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Millennials and money: Financial preparedness and money management practices before COVID-19

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Abstract

Millennials (individuals age 18–37 in 2018) are the largest, most highly educated, and most diverse generation in U.S. history, and they are already playing a pivotal role in society by making up the largest share of the work force. Consequently, their financial decisions promise to greatly affect the future of the U.S. economy. Millennials were deeply affected by the Great Recession of 2008 and have been disproportionately affected by the steadily rising costs of higher education and the ensuing student loan debt crisis. This generation now faces an additional economic crisis, resulting from the shutdowns due to the COVID-19 pandemic. In light of this, we assess in this paper the financial situation, money management practices, and financial literacy of millennials to understand both how their financial behavior changed over the ten years following the Great Recession and the situation they were in on the cusp of the current economic crisis (in 2018). Findings from the National Financial Capability Study (NFCS) show that millennials tend to rely heavily on debt, engage frequently in expensive short- and long-term money management, and display shockingly low levels of financial literacy. Moreover, student loan burden and expensive financial decision making increased significantly from 2009 to 2018 among young adults. Given these findings, we suggest that financial education programs tailored to the needs of young workers could play a crucial role in supporting financial decision making and helping them build financial resilience. Thus, we provide recommendations to employers who want to implement financial wellness programs targeted to their millennial employees. Effective workplace financial wellness programs include financial checkups, accessible and customized content, and cover a broad range of personal finance topics. A financially strong and healthy workforce provides the foundation for empowered and resilient communities.

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Introduction

Every generation has the capacity to influence the economy, but millennials, also known as Generation Y, are positioned to exert a special impact. This generation—the largest in U.S. history—is young, educated, and ethnically diverse. It is already an influential force in society and is poised to play a pivotal role in the country's long-term social and economic development. As members of this generation approach critical financial decision-making junctures, their choices promise to affect the U.S. economy more than did the financial behavior of the generations that preceded them.

The Great Recession of 2008 and the ongoing economic crisis generated by the COVID-19 pandemic have affected everyone in some form or another, but young people in particular. Millennials—individuals who were between the ages of 18 and 37 in 2018—have had to start their careers during economic downturns with record-high unemployment rates. Older millennials entered the workforce around the time the U.S. housing bubble collapsed in 2007 and contributed to a global financial crisis. Since that Great Recession, roughly ten years have passed, and the current COVID-19 pandemic has triggered the biggest economic contraction in the United States since the Great Depression. This event occurs while younger millennials are entering the workforce and older millennials are approaching their prime earning years.

Recent Bureau of Labor Statistics data shows that the industry hit the hardest by the pandemic—leisure and hospitality—employs predominantly millennial workers. In 2019, the median worker age in this industry was 31.9 years—by far the lowest across all industries—and a majority of workers (57%) were between the ages of 20 and 44 (with an additional 15% between the ages of 16 and 19).[1] Moreover, this industry is expected to be one of the slowest to return to pre-pandemic employment. Thus, one of the groups likely to suffer the most is millennials, many of whom have yet not fully recovered from the Great Recession.

In 2018, well before the pandemic hit, a vast majority of millennials were already struggling with and stressed about their personal finances. Overall, only 26% of 18- to 37-year-olds reported high satisfaction with their current personal financial condition. Almost half of the millennial population (44%) was moderately satisfied and 28% reported not being at all satisfied with their assets, debts, and savings (Table A1 of Appendix A). This finding alone is sobering when considering the preparedness of millennials to face any shock, let alone one as severe as the economic impact of the current crisis. The financial distress millennials were facing in 2018 not only affected their financial well-being and resilience, but 63% felt anxious when thinking about and 55% felt stressed when discussing their financial situation (Table A1 of Appendix A). This is only a glimpse of how ill-prepared millennials were to enter the current economic downturn, but it helps us gauge the severity of the current situation.

On top of coping with the current economic turmoil, longer life expectancies and the fundamental shift in retirement systems require younger generations to more carefully plan for and to save for their retirement than the baby boomer generation has had to do. Further, in light of the escalating burden of student loans due to constantly increasing education costs, the ability to successfully manage their finances is even more critical for millennials than for older Americans.

This paper sheds light on the factors likely contributing to high levels of financial fragility and high stress and anxiety levels and analyzes how prepared millennials were to face and manage the economic impact of the current crisis. We assess millennials' financial situation, money management practices, and financial literacy in 2018, so prior to the current crisis, and how their money management changed over the ten years following the Great Recession. The findings are based on data from the National Financial Capability Study (NFCS).

The NFCS data shows that young adults are highly indebted, with student loans as one of their major

[1] Bureau of Labor Statistics data: https://www.bls.gov/cps/lfcharacteristics.htm#occind, retrieved 6/22/2020.

concerns. Further, expensive credit card management and the use of alternative financial services are highly prevalent among millennials. This generation also seems to be engaging in behaviors that may compromise their financial security in retirement, as they already withdraw funds from their retirement accounts. Financial outcomes and money management behavior are strongly linked to financial literacy. Yet, basic financial knowledge levels are shockingly low among millennials. This indicator per se shows how ill-prepared millennials are to face the uncertainties of an economic crisis as well as navigate the complexity of today's financial landscape in general.

The last part of this paper discusses recommendations and guidelines that can help provide employers with tools to tailor financial wellness programs to their millennial employees.

Survey data set and sample of millennials

A project of the FINRA Investor Education Foundation, the National Financial Capability Study (NFCS) is a triennial survey designed to establish a baseline measure of financial capability of American adults. First conducted in 2009, the survey provides insights into key indicators of Americans' financial capability, making it possible to evaluate how these indicators vary given underlying demographic, behavioral, attitudinal, and financial literacy characteristics. The survey is nationally representative and with its large sample size (more than 27,000 observations), it is possible to rigorously study population subgroups, such as adults age 18–37, a group that is of particular interest to our research here.

We define millennials as young adults who were between the ages of 18 and 37 in 2018 and compare them to older working-age adults who were between the ages of 38 and 64 in 2018. Further, we split the millennial sample into younger (ages 18–27) and older (ages 28–37) millennial subsamples. To accurately compare the financial characteristics of millennials with the rest of the working-age population, we exclude retirees from the sample, regardless of their age. To analyze financial behaviors across the ten years of data (2009–2018), we compare the 2018 millennials to individuals who were in the same "young adult" age range (18–37) at the time of each of the four waves of the NFCS (in 2009, 2012, 2015, and 2018). The intention is to keep financial decision-making circumstances constant over the course of the ten years. All findings from the survey are weighted to ensure the sample is representative of the U.S. population in terms of age, gender, ethnicity, education, and census division.

We start by noting that millennials are highly educated and ethnically diverse. Around 40% have partially completed a college degree or obtained an associate's degree and 28% have at least a bachelor's degree (Table 1). As some are still in college, we expect these numbers to increase as the millennial generation grows older. The higher educational attainment of millennials compared to older working-age adults can be seen when looking at the older millennial subsample, of which 33% have completed at least a bachelor's degree. Ethnic minorities comprise a greater portion of the millennial population than the older working-age population. About 24% of millennials are Hispanic and 16% are African-American, in comparison to 15% and 11%, respectively, among older working-age adults. With many millennials just starting their careers or about to enter the workforce, their income distribution is highly skewed to the lower income brackets, with 58% of millennials earning less than $50,000 per year. In this context, 69% of millennials in the sample are employed, though this figure is much higher for the older millennial subsample. This substantiates the presumption that a significant portion of younger millennials is still in school.

Table 1. Demographics of millennials in 2018

	Millennials (18–37)	Younger Millennials (18–27)	Older Millennials (28–37)	Older Adults (38–64)
Gender				
Male	50%	50%	51%	49%
Female	50%	50%	49%	51%
Educational Attainment				
High School	32%	39%	27%	30%
Some College	40%	40%	40%	40%
Bachelor or More	28%	22%	33%	30%
Ethnicity				
White	49%	46%	52%	65%
African-American	16%	16%	16%	11%
Hispanic	24%	28%	21%	15%
Asian	8%	7%	8%	6%
Other Ethnicity	3%	3%	3%	3%
Marital Status				
Married	37%	23%	49%	57%
Single	59%	75%	45%	24%
Divorced or Separated	4%	2%	5%	17%
Widowed	0%	0%	1%	3%
Financially Dependent Children				
No kids	54%	69%	41%	57%
Kids 1-2	34%	25%	43%	34%
Kids 3+	12%	7%	16%	9%
Income				
<$25K	31%	41%	22%	20%
$25-50K	27%	29%	25%	23%
$50-75K	17%	15%	19%	19%
$75-100K	13%	8%	17%	14%
>$100K	12%	7%	17%	24%
Employment Status				
Employed	69%	61%	76%	73%
Unemployed	8%	10%	6%	6%
Not in Labor Force	23%	29%	18%	21%
Observations	9,041	3,968	5,073	10,832

Source: NFCS 2018

Note: For *High School*, the value of 1 is assigned to respondents whose highest degree received is a high school diploma or lower. For *Some College,* the value of 1 is assigned to those that have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree). For *Bachelor or More*, the value of 1 is assigned to those that have earned a four-year degree (i.e., a bachelor's degree) or higher. The variable *Financially Dependent Children* is based on the question: "How many children do you have who are financially dependent on you or your spouse/partner? Please include children not living at home, and step-children as well." The variable *Income* includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. An individual's employment status is defined by three dummy variables. For the first, *Unemployed*, the value of 1 is assigned to those that did not have any kind of occupation at the time of the survey. For *Employed*, the value of 1 is assigned to those who either have a full- or a part-time occupation. For *Not in Labor Force*, the value of 1 is assigned to full-time students, homemakers, and those who are permanently sick, disabled, or unable to work. These samples do not include retirees and are restricted by age. All statistics are weighted.

Financial preparedness: Insights from emergency savings indicators

Data from 2018 shows that, at that time when the economy was in expansion, many millennials were unable to cope with a mid-sized financial shock and felt financially distressed (see Table 2). Specifically, 37% of millennials indicated that they could certainly not or probably not come up with $2,000 if an emergency were to arise within the next month, an indicator of their financial fragility. This is a self-assessed measure of the capacity to deal with a mid-sized shock via whatever coping method is available to the respondent: personal assets, capacity to borrow (including from family or friends), selling possessions, or something else. Similarly, more than half of millennials (53%) indicated that they had not set aside an emergency fund that would cover three months' worth of expenses (Table 2). Being able to save is the way to build up emergency funds, yet in 2018 only about one in three millennials (37%) had saved over the past year; 33% had spent all of their earnings, and 25% had accumulated debt (Table 2). These statistics indicate how ill-prepared millennials were to face any shock, large or small.

Table 2. Financial distress indicators in 2018

	Millennials (18–37)
How confident are you that you could come up with $2,000 if an unexpected need arose within the next month?	
Can certainly/probably not come up	37%
Can certainly/probably come up	57%
Have you set aside emergency or rainy-day funds that would cover your expenses for 3 months?	
Has not set aside emergency funds	53%
Has set aside emergency funds	41%
Over the past year, how much was your spending compare to your income?	
Spending was more than income	25%
Spending was equal to income	33%
Spending was less than income	37%
Observations	9,041

Source: NFCS 2018
Note: This table shows the proportions of millennials for each financial distress indicator. Retirees are not included in the sample. The percentages for each variable and age subsample does not sum up to 100% due to the "don't know" and "refuse to answer" responses, which are not shown here. All statistics are weighted.

Financial literacy

Millennials' lack of precautionary savings and inability to cope with a financial shock could be connected to many factors. One likely factor is financial literacy, which is the knowledge and skills to manage personal finances. Previous research shows that financial literacy is strongly connected with individuals' financial outcomes and money management behavior (Lusardi & Mitchell, 2014). We define as financially literate individuals who can correctly answer the "Big Three" set of financial literacy questions. These three questions are meant to test respondents' knowledge of three basic personal finance concepts: interest rates, inflation, and risk diversification. More advanced financial literacy is assessed with three ancillary questions, which assess knowledge of mortgages, bond pricing, and compound interest, for a total of six financial literacy questions. The exact wording of these questions can be found in Appendix B.

Millennials show alarmingly low financial literacy levels. Only 16% of millennials could correctly answer the Big Three financial literacy questions (Table 3). This is significantly lower compared to older working-age adults, 34% of whom demonstrated basic financial literacy by answering these three questions correctly. While the 34% figure is a concerning statistic on its own, the 16% result for millennials is particularly worrisome. Moreover, the percentage of millennials who answered all six financial literacy questions correctly is only 3%. Knowledge and skills to soundly navigate an environment with financial uncertainty and risk are crucial, particularly during a crisis. Yet, the question assessing understanding of risk and risk diversification was answered particularly poorly. Only 32% of millennials answered the risk diversification question correctly and 48% responded with "don't know" to this question, which is the highest percentage of "don't know" responses across all questions. The notably low financial literacy among millennials might add to the financial anxiety and stress they experience as well as to their precarious ability to weather a financial shock.

Zooming in on the millennials by age range, we find that younger millennials tend to have lower overall financial knowledge than older millennials. This is also the case at the single-question level, with the exception of the bond pricing and compound interest questions, for which the averages between the two groups were not significantly different (Table 3). The *TIAA Institute-GFLEC Personal Finance Index* (*P-Fin Index*) also finds a notable difference in financial knowledge between younger and older millennials (Yakoboski, Lusardi, & Hasler, 2018). Thus, focusing on this generation as one group provides a distorted understanding of its financial literacy level.

The financial literacy findings become even more worrisome when they are compared to self-assessment indicators. While 62% of millennials believe they have high financial knowledge and 68% claim to be good at dealing with day-to-day financial matters, only 19% of both of those subsamples correctly answered the Big Three questions (Table 3). This disconnect between perceived and actual financial knowledge is even more pronounced among older millennials and might prevent the engagement of millennials with financial education programs.

Table 3. Financial literacy and self-assessment in 2018

	Millennials (18–37)	Young Millennials (18–27)	Old Millennials (28–37)	Older Adults (38–64)
Aggregate financial literacy				
Big Three correct	16%	13%	18%	34%
All 6 questions correct	3%	2%	4%	7%
Interest rate question				
Correct	64%	61%	67%	75%
Do not know	17%	18%	16%	12%
Inflation question				
Correct	36%	35%	37%	60%
Do not know	28%	30%	26%	20%
Risk diversification question				
Correct	32%	30%	34%	47%
Do not know	48%	50%	46%	44%
Bond pricing question				
Correct	20%	21%	20%	26%
Do not know	38%	39%	36%	37%
Compound interest question				
Correct	32%	31%	32%	29%
Do not know	28%	30%	26%	25%
Mortgage question				
Correct	62%	55%	68%	76%
Do not know	25%	30%	21%	15%
Financial knowledge self-assessment				
Thinks has high financial knowledge	62%	56%	66%	71%
Thinks has high financial knowledge AND answers the Big Three correctly*	19%	16%	22%	40%
Thinks is good at dealing with day-to-day financial matters	68%	62%	73%	78%
Thinks is good at dealing with day-to-day financial matters AND answers the Big Three correctly**	19%	16%	21%	38%
Observations	9,041	3,968	5,073	10,832

Source; NFCS 2018

Note: This table shows the proportion of 2018 NFCS respondents in the age groups 18–37, 18–27, 28–37, and 38–64 that correctly answered and did not know the answers to the financial literacy questions in the survey. These samples do not include retirees. The proportion of *Big Three correct* represents respondents that correctly answered the three basic financial literacy questions on interest rate, inflation, and risk diversification. *Thinks has high financial knowledge* represents the proportion of respondents that have a self-assigned score of 5, 6, or 7 on a 1–7 scale where 1 is very low knowledge and 7 is very high knowledge. *Thinks is good at dealing with day-to-day financial matters* represents the proportion of respondents that have a self-assigned score of 5, 6, or 7 on a 1–7 scale where 1 is strongly disagree and 7 is strongly agree with the statement "I am good at dealing with day-to-day financial matters."

*The sample is restricted to respondents who self-assess their financial knowledge as high. The numbers show the percentages of financially literate respondents in the four subsamples who perceive their own financial knowledge as high.

**The sample is restricted to respondents who think they are good at dealing with day-to-day financial matters. The numbers show the percentages of financially literate respondents in the four subsamples who think they are good at dealing with day-to-day financial matters.

The financial situation of millennials

To analyze the lack of preparedness for financial shocks among millennials, we take a closer look at their financial situation in 2018. Previous research shows that financial fragility is connected to the household balance sheet and specifically to a lack of assets and high levels of debt (Hasler, Lusardi, & Oggero, 2018).

Overall, we find that while millennials possess assets such as homes, those assets are highly leveraged (Table 4). Specifically, 39% of millennials own a home and 49% have some form of retirement plan (either with a current or previous employer or an account they have set up). However, the possession of assets differs greatly by age, with younger millennials having fewer assets than their older counterparts. Consideration of liabilities shows that millennials are reliant on debt. This is particularly true for older millennials, likely because they are at a life stage where spending needs related to having a family and financial commitments such as home ownership require greater liquidity. Seventy percent (70%) of millennials that own a home have a mortgage, though this is significantly higher among older millennials (76%) than among their younger counterparts (57%). Home equity loans, for those who have a home, are fairly common among millennials (26%), as are auto loans, with 34% of millennials holding such a loan in 2018. Almost 50% of millennials occasionally carry a credit card balance.

Table 4. Financial situation in 2018

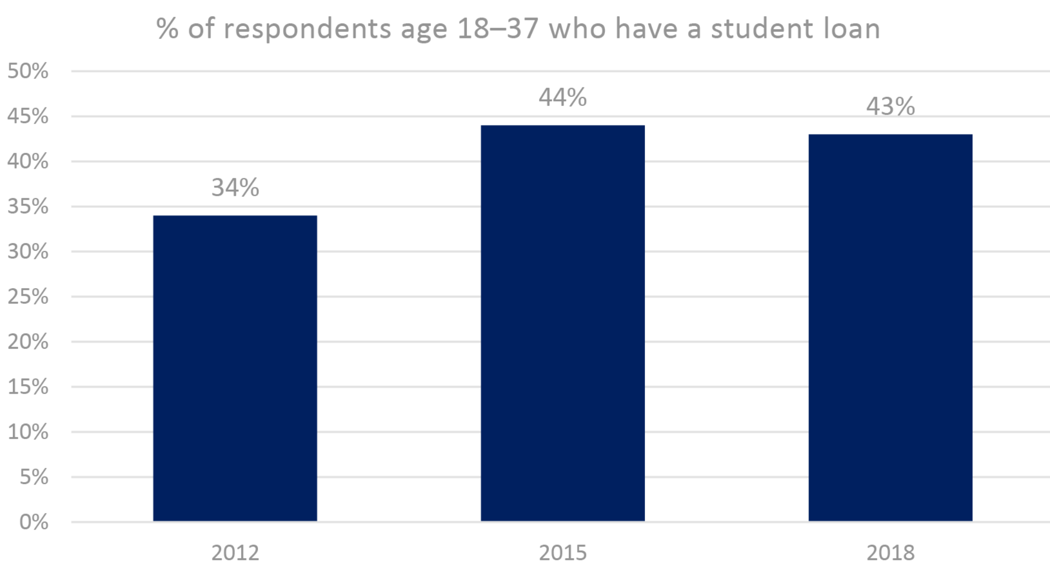
	Millennials (18–37)	Younger Millennials (18–27)	Older Millennials (28–37)
Assets			
Has a checking or saving account	86%	83%	89%
Owns a home	39%	28%	49%
Has a retirement plan	49%	38%	60%
Has other investments aside from a retirement account*	30%	25%	33%
Liabilities			
Has carried over a credit card balance and paid interest**	48%	40%	55%
Has an auto loan	34%	25%	42%
Has a student loan	43%	42%	44%
Has a mortgage**	70%	57%	76%
Has a home equity loan**	26%	26%	26%
Observations	9,041	3,968	5,073

Source: NFCS 2018
Note: This table shows the composition of the asset and liability sides of the balance sheet for 2018 NFCS respondents ages 18–37, 18–27, and 28–37. These samples do not include retirees. The proportion of *Has a retirement plan* represents respondents that either have a retirement plan with their employer (current or previous) or have set up a retirement account independently. *Investments aside from a retirement account* include investments in stocks, bonds, mutual funds, or other securities.
All statistics are weighted.
*Proportion conditional on having a checking or savings account.
**Proportion conditional on having the related asset or debt.

Of particular concern are outstanding student loans. A staggering 43% of millennials had an outstanding student loan in 2018 (Table 4). In line with rising tuition, student loan debt has constantly increased in recent decades, pushing the collective amount owed in the United States to a record high of about $1.6 trillion in 2020, making it the second largest consumer debt category after mortgage debt. Our data shows that among the group of individuals who were young adults (age 18 to 37) in 2012, in the aftermath of the Great Recession, 34% had student loan debt. Three years after this (in 2015), this proportion significantly increased to 44% and has been fairly stable since then (Figure 1).[2]

The management of student loan repayment seems to have become a heavy burden, especially for older millennials (Table 5). Among millennials with an outstanding student loan, more than half (51%) were concerned about their ability to fully pay back their loan. This percentage is significantly higher among older (56%) than younger millennials (46%). This finding is also backed by regression results, which control for many demographic characteristics including income and education. Table 6 shows that millennials who are worried about their ability to pay back their loans are more likely to be older, have children, be unmarried, be African-American, have lower educational attainment and income, and be unemployed. Financial literacy also plays

Figure 1. Student loans among young adults (18–37)



Source: NFCS 2012, NFCS 2015, NFCS 2018
Note: This figure shows the percentage of young adults (age 18-37) who have an outstanding student loan in 2012, 2015, and 2018. These samples do not include retirees. Respondents can have more than one student loan. The exact question wording is "Do you currently have any student loans? If so, for whose education was this/were these loan(s) taken out? Select all that apply." [Yes, have student loan(s) for: Yourself; your spouse/partner; your child(ren); your grandchild(ren); other person; no, do not currently have any student loans; don't know; prefer not to say]. All statistics are weighted.

2 This finding is further extended by regression results using data of all three waves combined. We find that in 2015 and 2018 young adults age 18-37 were significantly more likely to have had student loans than they were in 2012 holding all other characteristics such as demographics, income, and education constant. The regression results are available upon request.

an important role. Those who correctly answered the Big Three financial literacy questions are significantly less likely to be concerned about student loan repayment, and this effect is significant beyond the effect of education and income.

The regression results also clearly show a greater likelihood of concern about repayment for older millennials who carry student loan debt, despite the fact that they are approaching their prime earning years. This may be because of older millennials' larger spending obligations compared to those of their younger counterparts. This is further supported by the finding that 39% of older millennials with student loan debt were late on at least one payment in the year prior to the 2018 survey, which is significantly higher than the share of young millennials reporting the same behavior (26%) (Table 5).

Because one in three millennials were struggling to meet their student debt payments while the economy was doing well, we expect this percentage to increase as a result of the current COVID-19 crisis. In fact, data from the USC Center for Economic and Social Research's Understanding Coronavirus in America tracking survey, which has been collected since the beginning of April 2020 on a bi-weekly basis, shows that the percentage of individuals under 39 with student loan debt who report having missed and/or delayed a payment or paid less than the full amount due in the past month has increased steadily over the course of the COVID-19 pandemic from around 30% at the beginning of April to around 50% in mid-June.[3]

The data further shows that nearly half of millennials (48%) did not try to figure out the amount of their monthly student loan payments at the time they took on the loan. This finding speaks to the consequences of a lack of financial knowledge and might contribute to the repayment struggles and concerns many millennials face.

Table 5. Student loan debt management in 2018

	Millennials (18–37)	Younger Millennials (18–27)	Older Millennials (28–37)
Has a student loan	43%	42%	44%
Is concerned that he/she is not going to be able to pay off his/her student loan*	51%	46%	56%
Has been late on student loan payments at least once in the past year*	33%	26%	39%
Did not try to figure out the monthly payment amount before getting the most recent student loan*	48%	46%	49%
Observations	9,041	3,968	5,073

Source: NFCS 2018
Note: This table shows indicators for student debt management for those 2018 NFCS respondents ages 18–37, 18–27, and 28–37. These samples do not include retirees. Respondents can have more than one student loan. The exact question wording for the student loan question is "Do you currently have any student loans? If so, for whose education was this/were these loan(s) taken out? Select all that apply." [Yes, have student loan(s) for: Yourself; your spouse/partner; your child(ren); your grandchild(ren); other person; no, do not currently have any student loans; don't know; prefer not to say]. All statistics are weighted.
*Proportion conditional on having a student loan.

[3] The data is publicly available here https://covid19pulse.usc.edu/ (last checked 6/19/2020).

Table 6. Regression on the variable concern about student loan repayment for millennials in 2018

	Concerned about Student Loan Repayment
Age (omitted category: Age 18–27)	
Age 28–37	0.088***
	(0.018)
Gender (omitted category: Male)	
Female	0.003
	(0.017)
Ethnicity (omitted category: White)	
African-American	0.049**
	(0.021)
Hispanic	0.000
	(0.025)
Asian	0.008
	(0.037)
Other Ethnicity	0.009
	(0.041)
Education (omitted category: High School Degree or lower)	
Some College	0.038
	(0.025)
Bachelor or More	-0.057**
	(0.027)
Marital Status (omitted category: Single)	
Married	-0.100***
	(0.019)
Divorced or Separated	0.009
	(0.042)
Widowed	-0.050
	(0.159)
Employment Status (omitted category: Unemployed)	
Employed	-0.116***
	(0.037)
Not in Labor Force	-0.129***
	(0.039)

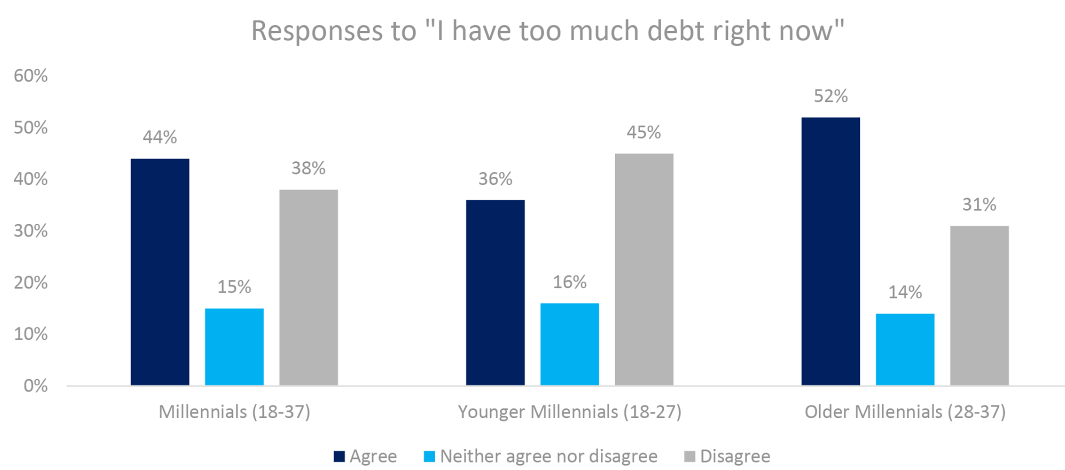
Table 6. Regression on the variable concern about student loan repayment for millennials in 2018 (continued)

	Concerned about Student Loan Repayment
Number of Kids (omitted category: No Kids)	
Kids 1–2	0.116***
	(0.019)
Kids 3+	0.108***
	(0.027)
Income (omitted category: <25k)	
Income 25k–50k	-0.044*
	(0.024)
Income 50k–75k	-0.106***
	(0.026)
Income 75k–100k	-0.033
	(0.028)
Income 100k+	-0.199***
	(0.030)
Financial Literacy	
Big Three correct	-0.131***
	(0.022)
Constant	0.677***
	(0.043)
Observations	3,819
R-squared	0.086

Source: NFCS 2018
Note: The sampled population does not include retirees and is restricted to millennials age 18–37. The dependent variable is a binary variable that assigns a 1 if a respondent has an outstanding student loan that they think they are not going to be able to fully pay back and 0 otherwise. “Do not know” and “Refuse to answer” responses were excluded. Weighted OLS regressions were used. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 2 shows that a large proportion of millennials (44%) believe they have too much debt. Interestingly, and in line with the findings discussed above, more than half of older millennials (52%) believe they have too much debt compared to 36% of younger millennials.[4] The perception of over-indebtedness among older millennials might be driven not only by student loan debt but also by the burden of mortgages and auto loans. These results are illustrative of the fact that millennials are a large and diverse cohort that cannot be treated as one homogeneous group when it comes to analyzing their financial situation.

Figure 2. Indicator for debt burden in 2018



Source: NFCS 2018

Note: This figure shows the percentages of respondents in the age groups 18–37, 18–27, and 28–37 for the different response options to the statement "I have too much debt right now." Retirees are not included in the sample. On a scale from 1 (strongly disagree) to 7 (strongly agree with the statement), "agree" is captured by answers 5–7, "neither agree nor disagree" is captured by answer 4, and "disagree" is captured by answers 1–3. The percentages for each age subsample might not sum up to 100% due to the "don't know" and "refuse to answer" responses, which are not shown here. All statistics are weighted.

[4] These findings are supported by regression analyses, which are available upon request.

Millennials and their money management practices

Financial distress is influenced not only by a lack of financial knowledge, a lack of assets, or too much debt, but also by money management practices. Expensive money management behaviors are those that generally result in steep fees that can, in turn, induce financial distress.

Table 7. Money management behavior in 2018

	Millennials (18–37)	Younger Millennials (18–27)	Older Millennials (28–37)	Older Adults (38–64)
SHORT-TERM BEHAVIOR				
Checking account management (in the past year)				
Occasionally overdraw checking account*	29%	26%	32%	18%
Credit card management (in the past year)				
Has made only the minimum payment*	49%	44%	53%	37%
Was charged a fee for late payment*	27%	25%	29%	15%
Was charged an over-the-limit fee*	20%	18%	21%	8%
Was charged a fee for a cash advance*	21%	22%	21%	11%
Demonstrated at least one expensive behavior*	60%	59%	61%	43%
Use of alternative financial services (in the past 5 years)				
Took out an auto title loan	21%	20%	22%	8%
Took out a payday loan	24%	22%	25%	11%
Used a pawn shop	32%	33%	31%	15%
Used a rent-to-own store	22%	21%	23%	9%
Used at least one form of AFS	43%	43%	43%	25%
LONG-TERM BEHAVIOR				
Retirement account (in the past year)				
Took a loan from their retirement account*	28%	25%	29%	10%
Made a hardship withdrawal from their retirement account*	25%	23%	26%	6%
Made some form of withdrawal*	33%	32%	33%	13%
Observations	9,041	3,968	5,073	10,832

Source: NFCS 2018

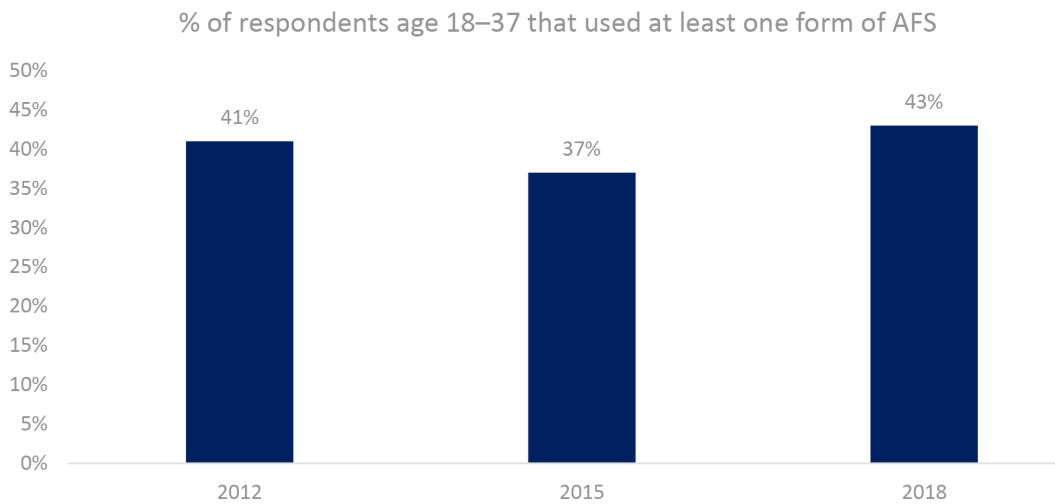
Note: This table shows the proportions of the 2018 NFCS respondents in the age groups 18–37, 18–27, 28–37, and 38–64 for each type of expensive short- and long-term money management behavior. These samples do not include retirees. The proportion of *Demonstrated at least one expensive behavior* represents respondents that displayed at least one of the following behaviors in the 12 months prior to the survey: (a) only made the minimum payment due on their credit card bill; (b) made a late payment on their credit card bill; (c) went over the credit limit set for their credit card; and (d) required a cash advance on their credit card. The proportion of *Used at least one form of AFS* represents the percentage of respondents that used one of the following alternative financial services at least once in the five years prior to the survey: (a) took out an auto title loan; (b) took out payday loan; (c) used a pawn shop; and (d) used a rent-to-own store. The proportion *Made some form of withdrawal* represents the percentage of respondents with a retirement account who either took out a loan or made a hardship withdrawal from it in the 12 months prior to the survey. All statistics are weighted.

* = Proportion conditional on having the related asset

Millennials—both younger and older cohorts—were much more likely to occasionally overdraw their checking account (29%) than were older working-age adults (18%) (Table 7). A staggering 60% of millennials reported engaging in at least one form of expensive credit card management in the previous year. Expensive credit card use results from making minimum payments only, making late payments, going over the credit limit, or using the card for cash advances. This percentage is significantly lower (though still high), at 43%, among the older working-age population. Using a regression model to examine the relationship between demographic characteristics and expensive credit card management while controlling for other variables reveals that among millennials, it is members of minority ethnic groups, individuals who are separated/divorced/widowed, and people with children that are significantly more likely to engage in expensive credit card management (Table A2 of Appendix A). Further, people with at least a bachelor's degree are less likely to engage in poor credit card management than high school graduates. However, we also find that financially literate millennials, on average, are significantly less likely to engage in such behavior. Thus, financial literacy has a positive influence above and beyond the effect of education, which makes it an important contributor to better money management behavior and ultimately to financial well-being.

Probably the most worrisome behavioral trend we found is the extensive use of alternative financial services (AFS) among millennials. Alternative financial services are forms of short-term borrowing that fall outside of the traditional banking sector. It includes borrowing using auto title loans, payday loans, pawn shops, and rent-to-own stores. These are particularly expensive forms of borrowing, with APRs as high as 400% or more and, as such, have been defined as high-cost borrowing methods. In 2018, a staggering 43% of millennials reported using at least one form of alternative financial service in the five years prior to the survey, with no difference between younger and older millennials (Table 7). This is significantly higher than the one-fourth (25%) of the older working-age population who report AFS use. Interestingly, among all services, the most frequently used are pawn shops. Almost one-third of millennials (32%) reported using a pawn shop at least once in the five years prior to the survey. It is important to keep in mind that this reported behavior happened during a time of economic expansion with low unemployment rates and low interest rates on loans. Looking at the past ten years, including the years of the economic recovery following the Great Recession, we see that young adults—individuals age 18 to 37—have consistently engaged in heavy use of alternative financial services. The proportion of young adults—individuals age 18 to 37—that used at least one form of AFS was at 41% in 2012, 37% in 2015, and 43% in 2018 (Figure 3).

Figure 3. Use of alternative financial services (AFS) among young adults (18–37)



Source: NFCS 2012, NFCS 2015, NFCS 2018
Note: This figure shows the percentage of young adults (age 18–37) that used one of the following alternative financial services at least once in the five years prior to the survey in 2012, 2015, and 2018: (a) took out an auto title loan; (b) took out payday loan; (c) used a pawn shop; and (d) used a rent-to-own store. These samples do not include retirees. All statistics are weighted.

The findings of an OLS regression analysis show that when demographic factors are controlled for, younger millennials are, on average, more prone to AFS use than older millennials (Table 8). Further, we find that members of ethnic minorities, individuals who are divorced/separated/widowed, and individuals who have children have been more likely to engage in this kind of expensive behavior. AFS use is significantly more common among men than women. Highly educated people are found to be less prone to AFS use than respondents who have no more than a high school degree. Once again, financial literacy has a strong impact; those who could correctly answer the Big Three questions are significantly less likely to have engaged in AFS use in the five years prior to the 2018 survey.

Table 8. Alternative financial services (AFS) regression for millennials in 2018

	Used at least one form of alternative financial services (AFS)
Age (omitted category: Age 18–27)	
Age 28–37	-0.023**
	(0.011)
Gender (omitted category: Male)	
Female	-0.147***
	(0.010)
Ethnicity (omitted category: White)	
African-American	0.158***
	(0.015)
Hispanic	0.041***
	(0.015)
Asian	0.003
	(0.019)
Other Ethnicity	0.007
	(0.025)
Education (omitted category: High School Degree or lower)	
Some College	-0.075***
	(0.013)
Bachelor or More	-0.167***
	(0.014)
Marital Status (omitted category: Single)	
Married	-0.002
	(0.012)
Divorced or Separated	0.063**
	(0.027)
Widowed	0.212**
	(0.086)
Employment Status (omitted category: Unemployed)	
Employed	0.072***
	(0.021)
Not in Labor Force	0.012
	(0.022)
Number of Kids (omitted category: No Kids)	
Kids 1–2	0.188***
	(0.012)
Kids 3+	0.234***
	(0.017)

Table 8. Alternative financial services (AFS) regression for millennials in 2018 (continued)

	Used at least one form of alternative financial services (AFS)
Income (omitted category: <25k)	
Income 25k–50k	0.017
	(0.014)
Income 50k–75k	-0.022
	(0.016)
Income 75k–100k	0.022
	(0.018)
Income 100k+	-0.066***
	(0.018)
Financial Literacy	
Big Three correct	-0.207***
	(0.013)
Constant	0.460***
	(0.022)
Observations	8,890
R-squared	0.150

Source: NFCS 2018
Note: The sampled population does not include retirees and is restricted to millennials age 18–37. The dependent variable is an indicator for using alternative financial services. Responses are coded as 1 if they have taken out an auto title loan, taken out a payday loan, used a pawn shop, or used a rent-to-own store at least once within the five years prior to the survey and 0 otherwise. Those who indicated "Do not know" or "Refuse to answer" for all of the forms of AFS are excluded. Weighted OLS regressions were used. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

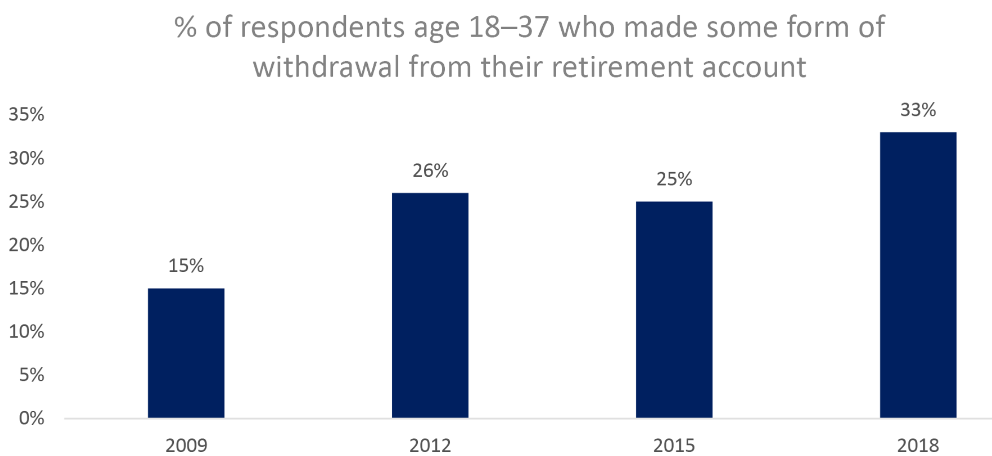
Turning to long-term behavior, we find that among the 49% of millennials with a retirement account, 28% had taken a loan from and 25% a hardship withdrawal from their account in the year prior to the survey (Table 7). As a result, as many as one-third of the millennial population had drawn from their retirement account in 2018. In comparison, only 13% of the older working-age population had tapped into their retirement savings in the same time frame. Withdrawing from retirement accounts is not only expensive, as it involves financial penalties, but it also puts retirement security in jeopardy. Time is the most valuable asset young savers have, making it even more concerning that one-third of millennials have already tapped into their retirement funds.

Moreover, these behaviors were being engaged in during a time of economic stability and low unemployment. In the 10 years of expansion following the Financial Crisis, the percentage of young adults that made some form of withdrawal from their retirement account increased, more than doubling in those years, from 15% in 2009 to 33% in 2018 (Figure 4). Upcoming data will show how this has further changed with access to retirement funds having been made even easier as part of the government's Coronavirus relief package.

We find that just 36% of millennials have tried to figure out how much they will need to save for retirement. This is important as retirement planning is found to be linked to higher amounts of wealth at retirement.

Regression analyses show that the likelihood of planning for retirement increases, as would be expected, with age (Table A3 of Appendix A), and 2018 data shows that younger millennials were significantly less likely than their older counterparts to have figured out how much they need to save for retirement. Married respondents and respondents with children are much more likely to plan for retirement, as are those with some form of higher education and those who demonstrate financial literacy.

Figure 4. Withdrawing from retirement account among young adults (18–37)



Source: NFCS 2009, NFCS 2012, NFCS 2015, NFCS 2018
Note: This figure shows the percentage of young adults (age 18–37) who made some form of withdrawal from their retirement account in 2009, 2012, 2015, and 2018. It represents the percentage of respondents with a retirement account that either took out a loan or made a hardship withdrawal from it in the 12 months prior to the survey. These samples do not include retirees. All statistics are weighted.

Workplace financial wellness programs

As of 2020, 21 states require high school students to take a course in personal finance. This is significantly higher than it was in 1998 when the first Council for Economic Education (CEE) Survey of the States was published (CEE, 2020).[5] In 1998, just one state required personal finance education. This progress is reflected in the 2018 NFCS data, which shows that millennials' access to financial education is greater than that of the older working-age population. Among millennials, 40% were offered a personal finance course by an educational institution they attended or a workplace at which they were employed; this stands in contrast to 24% of older working-age adults (Table 9). This percentage is also significantly higher among younger millennials (45%) compared to their older counterparts (36%). Of millennials who were offered a financial education course, 68% participated. Further, almost half (48%) of millennials who participated in these programs received at least ten hours of financial education and 68% thought the quality of the education was high.

Even though these financial education indicators bode well for millennials' future financial literacy, it's important to recognize that only 40% were offered some sort of program. Given millennials' shockingly low financial literacy levels, overall poor money management practices, and fragile financial circumstances, there is clearly a strong need for financial education. While school-based financial education is the best way to impart financial education to children and the young, the workplace offers the most impactful way to reach a large share of the adult population. This is particularly true for millennials, as they comprise the largest share (35%) of the U.S. labor force.[6]

Overall, our recommendation, which is based on our own and others' research, is to take a holistic approach to financial health. Well-implemented and rich programs that look beyond retirement savings have implications for various aspects of employees' overall well-being. For example, Kim (2007), finds that individuals who participated in employer-sponsored workshops report a higher degree of financial well-being, lower financial stress, and a greater sense of security about their retirement readiness.

Table 9. Financial education in 2018

	Millennials (18–37)	Young Millennials (18–27)	Old Millennials (28–37)	Older Adults (38–64)
Was offered financial education	40%	45%	36%	24%
Participated in financial education*	68%	68%	69%	72%
Received more than 10 hours of financial education**	48%	53%	42%	57%
Thinks he/she received high quality financial education**	68%	62%	74%	78%
Observations	9,041	3,968	5,073	10,832

Source; NFCS 2018
Note: This table shows the proportion of 2018 NFCS respondents in the age groups 18–37, 18–27, 28–37, and 38–64 for each financial education variable. These samples do not include retirees. These statistics are based on financial education offered by a school or college the respondent attended, or a workplace where they were employed.
* = Proportion conditional on having received an offer for financial education
** = Proportion conditional on having received an offer for financial education and having participated

5 With this survey, the Council for Economic Education (CEE) conducts a comprehensive look into the state of K-12 economic and financial education in the United States on a biennial basis.

6 Fry, R. (2018, March 1). *Millennials projected to overtake Baby Boomers as America's largest generation*. (Pew Research Center) Retrieved from Fact Tank, News in the Numbers.

Given the findings reported above, employers interested in implementing a workplace financial wellness program could consider the following recommendations:

- **Start with a financial check-up.** Just as doctor visits provide regular assessments of physical well-being, employer financial wellness programs can help employees assess their financial health. A “check-up” to assess current financial health could be done via employee self-assessment of financial knowledge and capability. The check-up should include indicators beyond retirement savings and can fulfill several purposes. It can help employees assess their overall financial situation and make them more aware of the specific areas in which they are struggling. From the employer’s perspective, results of the assessment can help segment workers into financial education programs specifically designed for their needs and level of financial knowledge. If check-ups are done on a regular basis, changes in employees’ financial situation, knowledge, and decision making can be measured over time.

- **Use a holistic approach.** Employer-sponsored financial wellness programs should use a holistic approach, which means offering information that helps to improve basic financial literacy and also helps in a variety of behaviors including accumulation of precautionary savings, debt and debt management, and retirement planning. Because individuals’ asset and debt holdings vary, programs should help employees manage both. As shown in the empirical part of this paper, millennials own a lot of assets, but those assets are highly leveraged. Given the low levels of precautionary savings among millennials and the link between the ability to cope with emergency expenses and retirement savings shown in previous papers (Hasler, Lusardi, & Oggero, 2018), both short- and long-term savings should be encouraged. The positive relationship between participation in workplace financial education programs and household savings stimuli is confirmed in several papers, such as Bernheim and Garrett (2003). Further, given the prevalent use of high-cost borrowing methods and signs of debt mismanagement, programs that include content on types of debt and debt management can be particularly important. As shown, the burden of student loans can be challenging for young adults’ financial well-being and decision making. Thus, information on pay-down strategies could be particularly important to newly hired graduates. This topic, in addition to mortgages, is also mentioned by Kim (2007) as important to include in workplace financial wellness programs. Because financial literacy influences financial decision making, instruction on the fundamental workings of numeracy, interest compounding, inflation, and risk diversification might help people understand the financial markets and more complex financial instruments they will encounter.

- **Personalize wellness programs**. Every employee has unique needs and financial circumstances, and millennials’ money management behavior is different from that of older working-age adults. The more tailored a financial wellness program is to the needs of participants, the more effective it will be. Based on our findings, coverage of credit card management, AFS use, student loan debt repayment, and long-term savings would be particularly useful for millennials. Because our research shows that millennials find risk, risk diversification, and insurance the most challenging topics to understand (Yakoboski et al., 2018), programs should focus on improving understanding of these concepts as they relate to financial decision making.

- **Make it simple.** Previous research shows that simple language and step-by-step action plans improve engagement and affect behavioral change. Simple tools such as short videos covering basic retirement planning concepts, including coverage of topics that people know the least about, for example risk, have proven to be effective (Heinberg et al., 2014; Clark et al, 2016). The studies show that after being exposed to these short videos, performance on financial literacy questions improved. Another study shows that provision of a planning aid that lays out the retirement account enrollment process in clear, manageable steps had a significant influence on employees' enrollment in savings plans within 30 and 60 days of being hired (Lusardi et al., 2008).

- **Make it timely.** Employer-sponsored financial wellness programs should provide support and information when they are most needed. Programs should be provided at the critical moments when financial decisions are made, for example upon commencement of employment, at the time of promotion, when retirement and health benefits are reviewed, and at separation from employment.

- **Repeat on a regular basis**. Financial decisions and circumstances change over the life cycle of an employee. Thus, offering educational programs on a regular basis can help both employers and employees track progress over time and enable important concepts to be reiterated on a frequent basis.

Financial difficulties can be a major source of stress for employees. The 2020 *TIAA Institute-GFLEC Personal Finance Index*[7] found that people spend, on average, over six hours per week thinking about and dealing with issues and problems related to personal finances. We also found that this number varied across the population depending on financial literacy levels. Those with high levels of financial literacy spend three hours per week dealing with their personal finances and those with low financial literacy spend an average of twelve hours per week.

The dynamic at the workplace is even more pronounced. Workers with high financial literacy spend one hour of work time per week, on average, dealing with finances; workers with low financial literacy spend a total of six hours of work time per week on personal finance issues. Thus, financial knowledge and the capacity to manage personal finances impact employee productivity in addition to being essential if individuals are to thrive in today's economy. Financial knowledge impacts people's well-being and financial security, affecting their ability to set aside precautionary and retirement savings, to provide for children, to pay for housing, and to have adequate health insurance. A financially strong and healthy workforce provides the foundation for empowered communities and economic growth.

Conclusion

Millennials, the largest, most highly educated, and diverse generation in U.S. history, play a pivotal role in society by making up the largest share of the work force. Their financial decisions are bound to shape the future of the American economy. At the same time, millennials have been deeply affected by the most recent economic crises (the Great Recession and the ongoing economic impact of the COVID-19 pandemic) as well as by America's student loan debt crisis. Millennials' concerning financial behaviors and precarious financial circumstances, coupled with low financial literacy, are making this situation even more challenging.

Well before the current crisis, a vast majority of millennials were already struggling with and stressed about their personal finances. Data from the NFCS shows that a staggering 63% felt anxious when thinking about their financial situation and more than half of millennials (53%) had not set aside an emergency fund that would cover their expenses for three months. These statistics from 2018, a time of economic expansion, indicate how ill-prepared millennials were to face an emergency, let alone an economic contraction as severe as the one being caused by the COVID-19 crisis.

One factor contributing to millennials' financial fragility is also their debt holdings. Millennials carry large volumes of debt, especially in the form of mortgages and student loans, and 44% of millennials reported feeling they have too much debt in 2018. Student debt is particularly burdensome for this generation, with 51% of millennials indicating they are concerned about their ability to pay back their student loan(s). Further, the proportion of young adults between the ages of 18 and 37 who have a student loan has significantly increased since 2012.

7 More information on the data set and the results can be found in the report of Yakoboski et al. (2020).

In addition to a lack of assets and too much debt, money management practices also contribute to their precarious financial state. We find that a higher proportion of millennials engage in expensive short- and long-term money management compared to older working-age adults. In particular, millennials are more likely to engage in expensive credit card and retirement account management and to use alternative financial services. More worryingly, these expensive behaviors seem to have become more common among young adults since 2009.

Millennials' ability to cope with their personal financial matters is constrained by their low levels of financial knowledge. In 2018, only 16% of millennials could be considered financially literate. Over-confidence in their financial knowledge is another alarming trait of this generation; in 2018, 62% of millennials self-assessed their overall financial knowledge as high, whereas only 19% of this 62% could correctly answer questions that objectively assessed their financial literacy.

Financial knowledge impacts people's well-being and financial security, including the ability to set aside precautionary savings that can help weather economic turmoil. Targeted financial education programs have the potential to improve financial literacy and, in turn, positively influence financial well-being of millennial employees. We suggest that employer-sponsored financial education programs start with employee financial check-ups and be based on a holistic approach that encompasses all the aspects of personal finances. These programs should also be simple, timely, and tailored to the needs of the employees. The current crisis has made the value of financial resilience very clear. A focus on accumulating emergency savings should be an integral part of workplace financial wellness programs.

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Appendix A: Tables

Table A1. Financial satisfaction, anxiety, and stress in 2018	
	Millennials (18–37)
Overall, thinking of your assets, debts and savings, how satisfied are you with your current personal financial condition?	
Low satisfaction	28%
Moderate satisfaction	44%
High satisfaction	26%
Thinking about my personal finances can make me feel anxious	
Agree	63%
Neither agree nor disagree	16%
Disagree	19%
Discussing my finances can make my heart race or make me feel stressed	
Agree	55%
Neither agree nor disagree	18%
Disagree	25%
Observations	9,041

Source: NFCS 2018
Note: This table shows the proportions of millennials for the financial satisfaction, anxiety, and stress indicators. Retirees are not included in the sample. On a scale from 1 (not at all satisfied) to 10 (extremely satisfied), "low satisfaction" is indicated by answers 1-3, "moderate satisfaction" is indicated by answers 4-7, and "high satisfaction" is indicated by answers 8-10. On a scale from 1 (strongly disagree) to 7 (strongly agree with the statement), "agree" is captured by answers 5–7, "neither agree nor disagree" is captured by answer 4, and "disagree" is captured by answers 1–3. The percentages for each demographic and age group might not sum up to 100% due to the "don't know" and "refuse to answer" responses, which are not shown here.

Table A2. Regression on the variable expensive credit card management for millennials in 2018

	Expensive Credit Card Management
Age (omitted category: Age 18–27)	
Age 28–37	0.016
	(0.013)
Gender (omitted category: Male)	
Female	-0.017
	(0.012)
Ethnicity (omitted category: White)	
African-American	0.112***
	(0.017)
Hispanic	0.032*
	(0.017)
Asian	-0.009
	(0.022)
Other Ethnicity	0.122***
	(0.030)
Education (omitted category: High School Degree or lower)	
Some College	0.022
	(0.015)
Bachelor or More	-0.112***
	(0.017)
Marital Status (omitted category: Single)	
Married	-0.019
	(0.014)
Divorced or Separated	0.126***
	(0.028)
Widowed	0.190***
	(0.064)
Employment Status (omitted category: Unemployed)	
Employed	-0.006
	(0.031)
Not in Labor Force	-0.070**
	(0.033)
Number of Kids (omitted category: No Kids)	
Kids 1–2	0.147***
	(0.014)
Kids 3+	0.163***
	(0.020)

Table A2. Regression on the variable expensive credit card management for millennials in 2018 (continued)

	Expensive Credit Card Management
Income (omitted category: <25k)	
Income 25k–50k	0.008
	(0.018)
Income 50k–75k	-0.002
	(0.019)
Income 75k–100k	-0.015
	(0.021)
Income 100k+	-0.108***
	(0.022)
Financial Literacy	
Big Three correct	-0.228***
	(0.016)
Constant	0.625***
	(0.033)
Observations	6,537
R-squared	0.130

Source: NFCS 2018
Note: The sampled population does not include retirees and is restricted to millennials age 18–37. The dependent variable is a binary variable that assigns a 1 if a respondent has engaged in at least one of the following behaviors in the 12 months prior to the survey: (a) only made the minimum payment due on their credit card bill; (b) made a late payment on their credit card bill; (c) went over the credit limit set for their credit card; and (d) required a cash advance on their credit card, and 0 otherwise. "Do not know" and "Refuse to answer" responses were excluded. Weighted OLS regressions were used. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A3. Planning for retirement regression for millennials in 2018

	Planned for Retirement
Age (omitted category: Age 18–27)	
Age 28–37	0.024**
	(0.011)
Gender (omitted category: Male)	
Female	-0.084***
	(0.011)
Ethnicity (omitted category: White)	
African-American	0.109***
	(0.015)
Hispanic	0.009
	(0.015)
Asian	0.000
	(0.021)
Other Ethnicity	0.022
	(0.024)
Education (omitted category: High School Degree or lower)	
Some College	0.043***
	(0.012)
Bachelor or More	0.066***
	(0.014)
Marital Status (omitted category: Single)	
Married	0.038***
	(0.013)
Divorced or Separated	-0.004
	(0.026)
Widowed	0.016
	(0.089)
Employment Status (omitted category: Unemployed)	
Employed	0.160***
	(0.017)
Not in Labor Force	0.051***
	(0.018)
Number of Kids (omitted category: No Kids)	
Kids 1–2	0.059***
	(0.012)
Kids 3+	0.044***
	(0.017)

Table A3. Planning for retirement regression for millennials in 2018 (continued)

	Planned for Retirement
Income (omitted category: <25k)	
Income 25k–50k	0.059***
	(0.013)
Income 50k–75k	0.157***
	(0.016)
Income 75k–100k	0.292***
	(0.018)
Income 100k+	0.265***
	(0.019)
Financial Literacy	
Big Three correct	0.100***
	(0.014)
Constant	0.059***
	(0.017)
Observations	8,520
R-squared	0.154

Source: NFCS 2018
Note: The sampled population does not include retirees and is restricted to millennials age 18–37. The dependent variable *Planned for retirement* is equal to one if respondent has ever tried to figure out how much to save for retirement, and zero otherwise. Those who indicated "Do not know" or "Refuse to answer" were excluded. Weighted OLS regressions were used. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix B: Financial Literacy Questions

The Big Three Financial Literacy Questions:

Interest Rate Question
Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
[More than $102; Exactly $102; Less than $102; Don't know; Prefer not to say]

Inflation Question
Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
[More than today; Exactly the same; Less than today; Don't know; Prefer not to say]

Risk Diversification Question
Buying a single company's stock usually provides a safer return than a stock mutual fund.
[True; False; Don't know; Prefer not to say]

Additional Financial Literacy Questions:

Bond Pricing Question
If interest rates rise, what will typically happen to bond prices?
[They will rise; They will fall; They will stay the same; There is no relationship between bond prices and the interest rate; Don't know; Prefer not to say]

Compound Interest Rate Question
Suppose you owe $1,000 on a loan and the interest rate you are charged is 20% per year compounded annually. If you didn't pay anything off, at this interest rate, how many years would it take for the amount you owe to double?
[Less than 2 years; At least 2 years but less than 5 years; At least 5 years but less than 10 years; At least 10 years; Don't know; Prefer not to say]

Mortgage Question
A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.
[True; False; Don't know; Prefer not to say]

About the authors

Andrea Bolognesi is a Graduate Research Assistant at GFLEC. Bolognesi has recently collaborated on projects analyzing the financial situation and knowledge of young Americans and minorities, as well as teachers' awareness of the importance of financial education. While at GFLEC, Bolognesi has also conducted research on several countries' national strategies for financial literacy. He holds a B.S. in Economics from the George Washington University and a Bachelor of Business Administration from the International University of Monaco. He recently graduated from the George Washington University with a M.A. in International Economic Policy. His master's thesis was an assessment of the role played by the Zimbabwean banking sector's stability in attracting foreign direct investments.

Andrea Hasler is an Assistant Research Professor in Financial Literacy at GFLEC. She leads the team of researchers working on financial literacy and capability, and develops analyses for educational and policy initiatives. Hasler has recently worked on projects focused on financial literacy levels of the young, women, entrepreneurs, investors and minorities in the United States and around the world. She holds a Ph.D. in finance as well as an M.Sc. and B.A. in business and economics from the University of Basel. During her doctorate, she spent two years at the New York University Stern School of Business conducting research on household saving and financial decision making. She also has been a lecturer at the University of Basel for six years. Her professional experience includes the development of an online advanced studies course in financial market theory and work as an analyst conducting global equity market research.

Annamaria Lusardi is a University Professor of Economics and Accountancy at the George Washington University, and the founder and academic director of GFLEC. She has published extensively and in many leading economics journals and is the recipient of several prestigious awards. Lusardi also directs the Financial Education Committee in Italy, in charge of implementing a national strategy for financial literacy. In addition, she chairs the OECD's International Network for Financial Education Research Committee. She previously taught at Dartmouth College, Princeton University, the University of Chicago Harris School of Public Policy and Booth School of Business, and Columbia Business School. She also was a visiting scholar at Harvard Business School. She earned her B.A. from Bocconi University in Milan and Ph.D. from Princeton University. Lusardi is a TIAA Institute Fellow.