TIAA Institute

Women and Retirement Security

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Executive Summary[1]

Our research investigates whether and how older women's current and anticipated future labor force patterns have changed over time, to evaluate the factors associated with longer work lives and plans to continue working at older ages. For our empirical investigation, we use data from two sources: the Health and Retirement Study (HRS), and the National Financial Capability Study (NFCS). Our analysis finds that older women's current and intended future labor force attachment patterns have changed markedly over time. Compared to the HRS baseline cohort (first interviewed in 1992), recent cohorts of women in their 50s and 60s work more, and they are also more likely to say they will continue to be working at age 65. Explanations for older women's longer work-lives include higher educational attainment, increased levels of marital disruption, and having had fewer children than prior cohorts. Household finances also play a key role. Older women today have more debt than their earlier counterparts, and they are facing their 60s in a more financially precarious position than in the past. We also use the 2012 National Financial Capability Study (NFCS) to assess the role of debt in motivating older women to remain in the labor force. To this end, we evaluate how older women manage their debt and retirement planning. We find that factors correlated with retirement planning include having more income, education, and financial literacy. Conversely, those who are over-indebted and financially fragile are less financially literate, have more dependent children, and experienced large income declines. In this sense, income shocks help explain people's debt accumulation close to retirement. Yet we also find that having resources is not enough. Women need the capacity to manage those resources if they are to stay out of debt as they head into retirement.

BUILT TO PERFORM.
CREATED TO SERVE.

Nontechnical report[2]

A substantial body of economic analysis has shown that young and middle-aged women's labor market attachment has grown in the United States over time. Our study focused on older women ages 51–61, to determine whether they have experienced a similar pattern. Accordingly, we use the Health and Retirement Study (HRS) to study several cohorts of older women to compare cohort changes explicitly, and to explore what factors have been associated with these changes. Moreover, we use the 2012 National Financial Capability Study (NFCS) to assess the role of debt in motivating older women to remain in the labor force. To this end we evaluate how older women manage their debt and retirement planning.

We have several interesting findings. First, we show that recent cohorts of older women worked more at older ages than the earliest cohort at the same age who were first surveyed in 1992. Specifically, the average probability of being at work for the baseline HRS sample age 51–56 when surveyed was 64.9 percent, and 54.8 percent for those age 57–61. All later cohorts (of the same age) displayed higher labor market attachment, even after controlling for other factors. Thus, the probability of working rose for older women over time.

Second, we show that women drawing near to retirement today have more debt than their previous counterparts, and debt is positively associated with older women being more likely to work – as well as to plan to continue to work in the future. Among this age group, total debt has more than doubled in constant dollars between 1992 and 2010, and older women were increasingly likely to hold mortgage debt in excess of half their residential value in recent waves. Additionally, the percentage of women having less than $25,000 in savings for recent cohorts is roughly double that of the earlier cohorts.

Third, our NFCS analysis helps us explore the factors associated with debt and debt management, retirement planning, and an indicator of financial fragility. We find that many older women pay high interest and fees on the debt they carry; thus debt is an important component of household balance sheets, even as the individuals draw close to retirement. We find that factors correlated with retirement planning include having more income, education, and financial literacy. Conversely, those who are over-indebted and financially fragile are also those with lower financial literacy and more financially dependent children, and who experienced large income declines. In this sense, shocks help explain peoples' debt accumulation close to retirement. Yet we also find that having resources is not enough, households must also be able to manage those resources, in order to stay out of debt and secure retirement well-being.

Older women's work and the role of debt in the HRS

In this section we compare cohorts of older women observed in the HRS, a nationally representative survey of respondents over the age of 50. In particular, we compare four birth cohorts of women surveyed when age 51–56, and three cohorts of women surveyed when age 57–61. To evaluate their behavior, we collect rich information in the HRS about the women's current employment status and future work plans, along with sociodemographic characteristics including marital and family histories. The goal is to evaluate whether there are statistically significant differences across the cohorts after controlling for other factors. We also evaluate whether these factors are correlated with anticipated future work. Finally, we compare the older women's cohorts according to how much debt they held as they entered their 50s. This allows us to determine whether rising levels of debt might be significantly associated with their plans to continue working at older ages.

Cohort differences

Our HRS cohort analysis compares four groups of women initially surveyed when they were age 51–56, and three cohorts surveyed when they were age 57–61. This is possible with the structure of the HRS, which periodically enrolls refresher groups. For the age 51–56 group, we include those first surveyed in 1992 (the HRS baseline group, born 1936–1941), the 1998 War Babies (WB) group

(born 1942–1947), the 2004 Early Baby Boomers (EBB) cohort (born 1948–1953), and the 2010 Middle Baby Boomer (MBB) group (born 1954–1959). The three 57–61 age cohorts of women were surveyed in 1992 for the baseline HRS cohort, in 2004 for the WB, and in 2010 for the EBB.[3]

Our statistical approach is multivariate analysis of two outcome variables (y) on a vector of cohort dummies, with the HRS baseline used as the reference category. We first evaluate an indicator of respondent *current employment status*, and second their probability of *working at age 65*.[4] Of primary interest are the estimated coefficients on the cohort indicators, which compare subsequent cohorts to the baseline 1992 cohort.

The analysis also includes controls on respondent age, race (white vs. other), and ethnicity (hispanic vs. other). These factors are, of course, most likely to be exogenous to past work patterns. It is important to control, in addition, on

years of education, past marital disruption (ever divorced or widowed), fair or poor health, the number of dependent children, and ratios of household primary residence and other debt to, respectively, housing value and liquid assets. These permit us to ascertain whether what may seem to be cohort differences are instead associated with differences in socio-economic and demographic factors over time, including changes in financial markets and the increased opportunities to borrow and take on debt.[5] The entire sample includes slightly over 6,700 women age 51–56, and around 4,200 women age 57–61.

Table 1 reports coefficient estimates of our linear probability analyses. Panel A provides results for current work among the women age 51–56 when surveyed, while Panel B looks at the same outcomes for the older age 57–61 groups. For both age groups, the first column excludes debt to asset ratio variables, while the second two includes them to allow comparison of results.

Table 1. Factors associated with older women's current employment in the health and retirement study (HRS)				
	A. Women age 51–56		B. Women age 57–61	
WB	0.072***	0.070***	0.028	0.017
	(0.017)	(0.017)	(0.023)	(0.024)
EBB	0.057***	0.053***	0.062***	0.047**
	(0.017)	(0.017)	(0.023)	(0.023)
MBB	0.045**	0.038**		
	(0.018)	(0.018)		
Age	-0.002	-0.001	-0.029***	-0.027***
	(0.004)	(0.004)	(0.007)	(0.007)
White	0.009	0.008	0.039	0.037
	(0.016)	(0.016)	(0.025)	(0.025)
Hispanic	0.026	0.026	-0.008	-0.002
	(0.024)	(0.024)	(0.038)	(0.038)
Years of Education	0.026***	0.025***	0.032***	0.032***
	(0.003)	(0.003)	(0.004)	(0.004)
Marital Disruption	0.081***	0.086***	0.065***	0.068***
	(0.015)	(0.015)	(0.022)	(0.022)

3. Descriptive statistics for our sample appear in our paper, referred to above.

4. The question about chances of working at age 65 was asked only of those working when surveyed.

5. In future work we plan to take into consideration the potential endogeneity of debt.

Table 1. Factors associated with older women's current employment in the health and retirement study (HRS)				
Fair/Poor Health Self-reported	-0.301***	-0.301***	-0.287***	-0.282***
	(0.019)	(0.019)	(0.024)	(0.024)
Number of Children	-0.009**	-0.009**	-0.003	-0.005
	(0.004)	(0.004)	(0.005)	(0.005)
All 1ry Res Loans/1ry Res. Value		0.063***		0.089**
		(0.022)		(0.035)
Other debt/liquid assets		0.001*		(0.001)
		(0.000)		(0.001)
N	6,677	6,677	4,160	4,160
R-square	0.107	0.112	0.104	0.108
Mean of dep var	0.709		0.607	
St.dev of dep var	0.454		0.488	
Mean of dep var, HRS only	0.649		0.548	
St.dev of dep var, HRS only	0.477		0.498	

Note: * p<0.10, ** p<0.05, *** p<0.01

Coefficient estimates from linear probability analysis, standard errors in parentheses. Controls for missing values included where relevant. The 51–56 age cohorts of women were surveyed in 1992 (the HRS baseline group, born 1936–1941), the 1998 War Babies (WB) group (born 1942–1947), the 2004 Early Baby Boomers (EBB) cohort (born 1948-1953), and the 2010 Middle Baby Boomer (MBB) group (born 1954–1959). The three 57–61 age cohorts of women were surveyed in 1992 for the baseline HRS cohort, in 2004 for the WB; and in 2010 for the EBB. Marital disruption defined as divorced/separated or widowed; All 1ry Res Loans/1ry Res Value is defined as the value of all primary residence loans divided by the value of the primary residence; and Other debt/liquid assets is defined as the ratio of other debt to liquid assets (excluding the home). Source: Lusardi and Mitchell (2016).

The first three rows prove that recent cohorts of women were more likely to be working in their 50s compared to the first HRS baseline group. The mean probability of being at work for the baseline women age 51–56 when surveyed was 64.9 percent, and 54.8 percent for those age 57–61. All later groups were more attached to the labor force, especially women age 51–56. Thus WB women age 51–56 had about a 7 percentage point greater labor force attachment, or around 11% higher, than the HRS baseline. Early Boomers age 51–56 were 5.3–5.7 percentage points more attached to the labor force, or 8% more than the HRS, while the older group (age 57–61) of Early Boomers participated at rates 4.7–6.2 percentage points higher (8–11% more) than the HRS reference group. Younger Middle Boomers also worked more than the baseline, with 3.8–4.5 percentage point greater employment rates (6–7% more) than the HRS reference cohort. These effects are also robust to the inclusion or exclusion of the financial variables, as are virtually all of the other coefficient estimates.

In Table 2 we compare the same women's self-reported estimated changes of working at age 65. For the baseline cohort, 22.5 percent of the younger group (51–56) and 23.4 of the older women said they'd work at 65. Both Boomer cohorts were significantly more likely to plan to work at age 65.[6] Moreover, women's intentions to continue working at age 65 rose over time. That is, the age 51–56 Early Boomers were about 3.6–3.7 percentage points (or 16%) more likely to work at age 65, where the Middle Boomers were 7.7–7.9 percentage points (or 35%) more likely to plan to work longer, compared to the benchmark. For the older group (age 57–61) the increase was similar in percentage points (4.7–5.1); as it was measured on a slightly higher base, the 20% increase was slightly smaller. In other words, more recent cohorts of women planned to continue working later notably more. And as before, the measured cohort effects are relatively invariant to including additional controls.[7] Accordingly, the cohort differences are robust and not associated with other factors.

[6].   The reader is reminded that the question about chances of working at age 65 was asked only of those working when surveyed at a younger age.

[7].   In results not detailed here we have also explored models where we interacted the debt variables with marital disruption, to test whether including these terms alters the estimated cohort effects. Doing so does not change conclusions reported in the text.

Table 2. Factors associated with older women's anticipated future work (HRS)

	A. Women age 51–56		B. Women age 57–61	
WB	-0.411	-0.433	1.943	1.635
	(1.515)	(1.515)	(1.850)	(1.851)
EBB	3.744***	3.612**	5.138***	4.708***
	(1.422)	(1.420)	(1.693)	(1.692)
MBB	7.900***	7.666***		
	(1.413)	(1.414)		
Age	-0.646*	-0.608*	-1.052*	-1.008*
	(0.350)	(0.349)	(0.563)	(0.561)
White	3.681***	3.662***	4.243**	4.399***
	(1.204)	(1.206)	(1.651)	(1.650)
Hispanic	2.984	2.926	-0.671	-0.388
	(1.974)	(1.979)	(2.471)	(2.468)
Years of Education	1.028***	0.974***	0.881***	0.885***
	(0.230)	(0.232)	(0.308)	(0.308)
Marital Disruption	9.523***	9.652***	8.414***	8.498***
	(1.305)	(1.306)	(1.687)	(1.687)
Fair/Poor Health Self-reported	-10.961***	-10.971***	-14.290***	-14.035***
	(1.388)	(1.387)	(1.775)	(1.774)
Number of Children	-0.403	-0.430	-0.086	-0.140
	(0.322)	(0.322)	(0.393)	(0.394)
All 1ry Res Loans/1ry Res. Value		2.638**		2.283**
		(1.038)		(0.983)
Other debt/liquid assets		0.014*		0.058
		(0.008)		(0.058)
Intercept	40.493**	38.445**	70.029**	66.865**
	(18.957)	(18.931)	(33.179)	(33.069)
N	5,152	5,152	2,976	2,976
R-square	0.060	0.062	0.063	0.065
Mean of dep var	26.289		25.737	
St.dev of dep var	32.484		33.338	
Mean of dep var, HRS only	22.537		23.379	
St.dev of dep var, HRS only	31.617		32.773	

Note: * p<0.10, ** p<0.05, *** p<0.01

Note: Question about the probability of working at 65 asked only of those working at survey date. See also Notes to Table 1.
Source: Lusardi and Mitchell (2016).

The role of debt in women's longer work lives

The final two rows of Tables 1 and 2 speak to the issue of debt and older women's work patterns, a topic of substantial current interest. The results indicate that mortgage debt, in particular, is associated with women's greater chances both of working for pay and expecting to be working at age 65. Our estimates imply that a standard deviation rise in the ratio of mortgage debt to home value[8] would be associated with a 3.4 percentage point rise (or 5%) in younger women's expected chances of working at age 65 (Table 1). This could arise from the fact that liquidity constraints prompt older women to defer retirement so as to help repay mortgage debt. The effect is even larger, 5.5 percentage points (or 10%), for the 57–61 age group. Nonmortgage debt relative to liquid assets has a small and generally statistically insignificant effect, by contrast.

Next we draw attention to various measures of older women's debt and financial vulnerability across cohorts in Table 3. A first finding is that Baby Boomer cohorts were more likely to be indebted later in life compared to the baseline cohort (Panel 1). A second result is that the recent cohorts of older women are living with higher levels of total debt late in life (Panel 2). Third, and quite striking, is the fact that mean and median debt levels have grown substantially over time. For example, while the median debt of the HRS baseline was a little more than $15,000 for women age 51–56, this level almost tripled for the Middle Baby Boomers ($43,200; all values are in $2015). Debt levels rose even more for the women age 57–61: the EBB cohort had almost eight times as much debt as the baseline HRS cohort ($31,320 versus $4,175).

Table 3. Differences in older women's debt by type, by cohort and age group (HRS)

		p50	Mean	N			p50	Mean	N
1. Have debt (0/1)					*3. All 1ry Res Loans/1ry Res. Value >0.5 (0/1)*				
Age group 51-56	HRS	0	0.42	2,806	Age group 51-56	HRS	0	0.18	2,788
	WB	0	0.41	847		WB	0	0.24	839
	EBB	0	0.44	1,207		EBB	0	0.26	1,195
	MBB	1	0.51	1,872		MBB	0	0.32	1,860
Age group 57-61	HRS	0	0.37	2,056	Age group 57-61	HRS	0	0.11	2,052
	WB	0	0.39	699		WB	0	0.22	690
	EBB	0	0.44	1,424		EBB	0	0.28	1,414
2. Total debt ($2015)					*4. Have less than $25,000 in savings (0/1)*				
Age group 51-56	HRS	15,030	59,003	2,806	Age group 51-56	HRS	0	0.18	2,806
	WB	27,360	62,990	847		WB	0	0.20	847
	EBB	37,386	91,398	1,207		EBB	0	0.23	1,207
	MBB	43,200	98,210	1,872		MBB	0	0.33	1,872
Age group 57-61	HRS	4,175	32,976	2,056	Age group 57-61	HRS	0	0.16	2,056
	WB	23,560	68,066	699		WB	0	0.18	699
	EBB	31,320	96,701	1,424		EBB	0	0.26	1,424

Note: Total debt includes the value of mortgages and other loans on the household's primary residence, other mortgages, and other debt (including credit card debt, medical debt, etc.). All dollar values in $2015. Savings is defined as total net worth or total assets minus total debt. Source: Lusardi and Mitchell (2016).

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[8]   A standard deviation in the ratio of all primary residential loans to primary residence value is equal to 0.54 for the age 51–56 group, and 0.62 for those age 57–61.

A major explanation for the substantial expansion in debt is that households took on larger mortgages in recent years compared to the past (Panel 3 of Table 3). Mortgages (and other loans related to the primary residence) grew in absolute value and also rose as a percentage of the value of the primary residence. Thus the older HRS baseline cohort (age 57–61) neared retirement with a ratio of mortgages and loans on the value of the primary residence of 0.11, but the ratio stood at 0.28 for the Early Boomers, i.e., it more than doubled. Older women's ratio of mortgage debt to residential value has doubled from 18% to 32%, comparing the Middle Boomers to the baseline. In other words, older women will increasingly need to manage mortgage debt well into their older years.

It is also worth noting that older women are increasingly reporting themselves to be financially vulnerable, of late, compared to two decades ago. That is, only 18% of the younger HRS cohorts had less than $25,000 in savings,[9] while one-third of the MBB group was in this condition (Panel 4). In other words, higher debt levels in later life appear to be contributing to rising labor force attachment and deferred retirement among older women.

Financial fragility at older ages: Findings from the NFCS

To investigate more deeply how older women are managing their debt and how they plan for retirement, we examine the 2012 NFCS,[10] a state-by-state online survey of approximately 25,000 American adults that is representative of the U.S. population.[11] This survey covers several aspects of behavior including how people manage their resources, how they make financial decisions, what skill sets they use in making these decisions, and how they search for information when making these decisions.

Consistent with the HRS analysis, we focus on women age 51–56, and age 57–61. The empirical analysis evaluates whether older women tried to figure out how much they need to save for retirement, their perceived level of indebtedness, and their financial fragility, which relies on respondent answers to whether they could come up with $2,000 in 30 days in case of an emergency.[12]

The evidence shows that women age 57–61 were more likely to plan for retirement (or to have planned, if they had retired) than women age 51–56, but fewer than half of the older group had done so. Moreover, many women in each cohort indicated they were carrying too much debt and were financially fragile (43% of the younger and 39% of the older group). This is consistent with the HRS evidence showing high levels of debt on the verge of retirement.

The NFCS data confirm that debt turns out to be problematic for a relatively large subset of women. Indeed, 15–20% percent of female homeowners of both age groups reported being underwater, owing more on their homes than they thought they could sell them for. As far as non-mortgage debt is concerned, many older women do not pay off credit card balances in full, engaged in many costly credit card behaviors and in high-cost borrowing, and had unpaid medical bills. These findings underline that many older women are exposed to illiquidity and/or problems in debt management.

The NFCS also included five questions to assess respondents' levels of financial literacy. Overall, we find that financial literacy is rather low: A large fraction of women do not know simple financial concepts, such as the workings of interest rates, inflation, risk diversification, interest payments on a mortgage, and basic asset pricing.

Multivariate regression analysis

We perform a multivariate regression analysis on our indicators of retirement planning, indebtedness, and financial fragility. Our first variable of interest indicates whether respondents ever tried to figure out how much they need to save for retirement, which is an important question in light of prior research showing that planners accumulate far more retirement wealth than non-planners. In addition

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9. Savings is defined as total net worth or total assets minus total debt.

10. The data are publicly available at http://www.usfinancialcapability.org/. FINRA Investor Education Foundation commissioned the NFCS in 2009 in consultation with the U.S. Department of the Treasury and the President's Advisory Council on Financial Literacy. The Study is slated to be repeated triennially.

11. In our analysis, data are weighted to be representative of the national population as a whole in terms of age, gender, ethnicity, and education, based on the Census Bureau's American Community Survey. However, breakdowns of sub-populations may not necessarily be representative.

12. This figure is consistent with the proxy used in the HRS data, i.e., having less than $25,000 in savings.

to the regressors used in the HRS analysis, the NFCS allows us to control for whether respondents experienced a large and unexpected drop in income the previous year, and the respondent's level of financial literacy (defined as the number of correct answers to the five financial literacy questions). Results are reported in the first column of Table 4.

Table 4. Determinants of having tried to figure out how much to save for retirement, having too much debt, and not being able to come up with $2,000 (NFCS)

A. Women age 51-56

Variables	(1) Retirement planning	(2) Having too much debt	(3) Financial fragility
Age	0.004	-0.008	-0.006
	(0.006)	(0.030)	(0.006)
Black	-0.021	0.453***	0.099***
	(0.033)	(0.159)	(0.030)
Hispanic	-0.068**	-0.456***	-0.010
	(0.034)	(0.164)	(0.032)
Asian	-0.050	-0.397	-0.070
	(0.058)	(0.284)	(0.054)
Others	-0.063	-0.193	-0.039
	(0.068)	(0.328)	(0.063)
Single	0.079**	-0.197	-0.063*
	(0.035)	(0.174)	(0.033)
Separated or divorced	0.011	-0.237*	0.005
	(0.029)	(0.140)	(0.027)
Widow	0.029	0.022	-0.126***
	(0.050)	(0.239)	(0.046)
Number of dependent children	-0.027**	0.121**	0.023**
	(0.012)	(0.056)	(0.011)
High school	0.046	-0.042	0.107***
	(0.042)	(0.212)	(0.039)
Some college	0.148***	0.169	0.034
	(0.044)	(0.221)	(0.041)
College+	0.191***	0.152	0.058
	(0.048)	(0.238)	(0.045)
$15–25K	0.098**	-0.038	-0.155***
	(0.040)	(0.197)	(0.037)
$25–35K	0.097**	-0.161	-0.195***
	(0.044)	(0.213)	(0.040)
$35–50K	0.130***	-0.179	-0.364***
	(0.041)	(0.200)	(0.038)

Table 4. Determinants of having tried to figure out how much to save for retirement, having too much debt, and not being able to come up with $2,000 (NFCS)

$50–75K	0.227***	-0.072	-0.485***
	(0.042)	(0.206)	(0.039)
$75–100K	0.264***	-0.319	-0.535***
	(0.046)	(0.226)	(0.043)
$100–150K	0.365***	-0.693***	-0.677***
	(0.048)	(0.236)	(0.044)
$150K+	0.440***	-1.293***	-0.724***
	(0.056)	(0.275)	(0.052)
Income shock	-0.025	0.779***	0.205***
	(0.022)	(0.109)	(0.021)
N correct answers finlit questions	0.061***	-0.105**	-0.021***
	(0.008)	(0.042)	(0.008)
Constant	-0.253	4.834***	1.041***
	(0.330)	(1.601)	(0.306)
Observations	1,844	1,813	1,844
R-squared	0.194	0.082	0.326

Table 4. Determinants of having tried to figure out how much to save for retirement, having too much debt, and not being able to come up with $2,000 (NFCS)

B. Women age 57-61

Variables	(1) Retirement planning	(2) Having too much debt	(3) Financial fragility
Age	0.023**	-0.075*	0.002
	(0.009)	(0.042)	(0.008)
Black	0.001	0.080	0.116***
	(0.036)	(0.167)	(0.032)
Hispanic	0.009	0.086	0.160***
	(0.049)	(0.228)	(0.043)
Asian	-0.064	0.187	0.122**
	(0.070)	(0.332)	(0.062)
Others	-0.025	0.018	0.101
	(0.091)	(0.426)	(0.081)
Single	-0.052	0.513***	-0.013
	(0.043)	(0.198)	(0.038)
Separated or divorced	-0.032	0.304*	0.040
	(0.036)	(0.165)	(0.032)

Table 4. Determinants of having tried to figure out how much to save for retirement, having too much debt, and not being able to come up with $2,000 (NFCS)

Widow	0.049	0.675***	0.065
	(0.050)	(0.231)	(0.044)
Number of dependent children	-0.024	0.330***	0.034**
	(0.017)	(0.079)	(0.015)
High school	0.098*	-0.182	-0.159***
	(0.057)	(0.262)	(0.050)
Some college	0.151**	-0.269	-0.202***
	(0.059)	(0.274)	(0.053)
College+	0.225***	-0.370	-0.201***
	(0.064)	(0.295)	(0.057)
$15–25K	0.087*	0.250	-0.092**
	(0.053)	(0.242)	(0.047)
$25–35K	0.212***	-0.078	-0.224***
	(0.051)	(0.238)	(0.045)
$35–50K	0.204***	-0.116	-0.360***
	(0.052)	(0.242)	(0.047)
$50–75K	0.251***	-0.173	-0.443***
	(0.053)	(0.244)	(0.047)
$75–100K	0.259***	-0.356	-0.504***
	(0.062)	(0.290)	(0.055)
$100–150K	0.373***	0.017	-0.607***
	(0.064)	(0.299)	(0.057)
$150K+	0.469***	-0.845***	-0.590***
	(0.066)	(0.306)	(0.059)
Income shock	0.050*	0.685***	0.153***
	(0.028)	(0.131)	(0.025)
N correct answers finlit questions	0.044***	-0.083*	-0.029***
	(0.010)	(0.049)	(0.009)
Constant	-1.398***	8.394***	0.760
	(0.541)	(2.494)	(0.480)
Observations	1,332	1,312	1,332
R-squared	0.153	0.087	0.307

Note: Coefficient estimates from analysis reported in the text, standard errors in parentheses. Retirement planning coded as 1 for those who tried to figure out how much they need to save for retirement. Having too much debt ranges from 1 to 7, where 1 means I strongly disagree and 7 I strongly agree with the statement "I have too much debt right now." Financial fragility coded as 1 for those certain or probably could not come up with $2,000. Explanatory variables include age, race/ethnicity, marital status, number of financially dependent children, education, income, having experienced an income shock, and an indicator of financial literacy. Baseline categories: White, married, less than high school education, and income lower than $15,000. Weighted data. *** p<0.01, ** p<0.05, * p<0.1. Source: Lusardi and Mitchell (2016).

Both Panels A and B in Table 4 confirm that higher education and income are strongly positively correlated with retirement planning, among both age groups. The number of dependent children is negatively associated with the probability of having tried to plan for women age 51–56 but not for the older group, suggesting some potential for a "catch-up" after children leave home. Financial literacy is an important determinant of financial planning, too: Being able to answer one additional financial literacy question correctly is associated with a 4–6 percentage point higher probability of planning for retirement.

Since debt levels are not available in the NFCS, we use responses to the statement "I have too much debt right now" to proxy for individuals' concerns about their debt (Column 2 of Table 4). Once again, we find that women reporting having too much debt are those with more dependent children and/or those who experienced an unexpected income drop: Those who had such a shock were 68–78 percentage points more likely to state that they were over-indebted. And once again, the more financially literate were less likely to report they had excessive debt (answering one more financial literacy question decreases the probability of "too much debt" by 8–10 percentage points). In other words, shocks do contribute to debt concerns for women on the verge of retirement, but people who have the capacity to manage their resources are more likely to stay out of debt as they head into retirement.

We turn next to financial fragility, which is measured by the confidence in covering an unexpected mid-size expense in a month time. Column 3 of Table 4 shows that having more dependent children and having experienced an income shock are positively and significantly associated with the probability of being financially fragile. Moreover, those with higher income and those who are more financially literate are associated with a lower probability of being financially fragile.

Conclusions and implications

Our research goal was to contribute to the literature by examining cohort changes in older women's work plans and debt burdens using the HRS, as well as the links between financial literacy and debt stresses in the NFCS. Our results point to the need for boosting older women's retirement security and the important role of managing debt later in life. We report several novel findings. First, we show that each cohort of older women worked more currently, and intended to work more in the future, than our HRS baseline surveyed in 1992. The mean probability of being at work for the baseline HRS sample age 51–56 when surveyed was 64.9 percent, and 54.8 percent for those age 57–61. All subsequent cohorts displayed higher rates of work, particularly for the age 51–56 cohort. For instance, younger WB women age 51–56 had about a 7 percentage point greater labor force attachment, or around 11% higher, than the HRS reference cohort. Early Boomer women age 51–56 were 5.3–5.7 percentage points more attached to the labor force, or 8% more than the HRS, while the older (age 57–61) of Early Boomers had participation rates of 4.7–6.2 percentage points higher, or 8–11% more than the HRS reference group. Older Early Boomers had participation rates of 4.7–6.2 percentage points higher, or 8–11% more than the HRS reference group. The younger Mid-Boomers also were working more than the reference group, with 3.8–4.5 percentage point greater employment rates, or 6–7% versus the HRS reference cohort.

Second, when we compare differences in older women's self-reported expected chances of working at older ages, again we find evidence that more recent cohorts of older women anticipate working longer. For the baseline HRS cohort, 22.5 percent of the younger age group and 23.4 of the older age group intended to still work at age 65. By contrast, both the Early and Middle Baby Boomer cohorts were significantly more likely to say they intended to work at age 65. Early Boomers believed they had a 4–5 percentage point higher chance of working than the HRS cohort (on a base of about 26%), and the Middle Boomers were even more likely to be working for pay at age 65 compared to the HRS reference group. These patterns confirm that continued work and delayed retirement is becoming more prevalent for older women over time.

Third, when we explore explanations for delayed retirement among older women, significant factors included having more education, more marital disruption, being in better health, and having had fewer children than prior cohorts. Household finances also appeared to be playing a key role, in that older women today have more debt than previously, and they are more financially vulnerable than in the past. As an example, we showed that a standard deviation increase in the ratio of

mortgage debt to home value was associated with a 3.4–5.5% rise in women's anticipated probability of working at age 65. In large part this can be attributed to having taken on larger residential mortgages due to the run-up in housing prices over time and lower down payments, as well.

Our results using the NFCS are consistent with the HRS evidence, but the richer set of information contained in this survey add new insights to the results. For instance, we found that women who were more financially literate were more likely to plan for retirement, and were less likely to report excessive debt and to be financially fragile. Moreover, the number of financially dependent children and unexpected

large income shocks also played an important role. Overall, these findings speak to the important role of managing finances well later in life, including debt.

Work to date has been mainly descriptive rather than causal, but we are well aware that planning, saving, and retirement decisions are all made in a life cycle context. Accordingly our future research will explore ways to identify how financial literacy, planning, and debt management can help drive decision-making at older ages which can be conducive to retirement security.

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