



(b) **Men**



(c) **Women**



Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2018 NFCS.

Table A.3: Effects of Financial Education Requirements on (P)FWB (Survey Year 2018 Only)

(a) **Overall Effects**

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.777	1.858**	-0.049	1.511**	2.780***	0.605
	(0.532)	(0.735)	(0.714)	(0.566)	(0.679)	(0.801)
N	12,228	5,182	7,046	12,361	5,241	7,120
R^2	0.019	0.018	0.009	0.043	0.018	0.017
DV Mean	47.54	49.23	46.30	51.63	54.61	49.43

(b) **Split by Education**

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-3.025**	1.921*	2.007*	-0.849	1.851*	2.754**
	(1.413)	(1.066)	(1.060)	(1.170)	(1.043)	(1.034)
N	2,258	3,893	3,951	2,302	3,927	3,985
R^2	0.040	0.031	0.018	0.052	0.043	0.043
DV Mean	45.38	45.35	51.10	49.06	48.67	56.12
Birthyear FE	X	X	X	X	X	X
Controls	X	X	X	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and PFWB. We report estimates of α_1 in Equation 1. These specifications restrict the sample NFCS survey year 2018. Since FWB is only available in 2018, this is only a binding restriction for the PFWB measure.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.4: Effects of Financial Education Requirements Controlling for Income

(a) **Overall Effects**

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.483	1.618**	-0.350	0.675**	1.219***	0.288
	(0.465)	(0.664)	(0.639)	(0.322)	(0.441)	(0.382)
N	12,228	5,182	7,046	37,086	15,762	21,324
R^2	0.108	0.082	0.131	0.165	0.135	0.158

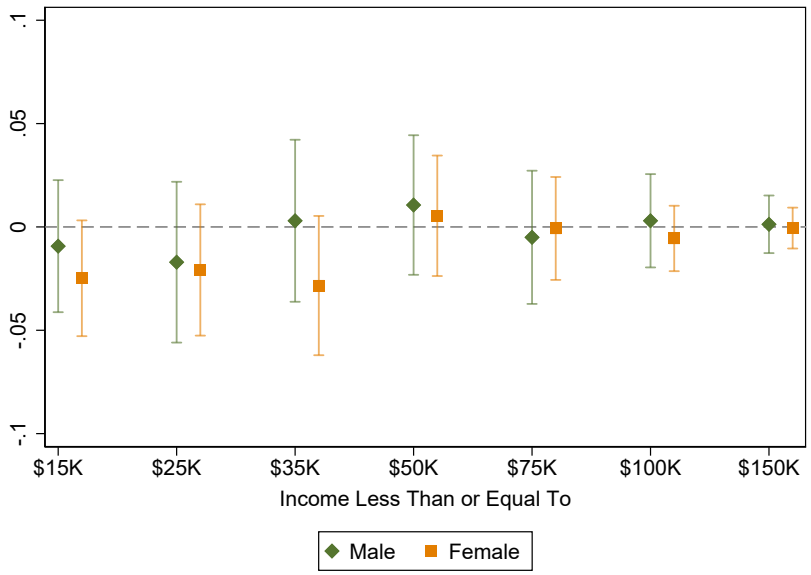
(b) **Split by Education**

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-2.064	1.727*	1.430	0.121	0.747	1.281*
	(1.349)	(0.949)	(1.058)	(0.900)	(0.559)	(0.698)
N	2,258	3,893	3,951	6,553	13,470	10,008
R^2	0.100	0.097	0.121	0.108	0.149	0.161
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

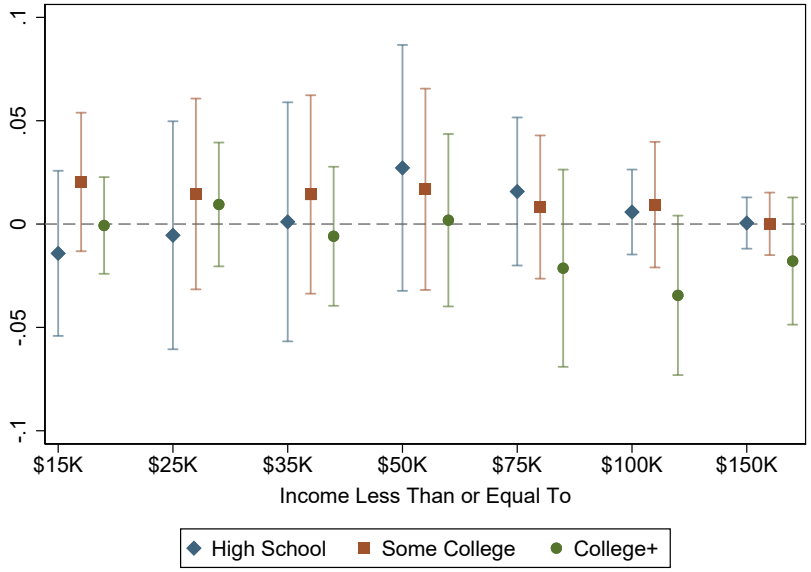
Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 for PFWB. We report estimates of α_1 in Equation 1. These specifications additionally control for household income with dummies accounting for the eight bins.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A.3: **Effect of Financial Education Requirement on Annual Household Income**

(a) **By Gender**



(b) **By Education**



Notes: 95% confidence intervals displayed from robust standard errors clustered at the state-level. Data from 2012, 2015, and 2018 NFCS. Each estimate represents a separate regression where the outcome variable equals 1 if the respondent's reported household income is $\leq Z$ where Z $= \{15, 25, 35, 50, 75, 100, 150\}$. High school means the individual did not continue formal education beyond a high school diploma; some college means that the individual did not complete a four-year college degree; college plus means the individual completed a bachelors degree and could have had additional education beyond that. These regressions are of the exact same format as Equation 1.

Table A.5: Effects of Financial Education Requirements on Educational Attainment (Age 23+)

	(1) Completed High School	(2) Completed Some College	(3) Completed College+
Fin Ed	-0.019	0.020	-0.002
	(0.011)	(0.014)	(0.017)
N	30,031	30,031	30,031
R^2	0.007	0.057	0.088
DV Mean	0.22	0.45	0.33
Birthyear FE	X	X	X
Survey Year FE	X	X	X
Controls	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2012, 2015, and 2018 NFCS. We report estimates of α_1 in Equation 1, though the dependent variables are now dummy variables equal to one if the individual has only a high school diploma, has attained some college but not a college degree, or has completed a college degree, respectively.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6: Effects of Financial Education Requirements on Financial Knowledge - Using Factor Analysis

(a) **Overall Effects**

	No Response = 0			Factor Analysis (1 Factor)		
	(1) Overall	(2) Men	(3) Women	(4) Overall	(5) Men	(6) Women
Fin Ed	0.056	0.057	0.060	0.032	0.029	0.036
	(0.038)	(0.049)	(0.052)	(0.023)	(0.032)	(0.032)
N	37,175	15,796	21,379	37,175	15,796	21,379
R^2	0.083	0.086	0.044	0.070	0.054	0.033
DV Mean	2.50	2.74	2.31	-0.00	0.18	-0.13

(b) **Split by Education**

	No Response = 0			Factor Analysis (1 Factor)		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-0.036	-0.022	0.014	-0.079	-0.023	0.020
	(0.083)	(0.052)	(0.054)	(0.063)	(0.034)	(0.033)
N	6,580	13,496	10,023	6,580	13,496	10,023
R^2	0.071	0.118	0.082	0.055	0.089	0.075
DV Mean	1.98	2.62	3.05	-0.35	0.03	0.27

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1. All models include birth year FE, survey year FE, state FE, gender, and demographic controls.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.7: Effects of Financial Education Requirements on (P)FWB – Estimated at 25/50/75th Quantiles

(a) Quantile: 50

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.785*	1.853**	-0.045	0.755***	1.231***	0.423
	(0.454)	(0.720)	(0.586)	(0.280)	(0.419)	(0.374)
N	12,228	5,182	7,046	37,086	15,762	21,324
DV Mean	47.54	49.23	46.30	51.25	53.81	49.35
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

(b) Quantile: 25

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	1.073*	1.779*	0.417	0.780**	1.047*	0.656
	(0.583)	(0.919)	(0.754)	(0.372)	(0.568)	(0.494)
N	12,228	5,182	7,046	37,086	15,762	21,324
DV Mean	47.54	49.23	46.30	51.25	53.81	49.35
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

(c) Quantile: 75

	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.501	1.933**	-0.491	0.730**	1.406***	0.184
	(0.601)	(0.982)	(0.766)	(0.365)	(0.533)	(0.498)
N	12,228	5,182	7,046	37,086	15,762	21,324
DV Mean	47.54	49.23	46.30	51.25	53.81	49.35
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.8: Effects of Financial Education Requirements on (P)FWB – Estimated at 25/50/75th Quantiles –
Split by Education

(a) Quantile: 50

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-2.965**	1.930**	2.008**	0.011	0.538	1.474**
	(1.172)	(0.945)	(0.921)	(0.747)	(0.554)	(0.595)
N	2,258	3,893	3,951	6,553	13,470	10,008
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

(b) Quantile: 25

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-1.994	2.191*	2.424**	0.026	0.302	1.889**
	(1.469)	(1.222)	(1.202)	(1.001)	(0.726)	(0.834)
N	2,258	3,893	3,951	6,553	13,470	10,008
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

(c) Quantile: 75

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-4.036**	1.674	1.609	-0.003	0.787	1.091
	(1.599)	(1.268)	(1.196)	(0.980)	(0.733)	(0.757)
N	2,258	3,893	3,951	6,553	13,470	10,008
DV Mean	45.38	45.35	51.10	48.21	49.73	56.03
Birthyear FE	X	X	X	X	X	X
Survey Year FE				X	X	X
Controls	X	X	X	X	X	X

Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.9: Effects of Financial Education Requirements on (P)FWB - Singles Only

(a) **Overall Effects**

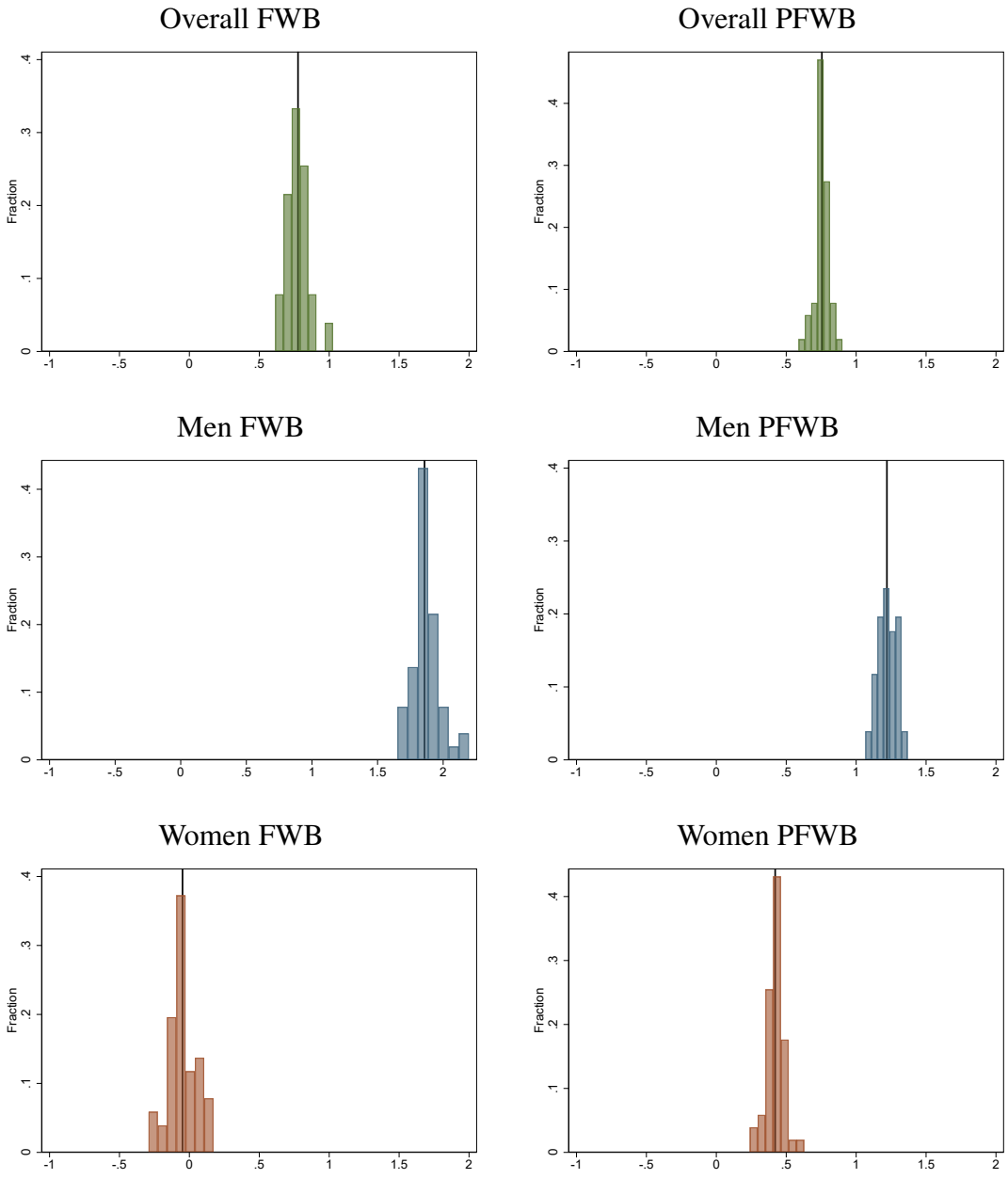
	FWB			PFWB		
	(1) Overall	(2) Male	(3) Female	(4) Overall	(5) Male	(6) Female
Fin Ed	0.912	1.935**	-0.130	1.123**	2.037***	0.477
	(0.720)	(0.779)	(1.057)	(0.483)	(0.644)	(0.589)
N	5,877	2,638	3,239	17,121	7,832	9,289
R^2	0.038	0.027	0.029	0.053	0.024	0.028
DV Mean	46.60	48.56	45.00	50.46	53.12	48.21

(b) **Split by Education**

	FWB			PFWB		
	(1) High School	(2) Some College	(3) College+	(4) High School	(5) Some College	(6) College+
Fin Ed	-1.789	1.654	2.954	-0.331	1.002	2.269**
	(1.916)	(1.224)	(1.814)	(1.312)	(0.840)	(1.065)
N	965	1,702	1,496	2,693	5,268	3,577
R^2	0.073	0.051	0.037	0.061	0.061	0.060
DV Mean	44.66	43.71	49.82	48.05	48.55	54.39

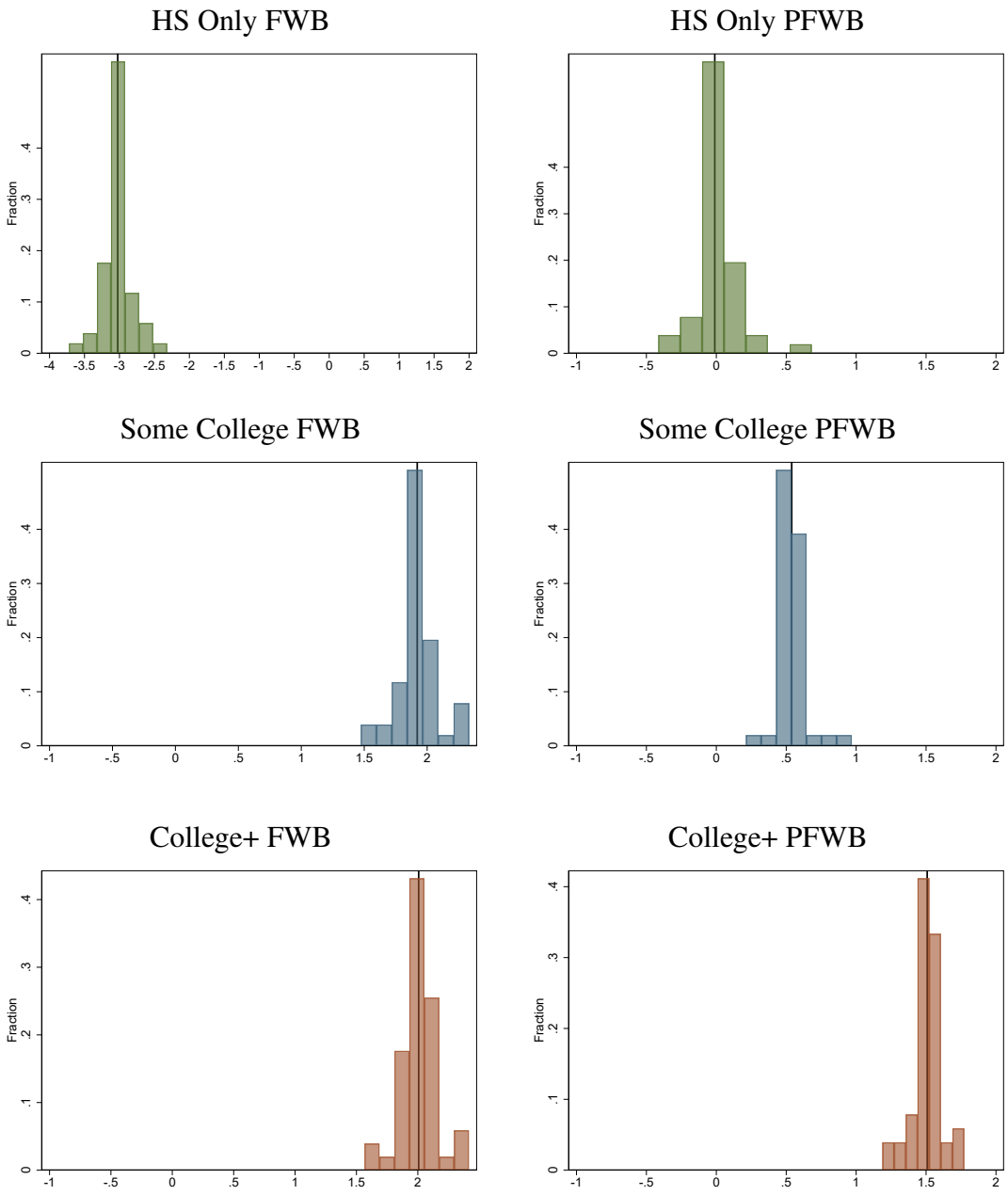
Notes: Robust standard errors clustered at the state-level are in parentheses. Data from 2018 NFCS for FWB and 2012, 2015, and 2018 NFCS for PFWB. We report estimates of α_1 in Equation 1. The sample drops all married, widowed, divorced, and separated individuals, keeping only those who have never been married.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A.4: Results, Dropping One State at a Time



Notes: Histogram of coefficients reported after dropping one state at a time, where the vertical black line shows the overall effect from Table 3.

Figure A.5: Results, Dropping One State at a Time (Split by Education)



Notes: Histogram of coefficients reported after dropping one state at a time, where the vertical black line shows the overall effect from Table 4.

Appendix B: Results in the UAS

We employ data from the Understanding America Survey (UAS) to investigate the robustness of our findings in the NFCS. While the UAS is a smaller sample than the NFCS, it includes the full ten-item scale across three survey years—2016, 2017, and 2018—and also includes a question on the state in which the respondent lived in high school, although it is not completed for all individuals.[19] This allows us to estimate financial well-being for people who may have had financial education earlier in life to determine more long-run effects. Here we focus on each item in the FWB scale, as well as the composite score.

Table B.1 shows summary statistics for the UAS sample for the 18-45 population. The UAS samples are smaller than the NFCS samples, and the UAS contains each of items from the ten-item CFPB scale. Table B.2 reports the effects of financial education on FWB for the overall sample and gender splits in panel (a) and the sample split by education in panel (b). No estimate is statistically different from zero at the 90% level for the overall sample, the gender splits, the high school only sample, and the college or more sample, and all confidence intervals are wide. There is a positive effect of financial education on FWB for those with some college. Table B.3 shows the effect for the five-item scale, to liken it closer to the NFCS results. Only the coefficients for the some college population are statistically different from zero at the 90% level, and no other coefficients are statistically different from the main analysis using the NFCS in Tables 3 and 4. Importantly, in both tables, 90% confidence intervals cannot rule out large effects in either direction. Tables B.4-B.5 show the results for each component of the FWB measure when splitting the sample by gender and education, respectively. These results are also inconclusive and have wide confidence intervals.

[19] Results remain consistent if we use current state of residence for missing values.

Table B.1: UAS FWB Summary Statistics

	States with Fin Ed		**States without Fin Ed**		**Overall**		
	Mean	N	Mean	N	DifTest	Mean	N
FWB	50.83	428	52.29	2,930	1.46**	52.10	3,358
UAS Q1	1.59	422	1.80	2,888	0.20***	1.77	3,310
UAS Q2	1.97	421	2.05	2,888	0.08	2.04	3,309
UAS Q3	1.96	421	1.98	2,891	0.01	1.97	3,312
UAS Q4	1.74	422	1.81	2,889	0.07	1.80	3,311
UAS Q5	2.27	422	2.34	2,889	0.07	2.33	3,311
UAS Q6	1.91	421	2.04	2,892	0.12**	2.02	3,313
UAS Q7	2.54	422	2.60	2,900	0.06	2.59	3,322
UAS Q8	2.16	421	2.19	2,900	0.03	2.18	3,321
UAS Q9	2.22	421	2.47	2,898	0.26***	2.44	3,319
UAS Q10	2.08	421	2.15	2,902	0.07	2.14	3,323

Notes: Data from the Understand America Survey 2016-2018. Difference reports the difference across individuals who lived in a state with and without a financial education graduation requirement when they were in their teen years ** and *** depict that the difference is statistically different at the 5% and 1% levels, respectively. UASQ1-UASQ10 reflect the 10-items of the CFPB FWB scale.

Table B.2: UAS Effects of Financial Education Requirements on 10-item FWB Scale

(a) **Overall Effects**

	FWB		
	(1) Overall	(2) Male	(3) Female
Fin Ed	0.012	-1.045	0.711
	(1.013)	(1.671)	(1.258)
N	3,358	1,228	2,130
R^2	0.025	0.033	0.026
DV Mean	52.10	53.65	51.21

(b) **Split by Education**

	FWB		
	(1) High School	(2) Some College	(3) College+
Fin Ed	-1.591	1.117	-2.031
	(2.754)	(1.273)	(1.799)
N	510	1,178	1,225
R^2	0.105	0.037	0.049
DV Mean	48.87	50.39	56.28

Notes: Robust standard errors clustered at the state-level are in parentheses. Data come from the Understanding America Survey (2016-2018). These results use the 10-item FWB scale as opposed to the 5-item scale in the NFCS.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.3: UAS Effects of Financial Education Requirements on 5-item FWB Scale

(a) **Overall Effects**

	FWB		
	(1) Overall	(2) Male	(3) Female
Fin Ed	0.378	-0.584	1.007
	(1.006)	(1.618)	(1.176)
N	3,358	1,228	2,130
R^2	0.022	0.023	0.024
DV Mean	51.68	53.12	50.85

(b) **Split by Education**

	FWB		
	(1) High School	(2) Some College	(3) College+
Fin Ed	0.106	0.846	-2.105
	(2.474)	(1.357)	(1.935)
N	510	1,178	1,225
R^2	0.100	0.035	0.041
DV Mean	48.75	50.13	55.26

Notes: Robust standard errors clustered at the state-level are in parentheses. Data come from the Understanding America Survey (2016-2018). These results use the 5-item FWB scale identical to the 5-item scale in the NFCS.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.4: UAS Effects of Financial Education Requirements on (P)FWB Components

	(1) UAS Q1	(2) UAS Q2	(3) UAS Q3	(4) UAS Q4	(5) UAS Q5	(6) UAS Q6	(7) UAS Q7	(8) UAS Q8	(9) UAS Q9	(10) UAS Q10
Panel A: Overall										
Fin Ed	0.060	-0.032	0.084	0.025	-0.001	-0.093	0.013	0.136	-0.037	0.011
	(0.093)	(0.103)	(0.078)	(0.113)	(0.095)	(0.110)	(0.091)	(0.100)	(0.087)	(0.075)
N	3,310	3,309	3,312	3,311	3,311	3,313	3,322	3,321	3,319	3,323
R^2	0.030	0.023	0.026	0.014	0.019	0.017	0.018	0.013	0.033	0.031
DV Mean	1.77	2.04	1.97	1.80	2.33	2.02	2.59	2.18	2.44	2.14

	UAS Q1	UAS Q2	UAS Q3	UAS Q4	UAS Q5	UAS Q6	UAS Q7	UAS Q8	UAS Q9	UAS Q10
Panel B: Women										
Fin Ed	0.074	0.026	0.089	0.083	0.044	-0.018	0.086	0.193	-0.003	0.041
	(0.093)	(0.122)	(0.072)	(0.113)	(0.127)	(0.099)	(0.136)	(0.120)	(0.117)	(0.087)
N	2,095	2,096	2,096	2,096	2,096	2,096	2,105	2,103	2,101	2,103
R^2	0.014	0.022	0.021	0.021	0.024	0.018	0.024	0.019	0.033	0.032
DV Mean	1.65	1.95	1.88	1.76	2.29	1.96	2.54	2.14	2.37	2.03

	UAS Q1	UAS Q2	UAS Q3	UAS Q4	UAS Q5	UAS Q6	UAS Q7	UAS Q8	UAS Q9	UAS Q10
Panel C: Men										
Fin Ed	0.070	-0.104	0.080	-0.101	-0.108	-0.233	-0.146	0.056	-0.048	-0.021
	(0.171)	(0.160)	(0.158)	(0.200)	(0.161)	(0.177)	(0.193)	(0.182)	(0.166)	(0.115)
N	1,215	1,213	1,216	1,215	1,215	1,217	1,217	1,218	1,218	1,220
R^2	0.036	0.024	0.030	0.036	0.030	0.030	0.033	0.026	0.053	0.024
DV Mean	1.98	2.19	2.13	1.88	2.38	2.13	2.68	2.26	2.57	2.33

Notes: Robust standard errors clustered at the state-level are in parentheses. Data come from the Understanding America Survey (2016-2018). These results use the 10-item FWB scale, depicting the results of each question one at a time.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.5: UAS Effects of Financial Education Requirements on (P)FWB Components, Split by Education

	(1) UAS Q1	(2) UAS Q2	(3) UAS Q3	(4) UAS Q4	(5) UAS Q5	(6) UAS Q6	(7) UAS Q7	(8) UAS Q8	(9) UAS Q9	(10) UAS Q10
Panel A: High School Only										
Fin Ed	0.274	0.012	0.303	-0.159	-0.092	-0.210	-0.030	-0.041	-0.399	0.229
	(0.251)	(0.254)	(0.186)	(0.300)	(0.226)	(0.219)	(0.289)	(0.228)	(0.284)	(0.273)
N	496	495	497	495	497	497	496	497	496	497
R^2	0.070	0.076	0.123	0.075	0.080	0.072	0.094	0.101	0.100	0.086
DV Mean	1.36	1.84	1.62	1.59	2.00	1.74	2.34	2.06	2.18	1.82

	UAS Q1	UAS Q2	UAS Q3	UAS Q4	UAS Q5	UAS Q6	UAS Q7	UAS Q8	UAS Q9	UAS Q10
Panel B: Some College										
Fin Ed	0.102	0.028	0.030	-0.045	0.110	-0.062	0.064	0.003	0.176	0.148
	(0.134)	(0.151)	(0.109)	(0.142)	(0.121)	(0.146)	(0.164)	(0.108)	(0.114)	(0.164)
N	1,163	1,163	1,164	1,164	1,163	1,165	1,168	1,168	1,167	1,169
R^2	0.035	0.025	0.043	0.043	0.043	0.024	0.035	0.029	0.042	0.040
DV Mean	1.56	1.89	1.83	1.71	2.25	1.87	2.42	2.06	2.35	1.98

	UAS Q1	UAS Q2	UAS Q3	UAS Q4	UAS Q5	UAS Q6	UAS Q7	UAS Q8	UAS Q9	UAS Q10
Panel C: College+										
Fin Ed	-0.146	-0.330	0.154	-0.131	-0.110	-0.304*	-0.185	-0.053	-0.110	-0.161
	(0.163)	(0.171)	(0.184)	(0.182)	(0.204)	(0.118)	(0.128)	(0.148)	(0.136)	(0.155)
N	1,221	1,221	1,222	1,221	1,221	1,221	1,223	1,223	1,223	1,223
R^2	0.061	0.051	0.043	0.033	0.027	0.041	0.039	0.026	0.049	0.052
DV Mean	2.24	2.33	2.36	2.01	2.61	2.33	2.96	2.41	2.77	2.52

Notes: Robust standard errors clustered at the state-level are in parentheses. Data come from the Understanding America Survey (2016-2018). These results use the 10-item FWB scale, depicting the results of each question one at a time.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C: Financial Well-being Scale Background

In 2015, the CFPB sought to define financial well-being in order to have an outcome that effective financial education or consumer protections should improve. They came up with a definition: financial well-being is "a state wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow them to enjoy life" (Drever et al., 2014).

The CFPB then significantly invested in developing a Financial Well-Being (FWB) scale. They started by commissioning a series of research studies from 2015—2017, where researchers provided a comprehensive review of prior studies and literature. The CFPB then conducted a qualitative study with nearly 90 consumers and practitioners representing a range of profession types (e.g., financial planners, counselors, loan officers). These one-hour interviews focused financial well-being and what factors influenced financial well-being. The result was 1,600 pages of interview transcripts, which were coded to help inform the development of 46 survey items that could be used to proxy for well-being. These items were tested with 4,500 U.S. adults ages 18 and older. A second survey narrowed down the item to 44 candidate items with 7,899 respondents. A final round of surveys tested 12 items that had a high degree of reliability and validity was tested with 1,000 online and 1,000 telephone respondents to estimate any differences in model effects (Consumer Financial Protection Bureau, 2017*a*; Drever et al., 2014). In addition to developing a ten-item scale, the CFPB research team validated a five-item scale, understanding that many surveys do not have room for ten questions. We use the five-item scale available in the NFCS.

Table C.1 shows the questions and response options for each of the five-item CFPB scale. The first three questions have a different set of response options than the last two questions. In order to take these five questions and turn them into the scale, several steps must be completed, as outlined in Consumer Financial Protection Bureau (2017*a*). For each question, a value is assigned to the responses, where higher values are always associated with a positive financial behavior or sentiment. If a respondent skips a question, it remains missing. This is important as the procedure can still generate a score—re-weighting the importance of other questions—when a question is missing a response. After assigning values to the responses, we use the CFPB's IRT procedure in Stata—a command called pfwb—to construct the FWB scale. The IRT method uses a standard normal distribution. The FWB scale ranges from 0 to 100, where higher values represent higher financial well-being.

Table C.1: CFPB FWB Questions with Response Options

Number	CFPB FWB Question	Response Options	Values
Q1	I am just getting by financially		
		Describes me completely	0
Q2	I am concerned that the money I have	Describes me very well	1
	or will save won't last	Describes me somewhat	2
		Describes me very little	3
Q3	Because of my money situation, I feel like	Does not describe me at all	4
	I will never have the things I want in life		
		Always	0
		Often	1
Q4	My finances control my life	Sometimes	2
		Rarely	3
		Never	4
		Always	4
		Often	3
Q5	I have money left over at the	Sometimes	2
	end of the month	Rarely	1
		Never	0

We use a comparable method when developing our PFWB measure, though we use different questions, outlined in Table C.2. We match each of these variables to the CFPB FWB scale measures, and we number them the same. We then use the same IRT procedure to create a PFWB scale that also ranges from 0 to 100, centered at 50. We further use each of these measures individually in our study to increase validity.

Table C.2: NFCS PFWB Questions with Response Options

#	PFWB Question	Response Options	Values
Q1	How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?	I am certain I could come up with the full $2,000	4
		I could probably come up with $2,000	3
		I could probably not come up with $2,000	1
		I am certain I could not come up with $2,000	0
Q2	Over the past year, would you say your household's spending was less than, more than, or equal to your household's income?	Spending less than income	4
		Spending more than income	2
		Spending about equal to income	0
Q3	Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?	1-Not at all Satisfied	0
		2	0
		3	1
		4	1
		5	2
		6	2
		7	3
		8	3
		9	4
		10-Extremely Satisfied	4
Q4	I have too much debt right now	1-Strongly Disagree	4
		2	3
		3	3
		4	2
		5	1
		6	1
		7-Strongly Agree	0
Q5	In a typical month, how difficult is it for you to cover your expenses and pay all your bills?	Very difficult	0
		Somewhat difficult	2
		Not at all difficult	4

Appendix D: Michaud et. al. Financial Literacy Model

From Lusardi, Michaud and Mitchell (2017):

Two-period model, where c is first period consumption and a is wealth (and consumption) in period two:

Total utility= $u(c) + \beta u(a)$

$$\max_{a,R} u(y - \pi R - \tfrac{a}{R}) + \beta u(a)$$
$$a = Rs$$
$$c = y - \pi R - \tfrac{a}{R}$$
$$u(c) = log(c)$$
$$R = \text{return factor on savings}$$
$$c = \text{first period consumption}$$
$$a = \text{wealth in period 2}$$
$$y = \text{first period income}$$
$$\pi = \text{cost of raising R by 1 unit}$$

Financial education influences R. This would result in more savings and, *ceteris paribus*, should increase wealth if π is low.

From their optimal condition:

$$\frac{a^\star}{y} = \frac{R\beta}{1+\beta}$$
$$\frac{\partial a^\star}{\partial R} = \frac{\beta}{1+\beta} \times y$$

Financial education could provide more certainty around $E[y]$, which would then increase certainty around $E[c]$, such that you understand how much things cost, how much you will earn given your characteristics, and that could change your knowledge around c (or goals and expectations). Well-being depends on if $\beta > 0$. If income in period 1 (y) is sufficiently low, $\frac{\partial a^\star}{\partial R}$ will be zero.

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