How the pandemic altered Americans' debt burden and retirement readiness

Abstract

This paper analyzes Americans' perceptions of being debt constrained. We focus on which population subgroups reported feeling most debt constrained, how this perception was impacted by the COVID-19 pandemic, and how it relates to financial literacy and retirement readiness. To this end, we analyze two datasets, namely the 2020 and 2021 *TIAA Institute-GFLEC Personal Finance Index* files (*P-Fin Index*). The evidence shows that, prior to and during the pandemic, one in three American adults felt constrained by their debt. The percentage was even higher among vulnerable subgroups such as Black and Hispanic individuals, those lacking a bachelor's degree, those with lower incomes, and those with low levels of financial literacy. Being debt constrained also has long-term financial consequences, as it is negatively linked to planning and saving for retirement. Finally, we show that financial literacy has a strong connection to both debt and retirement money management, confirming that financial knowledge is essential if people are to be able to manage their debt and build financial well-being.

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Recent research has demonstrated that over the past 40 years, household debt levels have risen substantially in the United States. In fact, Americans' household debt climbed to the highest level in 14 years, to $14.96 trillion, in the second quarter of 2021 (Federal Reserve Bank of New York 2021). Moreover, this debt is now being carried far beyond people's working lives, meaning that many deep into their retirement still hold debt (Lusardi and Mitchell 2017; Lusardi et al. 2018, 2019). For instance, a higher percentage of near-retirees today carries debt in the form of student loans, unpaid medical bills, credit card bills, and mortgages than their predecessors, posing a challenge to financial security in old age (Lusardi et al. 2020).

This trend has been influenced by several factors, including low interest rates, the rising cost of education, and the increased accessibility of financial products available to average consumers. Moreover, many of these products, including loans and mortgages, are complex and difficult to understand, especially for financially unsophisticated consumers (Lusardi and Mitchell 2007, 2008; Lusardi et al. 2018, 2019, 2020). There is also evidence that people who are less financially literate are less likely to plan for retirement, save less, invest poorly, earn lower returns on their investments, and hold more expensive debt (e.g., Lusardi and Mitchell 2014). Accordingly, financial literacy is positively linked to sound financial decision making and good money management practices, including debt management.

Sadly, however, financial literacy rates are low among American adults, dangerously so for families in the most financially vulnerable segments of the population. We have shown that only 30% of Americans can answer the "Big Three" questions measuring people's understanding of numeracy, inflation, and risk diversification, and the percentage falls to around 20% among women, the young, Black Americans and Hispanics, and those without a bachelor's degree (Clark et al. 2021; Deevy et al. 2021; Lusardi 2019).

Heavy household debt burdens and the difficulty of managing financial obligations can lead people to feel financially constrained due to debt, the topic of the present paper. Specifically, we study a measure that asks survey respondents if they agree or disagree with the statement that debt and debt payments prevent them from adequately addressing other financial priorities. We compare the pre-pandemic January 2020 *TIAA Institute-GFLEC Personal Finance Index* (*P-Fin Index*) to the *P-Fin*

Index fielded a year later, in January of 2021. Our work makes three contributions. First, we document the key socioeconomic characteristics of those who believe themselves to be debt constrained; specifically, we show which demographic subgroups of the population are most likely to be debt constrained and how this has changed due to the COVID-19 pandemic. Second, we link the debt-constraint measure to the most comprehensive financial literacy index available to date, so we can show whether those who felt most debt constrained were also those with the least financial literacy. We further evaluate whether the COVID-19 pandemic shock had a differential impact on low versus high financial literacy respondents, with respect to their feelings of being debt constrained, and we also analyze risk literacy as a particularly important personal finance concept for debt management. Third, we report on long-term consequences for those feeling constrained by their debt, specifically the association between people feeling debt-burdened and their planning and saving for retirement.

We find that, prior to and during the pandemic, 31% of American adults expressed feeling constrained by their debt. The percentage was even higher among Blacks and Hispanics, prime-age adults, persons lacking a bachelor's degree, those with children under the age of 18, those with lower incomes, and those with low levels of financial literacy. Furthermore, being debt constrained has long-term financial consequences, as it proves to be negatively linked to planning and saving for retirement. Finally, financial literacy is importantly linked to both debt and retirement money management skills. Specifically, more financially literate households proved less likely to be debt constrained and more likely to plan and save for retirement.

In what follows, we first provide an overview of the data and the variables used in this analysis. Next, we study the characteristics of households reporting feeling debt constrained, and we show how the debt-constraint measure changed between 2020 and 2021. The following section examines the correlation between financial literacy and debt-constraint measures, supported by regression analyses. Finally, we analyze the long-term consequences of being debt constrained by investigating the relationship between reported debt constraints and retirement readiness measures; we also evaluate the connection to financial literacy. We close with a summary and policy recommendations.

Surveys and variables used

This section describes the key datasets and variables employed in our empirical analysis.

TIAA Institute-GFLEC Personal Finance Index

The *TIAA Institute-GFLEC Personal Finance Index* was designed to measure Americans' knowledge and understanding of the factors leading to sound financial decision making and effective management of personal finances (Yakoboski et al. 2020). We collected these data using an annual survey developed by the TIAA Institute and the Global Financial Literacy Excellence Center, in consultation with Greenwald & Associates. This nationally representative survey was first fielded in 2017; for the present study, we analyze and compare the 2020 and 2021 waves, both of which were collected in January of their respective years. Accordingly, the design permits us to compare data collected right before the COVID-19 pandemic hit, and again 10 months into the crisis. The 2020 survey comprised 1,008 observations, while the 2021 sample was increased to 3,035 observations. Additionally, Black Americans and Hispanics were over-sampled in 2021 to reach 500 observations each, permitting us to analyze these historically underrepresented groups in more detail. Both surveys included statistical weights to generate nationally representative results, and all results presented here use those weights.

The *P-Fin Index* is the most comprehensive measure of financial literacy available in the United States to date: it is based on responses to 28 questions across eight areas in which individuals must routinely function, ranging from earning, consuming, saving, investing, borrowing/managing debt, insuring, and comprehending risk to information sources. This comprehensive measure of financial literacy is unique in its breadth and is complemented by questions related to financial well-being, including debt management and retirement savings behavior. The money management questions are the focus of the present study, as described in more detail next.

Self-reported debt constraint measure

In what follows, our empirical analysis focuses on a question examining how people reported that debt constrained their personal finances. The same question wording was used in both 2020 and 2021, as follows:

Debt and debt payments prevent me (and my spouse/partner) from adequately addressing other financial priorities. [Answer options: 1 = "Strongly

agree," 2 = "Somewhat agree," 3 = "Neither agree nor disagree," 4 = "Somewhat disagree," 5 = "Strongly disagree," 99 = "Don't know," and 98 = "Refuse to answer."]

Those responding 1 and 2 were classified as being debt constrained, and those responding 4 and 5 as not debt constrained.[1]

Late debt payment measure

We also study responses to a question asking about late debt payments, indicative of debt being burdensome for people's personal finances. This late debt payment question is useful as a robustness check on the debt-constraint measure, though we cannot precisely compare results over time, as the wording of the questions in 2020 and 2021 changed somewhat. In 2020, the *P-Fin Index* survey question was:

Do you (and your spouse/partner) make your loan payments in full and on time each month? This includes credit card balances, as well as a home mortgage, auto loans, personal loans, student loans, etc. [Answer options: 1 = "Always in full and on time," 2 = "Usually in full and on time," 3 = "Usually late or pay less than full amount," 4 = "Always pay late or pay less than full amount," 99 = "Don't know," and 98 = "Refuse to answer"]

Those who answered 1 and 2 were deemed to be respondents who are not late on debt payments; those who answered 3 and 4 were counted as respondents who are late on debt payments.

In the 2021 *P-Fin Index*, the question wording changed to:

Can you pay all of your bills, including loan payments and credit cards, in full and on time in a typical month? [Answer options: "Yes," "No," "Don't know," "Refuse to answer"]

In 2021, almost one-third of respondents indicated that they felt debt constrained, and 22% reported being late on their debt payments (see Table 1). By comparison, in early 2020, right before the pandemic exploded, the same percentage of the U.S. population stated it felt

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1   Respondents who chose "don't know" or "refuse to answer" have been excluded from the results below, as there is insufficient information to determine whether they are financially constrained because of their debt. These responses make up for about 0.16% (five observations) of the respondents surveyed in 2021.

debt constrained, but only 13% of respondents reported being late on their debt payments. These results show that debt and debt management is not a short-term issue facing many Americans; rather, it has been a concern for some time. The changed wording of the late debt payment question explains why so many answered the 2021 question positively, as it included not only those who were late on loan payments (similar to 2020), but also people in arrears on their bills.

Table 1. Percentage of adults feeling debt constrained and making late debt payments in 2020 and 2021

	Panel A			Panel B		Overlap
	Debt constrained (1 & 2)	Neutral (3)	Not debt constrained (4 & 5)	Late debt payments (No, 2021) (3 & 4, 2020)	No late payments (Yes, 2021) (1 & 2 , 2020)	Both debt constrained and late payments
2021	31.01%	18.81%	50.18%	21.99%	78.01%	14.07%
# of observations	898	561	1571	637	2386	405
2020	31.12%	19.51%	49.37%	12.59%	87.41%	9.04%
# of observations	284	201	520	97	760	64

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt constrained and late payment questions are excluded. All statistics are weighted. The variable *Late debt payments* is defined differently across the two years. In 2020, the sample excludes those who do not have a loan, whereas in 2021 the question was extended to also include bills besides loan payments and, therefore, was asked to everybody.

Retirement readiness measures

Next, we turn to an investigation of the long-term consequences of debt by examining two indicators of retirement readiness: retirement planning and saving for retirement. It is important to understand retirement readiness for three reasons. First, retirement planning is a strong predictor of wealth, as shown by Lusardi and Mitchell (2007). Because the *P-Fin Index* does not report wealth information, we use as a proxy the information we do have on whether respondents reported giving any thought to what they needed for their retirement. Second, given the fact that the income replacement rates provided by Social Security are far less than 100% for most retirees, workers today must set aside private savings to ensure their financial security after they stop working. Accordingly, a lack of retirement wealth may be a leading indicator of financial fragility in retirement (Lusardi et al. 2018). Third, people who plan for retirement also tend to be savvier about their life cycle financial resources (Lusardi and Mitchell 2011).

The exact question wording of the questions measuring retirement readiness in both the 2020 and 2021 *P-Fin Index* surveys was as follows:

Have you (and your spouse/partner) ever tried to figure out how much you need to save for retirement? [Answer options: "Yes," "No," "Don't know," "Refuse to answer"]

Do you (and/or your spouse/partner) save for retirement on a regular basis? [Answer options: "Yes," "No," "Don't know," "Refuse to answer"]

Across both survey years, results show that around 58% of U.S. non-retirees saved for retirement on a regular basis; however, only about 37% reported having ever tried to figure out how much they needed to save for retirement.[2]

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2   Respondents who chose "don't know" or "refuse to answer" to the retirement savings or retirement planning questions have been excluded from the results below. Further, the statistics reflect only the subsample of non-retirees. We are left with 2,142 total observations for the retirement planning question in 2021 and 726 for 2020. For the retirement savings question, we had 2,141 total observations in 2021 and 727 in 2020.

Empirical results: Who are the debt constrained?

Next, we turn to a more detailed analysis of the self-reported debt-constraint measure, including its correlation with financial literacy and retirement readiness. Overall, in 2021, around 30% of Americans reported feeling constrained by their debt, some 20% took a neutral position, and the remaining 50% did not feel that debt and debt payments prevented them from adequately addressing other financial priorities (Table 1). Comparably, 22% reported being late on their debt and bill payments in 2021 (Appendix Table A1). Even though alarming on their own, these averages hide large differences across demographic subgroups, as we will outline below.

Table 2. Demographics of the debt constrained in 2021

	Debt Constrained (1 & 2)	Neutral (3)	Not debt constrained (4 & 5)
Total sample	31%	19%	50%
AGE			
18–29	33	21	47
30–44	39	19	43
45–59	34	20	46
60+	20	17	63
GENDER			
Male	30	17	53
Female	31	21	48
RACE/ETHNICITY			
White, non-Hispanic	26	17	57
Black, non-Hispanic	38	23	39
Hispanic	46	21	33
Other, non-Hispanic	30	22	49
HIGHEST DEGREE OBTAINED			
Less than high school	47	25	27
High school	32	25	43
Some college	33	19	48
Bachelor's degree or higher	23	11	66
MARITAL STATUS			
Married	28	17	55
Single/Not married	35	21	44
Divorced/Separated/Widowed	34	22	44
CHILDREN UNDER THE AGE OF 18			
No	27	19	54
Yes	40	19	41
HOUSEHOLD INCOME			
Less than $25K	43	30	27
$25–49K	40	20	41
$50–74K	36	21	43
$75–99K	30	19	52
$100K+	21	14	65

Table 2. Demographics of the debt constrained in 2021 (continued)

	Debt Constrained (1 & 2)	Neutral (3)	Not debt constrained (4 & 5)
WORK STATUS			
Employed	34	19	47
Retired	20	17	64
Unemployed	37	23	40
FINANCIAL LITERACY AND EDUCATION			
Not financially literate	35	22	43
Financially literate (Big 3 correct)	21	9	70
Not participated in fined class	32	21	47
Participated in fined class	28	14	58
Total Observations	898	561	1571

Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index.*
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. The variable household income includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable highest degree obtained includes the categories High school or less, indicating that the highest degree received is a high school diploma; some college, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); bachelor's degree, indicating that respondents have earned a four-year degree, post-graduate degree, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by three categories: *Employed* for those who either have a full- or a part-time occupation; *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work; and *retired* for those who classify themselves as being retired. The proportion of financially literate represents respondents who correctly answered the three basic financial literacy questions (Big 3), which assess understanding of interest rate, inflation, and risk diversification. Statistics read as "31% of women in the *P-Fin Index* feel debt constrained." All statistics are weighted.

Particularly vulnerable subgroups

Also as shown in Table 2, some demographic subgroups—those in their prime ages, Blacks and Hispanics, those lacking a bachelor's degree, those with children under the age of 18, those with lower incomes, and those with low levels of financial literacy—reported feeling particularly constrained by debt. Moreover, among prime-age adults (age 30-44 years), 39% reported feeling debt constrained in 2021, making this the age group most concerned about debt. This is most likely related to the many debt obligations and expenses which coincide with this life stage, including mortgages, student loan payments, childcare, and care of elderly family members. In support of this argument, significantly more respondents with children under the age of 18—likely living at home and financially dependent on their parents—reported being constrained by debt (40%) compared to their peers without children under age 18 (27%).

Among Black Americans and Hispanics, 38% and 46% felt debt constrained, respectively, a fact in stark contrast to the White population, where 26% reported being financially constrained by their debt. This underscores meaningful differences by race and ethnicity, indicating that Black Americans and Hispanics likely face more challenges with short- and long-term financial well-being. This conclusion is confirmed by recent research investigating broad measures of financial well-being that include debt management across different racial and ethnic groups (Yakoboski et al. 2020; Clark et al. 2021; Yakoboski et al. 2021).

Education appears to be another factor important to debt management. Significantly fewer respondents with at least a bachelor's degree (23%) reported feeling constrained by their debt, compared to their peers with some college but no degree (33%) or only a high school degree (32%). As will be elaborated below, this holds even when controlling for a range of socio-demographic variables including income.

In addition to general education levels, we also analyze respondents' financial literacy and financial education levels. Overall, people who could correctly answer three fundamental financial literacy questions (the Big 3) assessing knowledge of interest, inflation, and risk diversification were significantly less likely to indicate that they felt debt constrained. Specifically, one in five (21%) of the financially literate reported being debt constrained,

versus more than one in three (35%) among those who could not correctly answer any of the Big 3 questions. Fewer survey respondents who had participated in a financial education class or program offered in high school or college, in the workplace, or by an organization or institution in their community felt debt constrained compared to respondents who did not participate in a financial education class or program.[3]

Changes in reported debt-constraint measures between 2020 and 2021

To address the question of how feelings of being debt constrained changed between 2020 and 2021, we compare the two in Table 3. Interestingly, the debt-constraint measure remained stable over time, which is somewhat surprising since Blacks and Hispanics and the least educated were among the groups most negatively economically impacted by the pandemic (Clemens et al. 2020; Getachew et al. 2020; Karpman et al. 2020; Moen et al. 2020; Mendez-Smith and Klee 2020; Parker et al. 2020; Lopez et al. 2021; Center for Disease Control and Prevention 2021). One potential explanation might be that the fiscal stimulus measures implemented in response to the pandemic helped U.S. adults make ends meet and service their immediate debt obligations. To that end, Canilang et al. (2020) analyzed data collected through July 2020 in the Survey of Households and Economic Decision Making, and they concluded that such relief efforts helped provide a short-term safety net. Nevertheless, as loans and mortgages are multi-year financial contracts, we anticipate that they will continue to exert financial pressure on households after the stimulus funding winds down.

Table 3. Changes between 2020 and 2021 for the debt constrained

	Debt Constrained 2020	Debt Constrained 2021
Total sample	31%	31%
AGE		
18–29	36	33
30–44	36	39
45–59	35	34
60+	20	20
GENDER		
Male	28	30
Female	34	31
RACE/ETHNICITY		
White, non-Hispanic	27	26
Black, non-Hispanic	45	38
Hispanic	38	46
Other, non-Hispanic	31	30
HIGHEST DEGREE OBTAINED		
Less than high school	48	47
High school	33	32
Some college	30	33
Bachelor's degree or higher	25	23
MARITAL STATUS		
Married	28	28
Single/Not married	36	35
Divorced/Separated/Widowed	34	34

3 Similar findings for the most vulnerable populations apply to the late debt payment measure, reported in Appendix Table A1.

Table 3. Changes between 2020 and 2021 for the debt constrained (continued)

	Debt Constrained 2020	Debt Constrained 2021
CHILDREN UNDER THE AGE OF 18		
No	28	27
Yes	40	40
HOUSEHOLD INCOME		
Less than $25K	47	43
$25–49K	33	40
$50–74K	38	36
$75–99K	30	30
$100K+	21	21
WORK STATUS		
Employed	37	34
Retired	15	20[a]
Unemployed	35	37
FINANCIAL LITERACY AND EDUCATION		
Not financially literate	34	35
Financially literate (Big 3 correct)	23	21
Not participated in fined class	32	32
Participated in fined class	29	28
Total Observations	284	898

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. The variable *household income* includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable *highest degree obtained* includes the categories *High school or less*, indicating that the highest degree received is a high school diploma; *some college*, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); *bachelor's degree*, indicating that respondents have earned a four-year degree, *post-graduate degree*, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by three categories: *Employed* for those who either have a full- or a part-time occupation; *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work; and *retired* for those who classify themselves as being retired. The proportion of *financially literate* represents respondents who correctly answered the three basic financial literacy questions (Big 3), which assess understanding of interest rate, inflation, and risk diversification. All statistics are weighted.
[a] Difference to 2020 is significant at the 5% level.

Empirical results: Debt constraints and financial literacy

As mentioned earlier, financial literacy seems to matter. In this section, we analyze in more detail the relationship between financial literacy and feeling debt constrained by making use of the comprehensive financial literacy measure offered by the *P-Fin Index*. That is, we expand the set of financial literacy questions considered from the Big 3 to the full set of 28 financial literacy questions. In 2021, on average, U.S. adults answered only 50% of these 28 *P-Fin Index* questions correctly, indicating little change since 2020, when they correctly answered 52%.

In other words, low levels of financial literacy are holding steady among U.S. adults over time.

Importantly for our purposes, the more financially savvy are less likely to report being debt constrained. Figure 1 shows that, in 2021, people reporting feeling debt constrained correctly answered only 45% of the *P-Fin Index* questions, whereas their less debt constrained counterparts averaged 59% correct answers. This highly significant difference of four questions out of 28 also held steady between 2020 and 2021.

Figure 1. Association between financial literacy and perceptions of being debt constrained

Percentage of *P-Fin Index* questions answered correctly
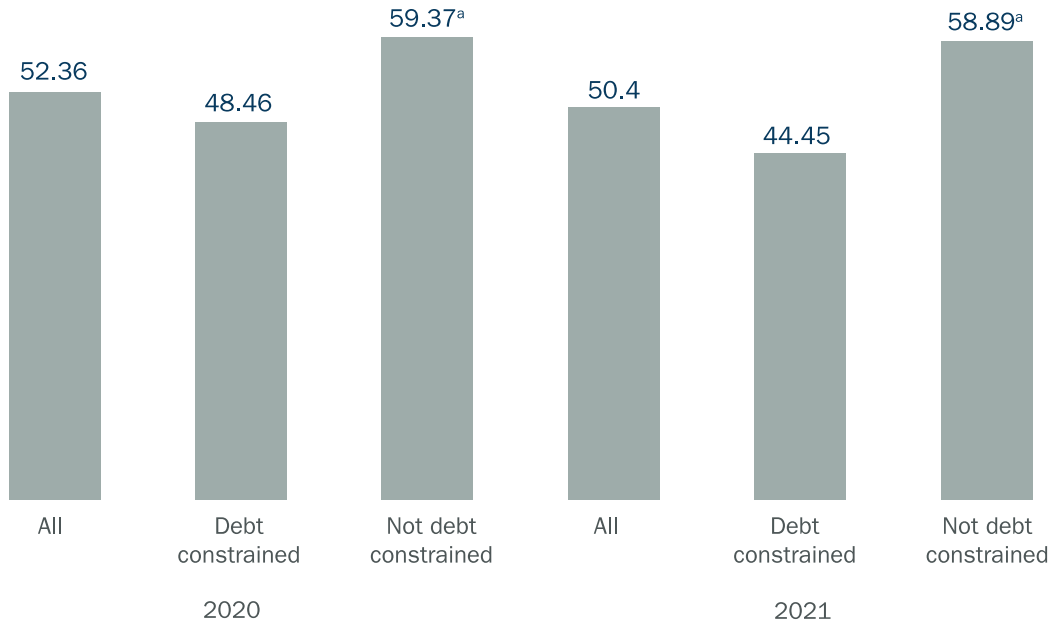
Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. All statistics are weighted.
[a] Difference to being debt constrained is significant at the 1% level.

Looking at the full distribution of the 28 *P-Fin Index* questions in 2021 in Figure 2, we find that among those who reported being debt constrained, a significantly larger share (25%) could correctly answer only up to seven *P-Fin Index* questions, evidencing very low levels of financial literacy; a significantly smaller share (10%) did very well, correctly answering between 22 and 28 questions. Overall, this pattern clearly shows that a significantly higher percentage of those who were not debt constrained also display high financial literacy, across both years. In 2021, 66% of the not debt constrained answered over half of the *P-Fin Index* questions correctly, but only 40% of the debt-constrained respondents could do so. In other words, it is clear that those feeling the most debt constrained were most likely to have low financial literacy levels.

Figure 2. Distribution of *P-Fin Index* questions answered correctly and being debt constrained

Distribution of correct *P-Fin Index* questions
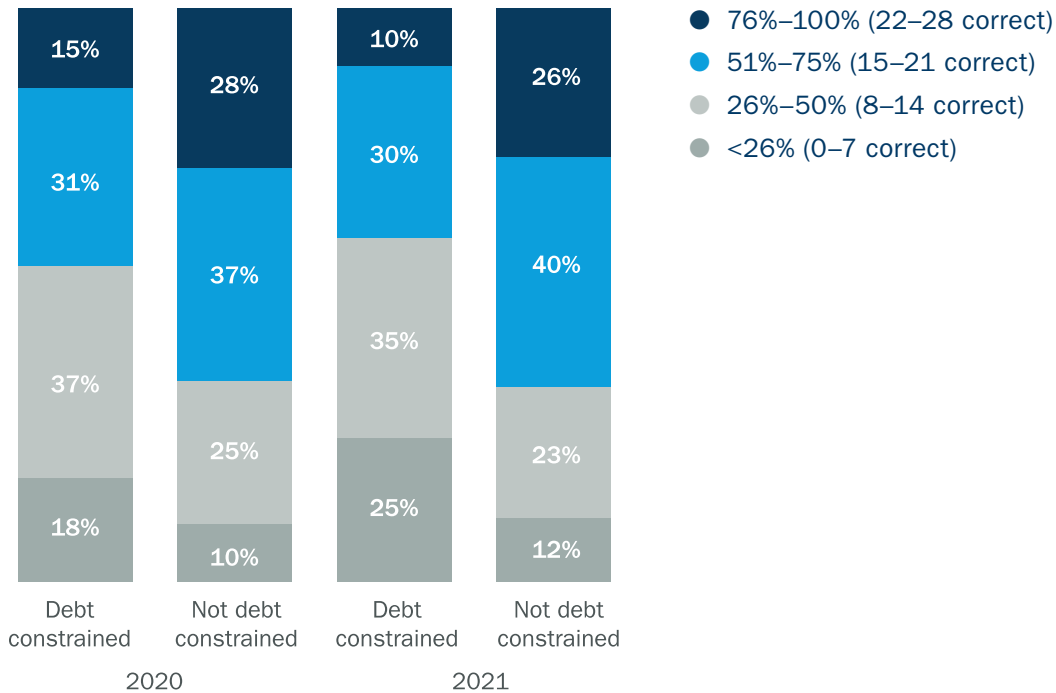
Legend:
- 76%–100% (22–28 correct)
- 51%–75% (15–21 correct)
- 26%–50% (8–14 correct)
- <26% (0–7 correct)

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. All statistics are weighted.

Next, we analyzed whether the economic shocks of the COVID-19 pandemic had a differential impact on respondents with low versus high financial literacy, with respect to feelings of being debt constrained. Table 4 shows that, among those who could answer 50% or fewer of the (long list) of *P-Fin Index* questions correctly, 36% were debt constrained in 2020 and 38% in 2021. While not a statistically significant increase, by segmenting the respondents into four groups (shown in the lower half of Table 4), the differences become more pronounced. That is, of the less financially literate in 2021, more people reported being debt constrained than was true in 2020 before the pandemic hit. While the differences across the two years are not statistically significantly different from zero, the direction of the result points to a negative relationship between being debt constrained and being financially literate.

Table 4. Changes between 2020 and 2021 in the relationship between reporting being debt constrained and financial literacy

	Debt Constrained 2020	Debt Constrained 2021
Answered ≤ 50% of *P-Fin Index* questions correctly	36.22%	38.22%
Answered > 50% of *P-Fin Index* questions correctly	26.62%	24.21%
Answered < 26% of *P-Fin* questions correctly	33.33%	37.78%
Answered 26%—50% of *P-Fin* questions correctly	37.81%	38.55%
Answered 51%–75% of *P-Fin* questions correctly	28.67%	27.16%
Answered 76%—100% of *P-Fin* questions correctly	23.23%	18.51%
Total Observations	284	898

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt constrained and late payment questions are excluded. All statistics are weighted.

Risk literacy is important

A basic comprehension of risk and uncertainty is quite important in the context of debt and debt management. As most loans are long-term contracts, an understanding of the risks associated with such contracts as well as with the obligation to service and pay down such contracts is critical. Unfortunately, risk and risk-related topics are extremely difficult concepts for people to grasp (Lusardi 2015; Coppola et al. 2017; Yakoboski et al. 2021).

One of the eight functional areas covered by the *P-Fin Index* is understanding uncertainty and risk management, reflected in three distinct questions. On average, only one of these three risk questions was answered correctly, and this was the topic where people scored the worst across all functional areas since the inception of the *P-Fin Index* in 2017.[4] Looking separately at those who felt debt constrained and those who did not, we see a clear difference in their ability to correctly answer the risk questions (Figure 3). Debt-constrained respondents could correctly answer only a third (34%) of the questions on average in 2021, versus non-constrained people who knew the correct answers to 41% of the questions. This negative correlation between risk literacy and being debt constrained underscores how important it is to understand risk when seeking to manage debt.

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4 For more information on the full ranking of all functional areas and the year-by-year comparison, see Yakoboski et al. (2021).

Figure 3. Correlation between risk literacy and being debt constrained

Percentage of risk questions answered correctly
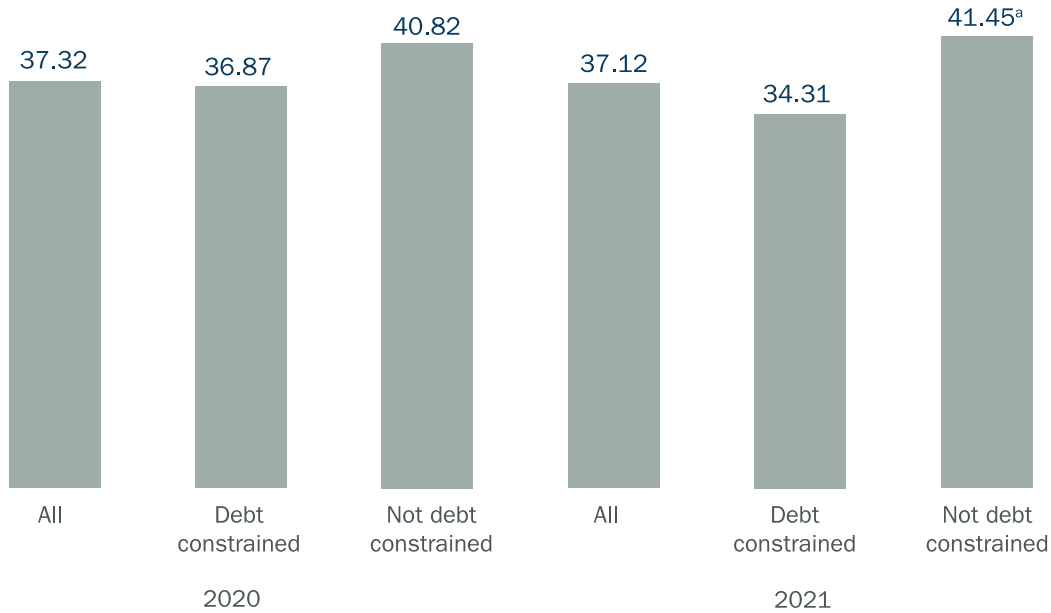
37.32	36.87	40.82	37.12	34.31	41.45[a]
All	Debt constrained	Not debt constrained	All	Debt constrained	Not debt constrained
	2020			2021	

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. All statistics are weighted.
[a] Difference to being debt constrained is significant at the 1% level.

In the context of the ongoing COVID-19 pandemic, the public has been deluged with information on infection and deaths resulting from the virus, as well as on vaccine effectiveness, much of which uses terminology involving probabilities. As a result, we were interested in respondents' understanding of probabilities, to evaluate how well they might understand the sorts of risks they faced. Accordingly, in 2021, we added a novel question to the survey to capture peoples' understanding of probabilities:

Which of the following indicates the highest probability of getting a particular disease? [Answer options: 1 = "There is a one-in-twenty chance of getting the disease," 2 = "2% of the population will get the disease," 3 = "25 out of every 1,000 people will get the disease," 99 = "Don't know," and 98 = "Refuse to answer"]

Our findings clearly show that U.S. adults struggled to understand this information. As shown in Figure 4, only 28% of survey respondents correctly answered this probability question, and over half (50%) responded that they did not know the answer. Even though this question was framed in the context of health, our main goal was to test peoples' understanding of probabilities, also important for debt management. Indeed, we found that those not debt constrained were significantly more likely to correctly answer the probability question and less likely to answer "don't know" compared to the debt-constrained respondents. In other words, many Americans are not only lacking financial literacy, but risk literacy as well; both factors bode ill for their debt management.

Figure 4. Link between probability question and being debt constrained
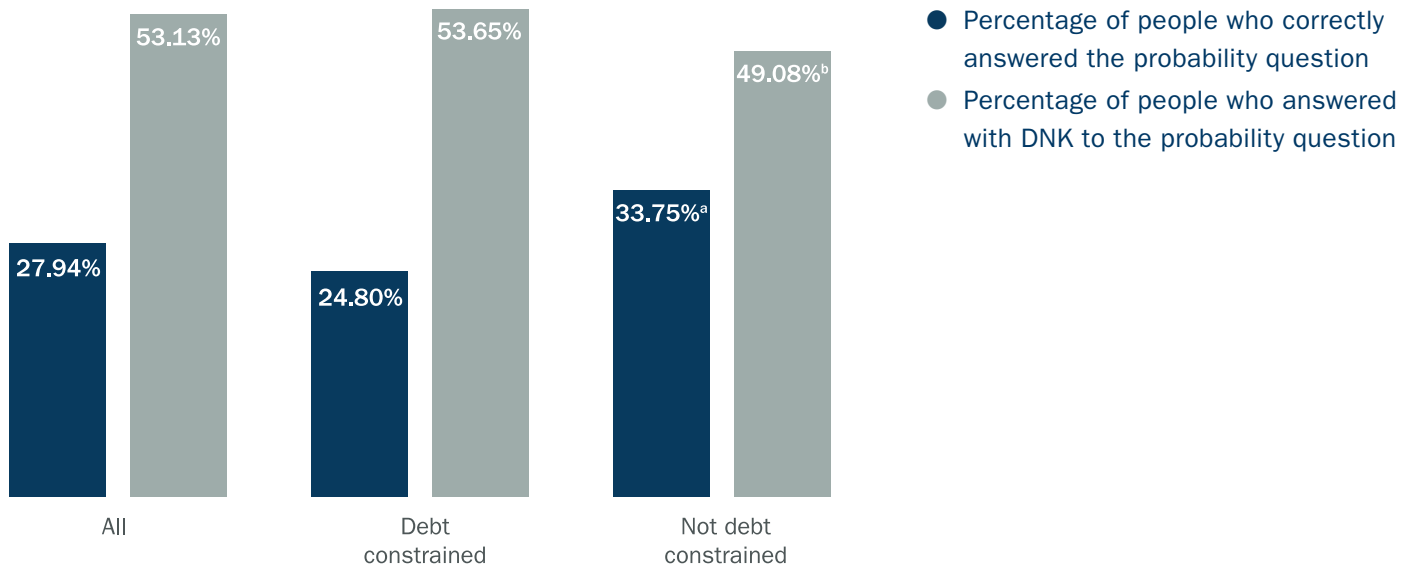
Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt-constrained question are excluded. The exact question wording to the probability question is "Which of the following indicates the highest probability of getting a particular disease?" And the possible answer options are: (1) There is a one-in-twenty chance of getting the disease; (2) 2% of the population will get the disease; (3) 25 out of every 1,000 people will get the disease; (4) Do not know (DNK). All statistics are weighted.
[a] Difference to being debt constrained is significant at the 1% level. [b] Difference to being debt constrained is significant at the 5% level.

Motivation to increase financial literacy

What can be done regarding these critical knowledge shortfalls? One possibility is to offer people access to financial literacy programs, a conclusion supported by responses to a question added to the 2021 *P-Fin Index* survey. Specifically, respondents were asked to indicate the extent to which they agreed or disagreed with the following statement "*The economic uncertainty created by COVID-19 has motivated me to increase my financial literacy.*" Figure 5 shows that people are now quite motivated to invest in their financial knowledge, and this motivation is highest among debt-constrained respondents. The same holds for those who are late on debt payments (Appendix Figure A1).

Figure 5. Link between motivation level and being debt constrained
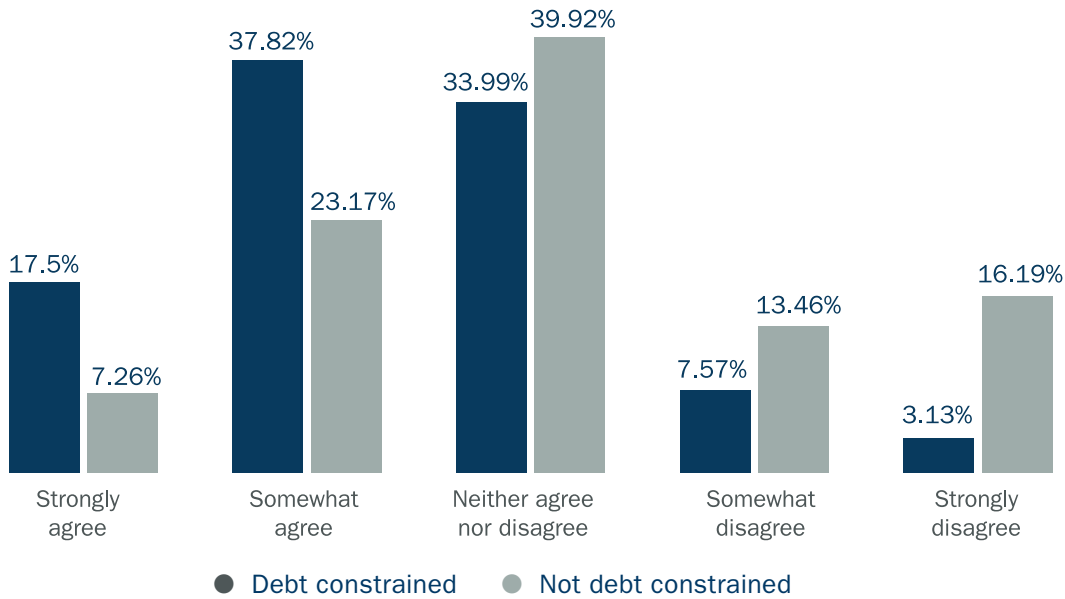
Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt constrained and motivation questions are excluded. All statistics are weighted. The exact question wording is: Do you agree or disagree with the following statement: The economic uncertainty created by COVID-19 has motivated me to increase my financial literacy.

While we cannot specifically distinguish whether lacking financial literacy or being debt constrained more strongly motivates people to desire additional training, it is clear that financial education providers are likely to find new interest in financial education in the wake of the pandemic.

Empirical results: Multivariate regression analysis of the debt constrained

Next, we turn to multivariate regression analyses to investigate the likelihood of an individual being debt constrained, while accounting for a range of socio-demographic characteristics that vary across people. Table 5 shows the regression findings for two models. Model 1 uses the 2020 and 2021 *P-Fin Index* data combined, while Model 2 focuses only on the 2021 survey responses. Overall, the regression findings confirm the univariate findings described above.

Our three main takeaways may be summarized as follows. First, certain population subgroups are much

more likely to be constrained by debt compared to the rest of the population, even after controlling for many other characteristics. Specifically, Blacks and Hispanics, those lacking a bachelor's degree, having children under the age of 18, with lower incomes, and in the prime-age group remain more likely to be debt constrained and therefore among the most financially vulnerable. Second, the insignificant and small empirical estimate for the wave dummy in Model 1 confirms little difference in the likelihood of being debt constrained in 2021 versus 2020. Third, financial literacy has a large and significant impact on people's chances of being debt constrained. Respondents who could correctly answer the Big 3 questions were significantly less likely to report being debt constrained, even controlling on educational attainment and income. These same findings are confirmed by a regression analysis using the late debt payment measure from the 2021 survey as the dependent variable (Appendix Table A2).

Table 5. Regression analysis for reporting being debt constrained

	Debt Constrained 2020 & 2021 (Model 1)	Debt Constrained 2021 (Model 2)
AGE (REF.: 18–29)		
30–44	0.0400	0.0637
	(0.0298)	(0.0341)
45-59	0.0583	0.0708*
	(0.0308)	(0.0351)
60+	0.0136	0.0173
	(0.0353)	(0.0401)
GENDER (REF.: MALE)		
Female	0.00656	-0.0117
	(0.0162)	(0.0187)
RACE/ETHNICITY (REF.: WHITE, NON-HISPANIC)		
Black, non-Hispanic	0.0672**	0.0602*
	(0.0261)	(0.0265)
Hispanic	0.106**	0.133**
	(0.0237)	(0.0270)
Other, non-Hispanic	0.0443	0.0456
	(0.0325)	(0.0390)
HIGHEST DEGREE OBTAINED (REF.: LESS THAN HIGH SCHOOL)		
High school	-0.0938**	-0.0882*
	(0.0359)	(0.0418)
Some college	-0.0592	-0.0411
	(0.0363)	(0.0422)
Bachelor's degree or higher	-0.0975**	-0.0797
	(0.0375)	(0.0436)
MARITAL STATUS (REF.: MARRIED)		
Single/Not married	0.0119	0.0190
	(0.0250)	(0.0283)
Divorced/Separated/Widowed	0.0282	0.0311
	(0.0241)	(0.0277)
CHILDREN UNDER THE AGE OF 18		
Yes	0.0751**	0.0759**
	(0.0210)	(0.0240)
HOUSEHOLD INCOME (REF.: LESS THAN $25K)		
$25–49K	-0.0424	-0.0203
	(0.0322)	(0.0374)
$50–74K	-0.0540	-0.0510
	(0.0326)	(0.0379)
$75–99K	-0.126**	-0.122**
	(0.0348)	(0.0407)
$100K+	-0.201**	-0.193**
	(0.0313)	(0.0367)
WORK STATUS (REF.: EMPLOYED)		
Retired	-0.153**	-0.119**
	(0.0242)	(0.0279)
Unemployed	-0.0544*	-0.0341
	(0.0248)	(0.0287)

Table 5. Regression analysis for reporting being debt constrained (continued)

	Debt Constrained 2020 & 2021 (Model 1)	Debt Constrained 2021 (Model 2)
	FINANCIAL LITERACY	
Big 3 questions correct	-0.0450*	-0.0576**
	(0.0180)	(0.0210)
	WAVE	
Wave 2021	0.000188	
	(0.0180)	
Constant	0.467**	0.430**
	(0.0595)	(0.0597)
Total Observations	4025	3023

Source: Author's calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
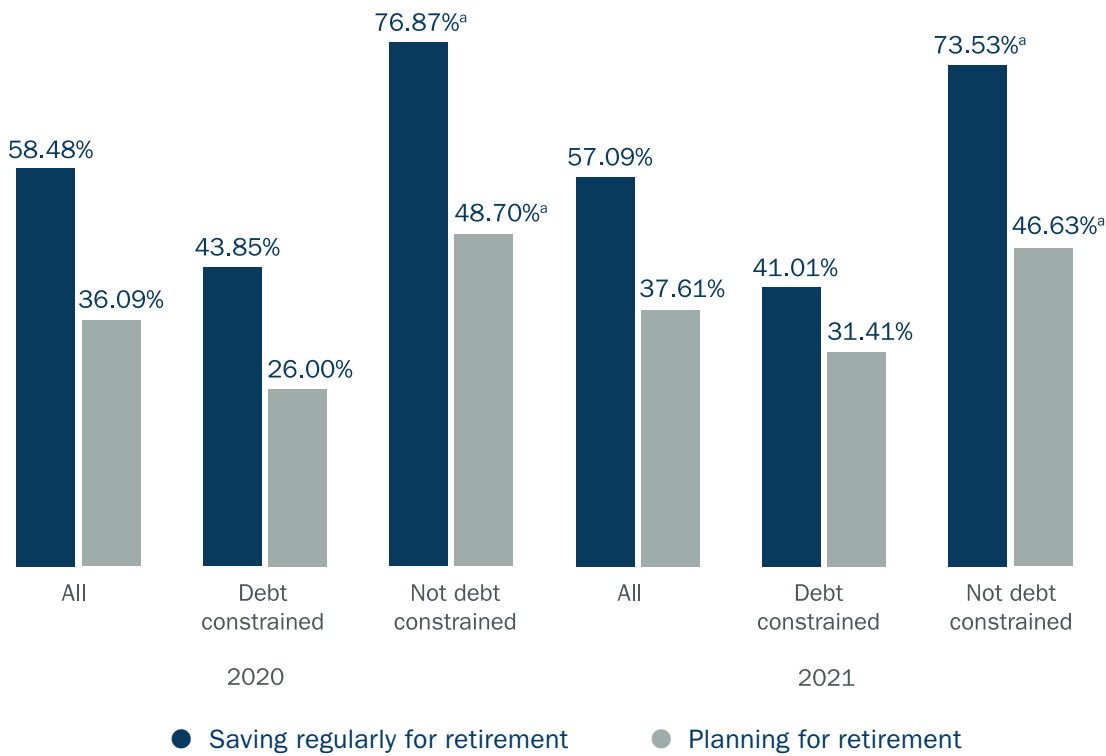Note: "Don't know" and "refuse to answer" responses to the debt constraint question are excluded. The variable *household income* includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable *highest degree obtained* includes the categories *High school or less*, indicating that the highest degree received is a high school diploma; *some college*, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); *bachelor's degree*, indicating that respondents have earned a four-year degree, *post-graduate degree*, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by three categories: *Employed* for those who either have a full- or part-time occupation; *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work; and *retired* for those who classify themselves as being retired. The variable *Big 3 correct* represents respondents that correctly answered the three basic financial literacy questions (Big 3) on interest rate, inflation, and risk diversification. Weighted OLS regressions were used. Ref. indicates the reference value of categorical variables. Robust standard errors in parentheses. ** p<0.01, * p<0.05

The empirical relationship between being debt constrained and retirement readiness

Next, we ask whether being debt constrained matters not just for short-term but for long-term financial outcomes, which we investigate by examining the link between the debt-constraint measure and retirement readiness. Figure 6 provides initial evidence of a strong correlation: In January 2021, only 31% of non-retired debt-constrained respondents reported having ever tried to figure out how much they need to save for their retirement. Of non-retired respondents who were *not* debt constrained, 47% indicated that they had been planning for retirement.

This large difference underscores the strong correlation between struggling with debt and lack of retirement readiness. An even more pronounced result arises in the pre-pandemic data (for 2020), with 26% of debt-constrained respondents indicating that they planned for retirement, versus 49% of respondents who were not debt constrained. Similarly, in 2021, 41% of non-retired debt-constrained respondents said they regularly saved for retirement, whereas 74% of non-retired respondents who said they were *not* debt constrained saved for retirement. Findings are similar for the previous year and for the late on debt payments measure (Appendix Figure A2), providing evidence that being debt constrained impacts retirement readiness.

Figure 6. Link between planning and saving for retirement and being debt constrained

Source: Authors' calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt constrained as well as retirement savings and planning questions are excluded. Statistics only reflect the subsample of non-retirees. All statistics are weighted. [a] Difference to being debt constrained is significant at the 1% level.

Moving to the multiple regression setting, Table 6 further shows that financial literacy has an influence on both retirement planning and saving for retirement. Again we provide results for both years combined (Models 1 and 3), and then for the 2021 data only (Models 2 and 4). It is interesting that the estimated financial literacy coefficients are highly significant and relatively large in magnitude across all columns. These imply that non-retirees who can answer the Big 3 financial literacy questions correctly are more likely to plan and save for retirement. In other words, being financially literate helps people plan and save for retirement, ultimately leading to increased retirement financial well-being.[5] In sum, greater financial literacy positively shapes both debt management and retirement readiness.

5   See also Lusardi and Mitchell (2017) for further evidence on the relationship between the lack of financial knowledge and poor retirement planning.

Table 6. Regression analysis for planning and saving for retirement

	Planning for retirement 2020 & 2021 (Model 1)	Planning for retirement 2021 (Model 2)	Saving for retirement 2020 & 2021 (Model 3)	Saving for retirement 2021 (Model 4)
AGE (REF.: 18–29)				
30–44	0.0596*	0.0782*	0.0846**	0.0748*
	(0.0278)	(0.0333)	(0.0265)	(0.0309)
45–59	0.118**	0.131**	0.114**	0.0965**
	(0.0302)	(0.0365)	(0.0292)	(0.0344)
60+	0.186**	0.188**	0.103**	0.0760
	(0.0379)	(0.0444)	(0.0356)	(0.0424)
GENDER (REF.: MALE)				
Female	-0.0125	-0.0167	0.00647	-0.00266
	(0.0194)	(0.0227)	(0.0177)	(0.0205)
RACE/ETHNICITY (REF.: WHITE, NON-HISPANIC)				
Black, non-Hispanic	0.0184	0.0146	-0.0350	-0.0336
	(0.0274)	(0.0285)	(0.0284)	(0.0300)
Hispanic	-0.0249	-0.00529	-0.0465	-0.0582*
	(0.0247)	(0.0287)	(0.0241)	(0.0271)
Other, non-Hispanic	-0.0140	-0.0199	-0.0146	0.00364
	(0.0405)	(0.0491)	(0.0353)	(0.0427)
HIGHEST DEGREE OBTAINED (REF.: LESS THAN HIGH SCHOOL)				
High school	0.00798	0.0135	0.0603	0.0586
	(0.0387)	(0.0466)	(0.0373)	(0.0444)
Some college	0.0411	0.0580	0.139**	0.118**
	(0.0402)	(0.0480)	(0.0385)	(0.0451)
Bachelor's degree or higher	0.151**	0.163**	0.245**	0.237**
	(0.0427)	(0.0515)	(0.0399)	(0.0474)
MARITAL STATUS (REF.: MARRIED)				
Single/Not married	-0.133**	-0.132**	-0.108**	-0.122**
	(0.0264)	(0.0313)	(0.0255)	(0.0296)
Divorced/Separated/Widowed	-0.0965**	-0.0950*	-0.0907**	-0.0920**
	(0.0332)	(0.0382)	(0.0299)	(0.0351)
CHILDREN UNDER THE AGE OF 18				
Yes	0.00124	-0.00231	-0.0411*	-0.0389
	(0.0215)	(0.0253)	(0.0196)	(0.0226)
HOUSEHOLD INCOME (REF.: LESS THAN $25K)				
$25–49K	0.0253	-0.0120	0.126**	0.137**
	(0.0330)	(0.0384)	(0.0340)	(0.0387)
$50–74K	0.0527	0.0443	0.220**	0.237**
	(0.0351)	(0.0421)	(0.0347)	(0.0397)
$75–99K	0.0830*	0.0446	0.279**	0.296**
	(0.0370)	(0.0439)	(0.0370)	(0.0429)
$100K+	0.167**	0.145**	0.358**	0.358**
	(0.0343)	(0.0407)	(0.0336)	(0.0387)
WORK STATUS (REF.: EMPLOYED)				
Unemployed	-0.0623**	-0.0807**	-0.185**	-0.191**
	(0.0226)	(0.0264)	(0.0228)	(0.0266)

Table 6. Regression analysis for planning and saving for retirement (continued)

	Planning for retirement 2020 & 2021 (Model 1)	Planning for retirement 2021 (Model 2)	Saving for retirement 2020 & 2021 (Model 3)	Saving for retirement 2021 (Model 4)
FINANCIAL LITERACY (REF.: BIG 3 NOT CORRECT)				
Big 3 questions correct	0.102** (0.0242)	0.0911** (0.0284)	0.109** (0.0205)	0.123** (0.0236)
WAVE				
Wave 2021	0.0144 (0.0211)		-0.0161 (0.0198)	
Constant	0.175** (0.0629)	0.213** (0.0666)	0.243** (0.0597)	0.231** (0.0618)
Total Observations	2863	2139	2863	2138

Source: Author's calculations using the 2020 and 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the retirement planning and retirement savings questions are excluded. The regressions only include the subsample of non-retirees. The variable household income includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable *highest degree obtained* includes the categories *High school or less*, indicating that the highest degree received is a high school diploma; *some college*, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); *bachelor's degree*, indicating that respondents have earned a four-year degree, *post-graduate degree*, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by two categories: *Employed* for those who either have a full- or a part-time occupation, and *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work. The variable *Big 3 correct* represents respondents that correctly answered the three basic financial literacy questions (Big 3) on interest rate, inflation, and risk diversification. Weighted OLS regressions were used. Ref. indicates the reference value of categorical variables. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Conclusions and implications

This paper analyzed the impact of the COVID-19 pandemic on Americans' perceptions of being debt constrained using the 2020 and 2021 *P-Fin Index* surveys. We also asked which population subgroups were most debt constrained, and how this phenomenon was related to financial literacy and retirement readiness. Even before the pandemic hit, we documented that one in three Americans felt constrained by their debt, meaning that their debt and debt payments prevented them from adequately addressing other financial priorities. While this share did not grow between January 2020 and January 2021, this was most likely because government relief efforts helped forestall short-term financial disasters. Nevertheless, long-term mortgage debt and student loans, along with other debt, are likely to continue imposing pressure on future household finances.

We also found that Blacks and Hispanics, those lacking a bachelor's degree, those with children under the age of 18, the lower paid, those in their prime age, and those with low levels of financial literacy were far more likely to report feeling they were debt constrained compared to the rest of the population. These subpopulations were

financially vulnerable even before COVID-19, and they remained vulnerable into the pandemic. Moreover, feeling debt constrained is likely to have long-term financial consequences, as we discovered a strong connection between perceptions of feeling constrained by debt and lack of retirement planning and saving. Finally, we confirm that financial literacy, and especially understanding of risk probabilities, matters for debt management and retirement readiness. Accordingly, enhancing peoples' financial knowledge could help build financial security in the short and also the long term.

In this context, educational programs can be seen as an important remedy to correct lack of financial literacy, as they provide a means by which to teach people key personal finance concepts as well as the workings of financial products. Additionally, education on good debt management practices and how to budget can be useful for those of all ages, along with how to save for the short and long terms. Both high school and workplace training programs can provide continued financial education, and the most debt-burdened households appear most motivated to build their personal financial knowledge.
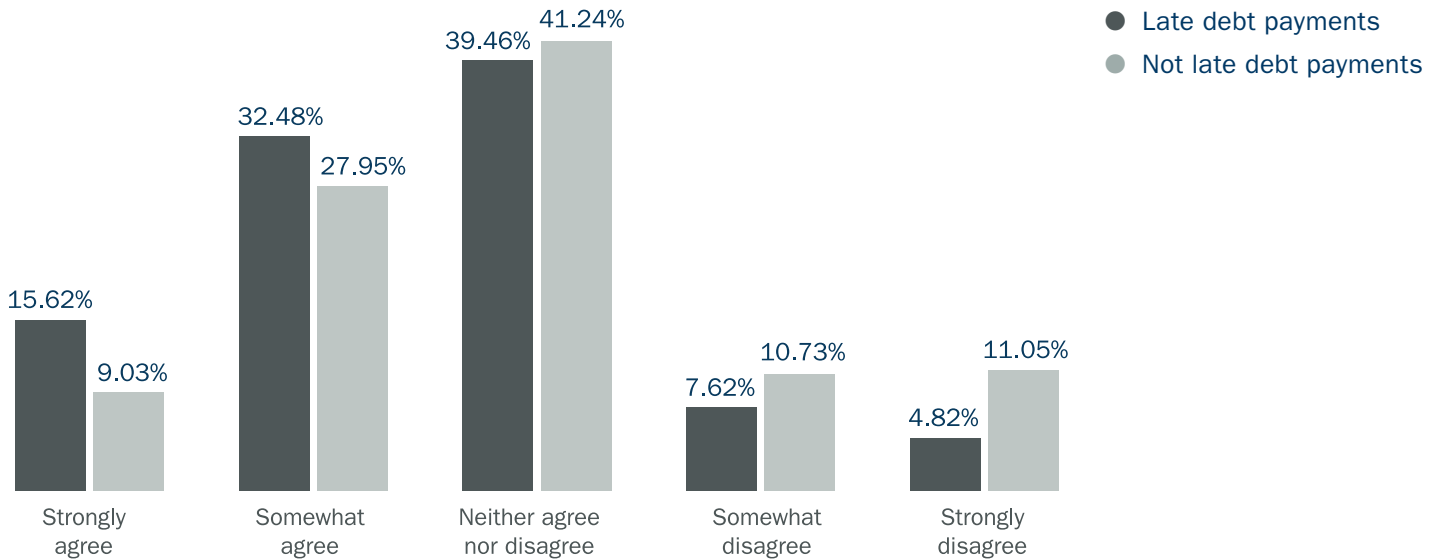
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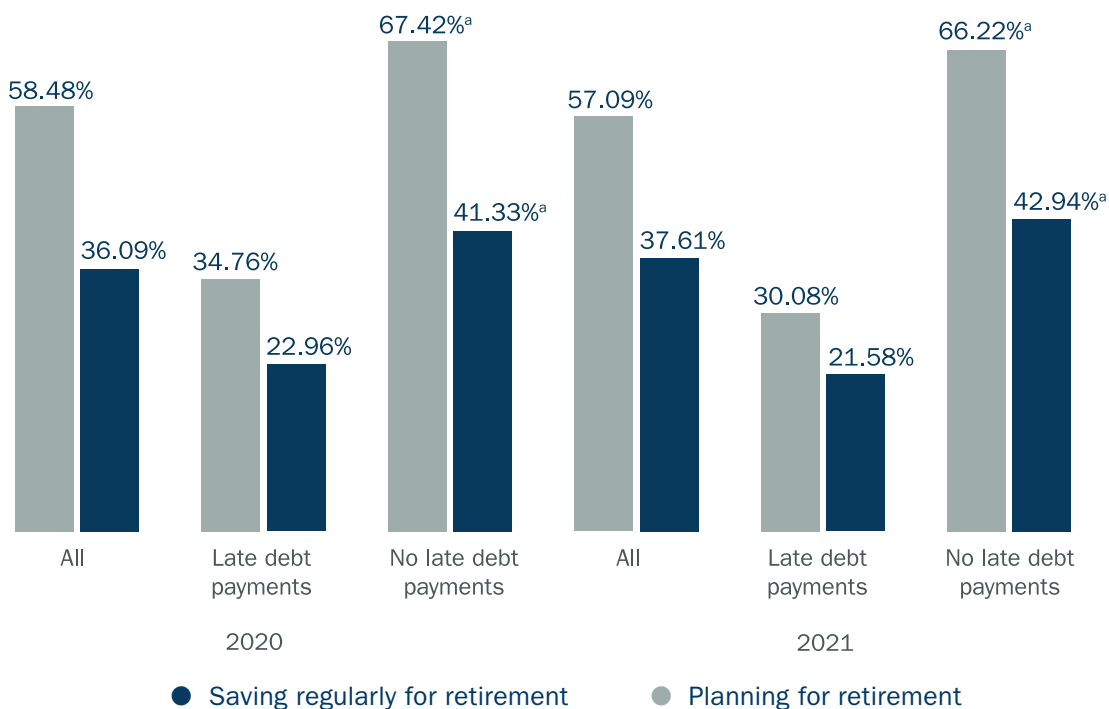
Appendix

Figure A1. Link between motivation level and being late on debt payments

- ● Late debt payments
- ● Not late debt payments

Strongly agree: 15.62% / 9.03%
Somewhat agree: 32.48% / 27.95%
Neither agree nor disagree: 39.46% / 41.24%
Somewhat disagree: 7.62% / 10.73%
Strongly disagree: 4.82% / 11.05%

Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the late debt payment and motivation questions are excluded. All statistics are weighted. The exact question wording is: *Do you agree or disagree with the following statement: The economic uncertainty created by COVID-19 has motivated me to increase my financial literacy.*

Figure A2. Link between planning and saving for retirement, and reporting late on debt payments

2020
All: 58.48% / 36.09%
Late debt payments: 34.76% / 22.96%
No late debt payments: 67.42%[a] / 41.33%[a]

2021
All: 57.09% / 37.61%
Late debt payments: 30.08% / 21.58%
No late debt payments: 66.22%[a] / 42.94%[a]

- ● Saving regularly for retirement
- ● Planning for retirement

Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the debt payment as well as retirement planning and savings questions are excluded. Statistics only reflect the subsample of non-retirees. All statistics are weighted. [a] Difference to being late on debt payments is significant at the 1% level.

Table A1. Demographics of late debt payment measure in 2021

	Late Debt Payments	No Late Debt Payments
Total sample	22%	78%
AGE		
18–29	24	76
30–44	27	73
45–59	27	73
60+	13	87
GENDER		
Male	18	82
Female	26	74
RACE/ETHNICITY		
White, non-Hispanic	17	83
Black, non-Hispanic	42	58
Hispanic	29	71
Other, non-Hispanic	17	83
HIGHEST DEGREE OBTAINED		
Less than high school	43	57
High school	28	72
Some college	21	79
Bachelor's degree or higher	10	90
MARITAL STATUS		
Married	17	83
Single/Not married	28	72
Divorced/Separated/Widowed	28	72
CHILDREN UNDER THE AGE OF 18		
No	20	80
Yes	28	72
HOUSEHOLD INCOME		
Less than $25K	47	53
$25–49K	30	70
$50–74K	24	76
$75–99K	15	85
$100K+	12	88
WORK STATUS		
Employed	21	79
Retired	15	85
Unemployed	37	63
FINANCIAL LITERACY AND EDUCATION		
Not financially literate	28	72
Financially literate (Big 3 correct)	7	93
Not participated in fined class	24	76
Participated in fined class	16	84
Total Observations	637	2386

Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the late payment question are excluded. The variable household income includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable highest degree obtained includes the categories High school or less, indicating that the highest degree received is a high school diploma; some college, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); bachelor's degree, indicating that respondents have earned a four-year degree, post-graduate degree, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by three categories: *Employed* for those who either have a full- or part-time occupation; *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work; and *retired* for those who classify themselves as being retired. The proportion of financially literate represents respondents who correctly answered the three basic financial literacy questions (Big 3), which assess understanding of interest rate, inflation, and risk diversification. Statistics read as "26% of women in the *P-Fin Index* are usually late with their bills and debt payments in a typical month." All statistics are weighted.

Table A2. Regression analysis for reporting late debt payments

	Late debt payment 2021
AGE (REF.: 18–29)	
30–44	0.0533
	(0.0290)
45–59	0.0863**
	(0.0298)
60+	-0.00930
	(0.0337)
GENDER (REF.: MALE)	
Female	0.0415**
	(0.0160)
RACE/ETHNICITY (REF.: WHITE, NON-HISPANIC)	
Black, non-Hispanic	0.166**
	(0.0252)
Hispanic	0.0323
	(0.0245)
Other, non-Hispanic	0.0273
	(0.0310)
HIGHEST DEGREE OBTAINED (REF.: LESS THAN HIGH SCHOOL)	
High school	-0.0853*
	(0.0400)
Some college	-0.114**
	(0.0396)
Bachelor's degree or higher	-0.150**
	(0.0402)
MARITAL STATUS (REF.: MARRIED)	
Single/Not married	0.0440
	(0.0243)
Divorced/Separated/Widowed	0.0417
	(0.0246)
CHILDREN UNDER THE AGE OF 18	
Yes	0.0507*
	(0.0210)
HOUSEHOLD INCOME (REF.: LESS THAN $25K)	
$25–49K	-0.102**
	(0.0360)
$50–74K	-0.137**
	(0.0364)
$75–99K	-0.223**
	(0.0364)
$100K+	-0.211**
	(0.0345)
WORK STATUS (REF.: EMPLOYED)	
Retired	-0.0351
	(0.0244)
Unemployed	0.0750**
	(0.0266)

Table A2. Regression analysis for reporting late debt payments (continued)

	Late debt payment 2021
	FINANCIAL LITERACY
Big 3 questions correct	-0.0892**
	(0.0152)
Constant	0.384**
	(0.0556)
Total Observations	3017

Source: Authors' calculations using the 2021 *TIAA Institute-GFLEC P-Fin Index*.
Note: "Don't know" and "refuse to answer" responses to the late debt payment question are excluded. The variable *household income* includes the total amount of a household's annual income, including wages, tips, investment income, public assistance, and income from retirement plans. The education variable *highest degree obtained* includes the categories *High school or less*, indicating that the highest degree received is a high school diploma; *some college*, indicating that respondents have attended a post-secondary institution and earned, at most, a two-year degree (i.e., an associate's degree); *bachelor's degree*, indicating that respondents have earned a four-year degree, *post-graduate degree*, indicating that respondents have a degree beyond a bachelor's degree. An individual's *work status* is defined by three categories: *Employed* for those who either have a full- or a part-time occupation; *unemployed* for those with no occupation at the time of the survey or not in labor force for those who are full-time students, full-time homemakers, or permanently sick, disabled, or unable to work; and *retired* for those who classify themselves as being retired. The variable Big 3 correct represents respondents that correctly answered the three basic financial literacy questions (Big 3) on interest rate, inflation, and risk diversification. Weighted OLS regressions were used. Ref. indicates the reference value of categorical variables. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

About the authors

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 historically underrepresented communities 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 the past seven 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.

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