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Abstract

We analyze older individuals' debt and financial vulnerability using data from the Health and Retirement Study (HRS) and the National Financial Capability Study (NFCS). Specifically, we examine three different cohorts (individuals age 56–61) in different time periods, 1992, 2004 and 2010, in the HRS to evaluate cross-cohort changes in debt over time. We also draw on data from two waves of the NFCS (2012 and 2015) to gain additional insights into debt management and the capacity of older individuals to shield themselves against shocks. Our goal is to assess how the financial position of older individuals has evolved over time, along with the potential consequences for retirement security. We find that more recent cohorts have taken on more debt and face more financial insecurity, mostly due to having purchased more expensive homes with smaller down payments. In addition, they are more likely to have engaged in expensive borrowing practices. Factors associated with better debt outcomes include having higher income, more education, and greater financial literacy; those associated with financial fragility include having more children and experiencing unexpected large income declines. Thus shocks do play a role in the accumulation of debt close to retirement. Nevertheless, it is not sufficient to have resources: people also need the capacity to manage those resources, if they are to be financially secure heading into and after retirement.

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Debt and Financial Vulnerability on the Verge of Retirement

Access to financial credit has become much easier and opportunities to borrow have expanded greatly in the United States over time. Yet research shows that many individuals lack the financial knowhow to manage the complex new financial products increasingly available in the financial marketplace.¹ How people borrow and manage debt has become of concern, given the evidence on overindebtedness documented of late.² As a consequence, older persons today may be much more likely to enter retirement age in debt compared to decades past. Our goals in the present paper are to evaluate the factors that are associated with older individuals' debt and debt management practices, and to determine whether (and how) these patterns have changed over time.

Accordingly, we evaluate older individuals' debt patterns using the Health and Retirement Study (HRS) and the National Financial Capability Study (NFCS). Using the HRS, we compare three different cohorts of people on the verge of retirement (age 56-61) at three different time periods: 1992, 2004 and 2010. We study the determinants of debt and assess how debt among older persons has evolved. We also discuss the potential consequences of our findings regarding indebtedness on the verge of retirement.³ Using the 2012 and 2015 NFCS, we then explore detailed information on debt and debt management among the same age group, highlighting the many signs of financial distress among individuals who should be close to the

¹ See for instance Lusardi and Mitchell (2007, 2008, 2011a, b, c, 2014) and Lusardi, Mitchell, and Curto, 2014).

² E.g., Lusardi and Tufano (2015), Lusardi and De Bassa Scheresberg, (2013), and Lusardi and Mitchell (2016).

³ Our prior work examined saving and asset building among those age 50+ (Lusardi and Mitchell, 2007, 2011a).

peak of their wealth accumulation. We are also able to examine the determinants of financial fragility and overindebtedness on the cusp of retirement.

Our focus on debt is important for several reasons. First, debt generally grows at interest rates higher than those which can be earned on investments. For this reason, debt management is critical for those seeking to grow and manage their retirement saving. Second, families have gained easier access to home mortgages and they can also access home equity lines of credit more readily than in the past. Relatedly, they also need smaller down payments to buy homes than in years gone by. In tandem, as sub-prime mortgages proliferated, credit also became increasingly accessible to consumers with low credit scores, little income, and few assets. Consumer credit via as credit card borrowing has also become more accessible, and this type of unsecured borrowing has increased over time. Third, alternative financial services including payday loans, pawn shops, auto title loans, tax refund loans, and rent-to-own shops, have proliferated in many states (Lusardi and de Bassa, 2013). Fourth, a focus on debt may help to identify financially fragile families most sensitive to shocks and unable to afford a comfortable retirement. Last, the recent financial and economic crisis was largely driven by borrowing behavior, so understanding debt may be informative to help avoid a repeat of past errors.

Prior Literature

The massive debt run-up among American households has been noted in previous studies. Total household debt rose quickly before the financial crisis, doubling between 2000 and 2008, and peaking at \$12.68 trillion in the third quarter of 2008. It still remains high at \$12.25 trillion as of the first quarter 2016 (Federal Reserve Bank of New York 2016). Moreover, using Census bureau data from 2000 to 2011, Vornovytksyy, Gottschalck, and Smith (2011) showed

that individuals age 55-64 and 65+ are the groups experiencing the largest relative increases in household debt. Specifically, Americans age 55-64 saw a 64 percent increase in median household debt between 2000 and 2011, and median household debt more than doubled among those age 65+.

Given these findings, various policy analysts have expressed concern that debt is rising to worrisome levels in America.⁴ Even the media has taken notice, with articles exhorting people to pay down their debt as they near retirement (e.g., Derousseau, 2016). Several authors have provided useful insights by documenting the types of debt held at later stages in the life cycle. For example, Bucks et al. (2009) showed that over half (55%) of the American population age 55–64 carried home mortgages, and about the same fraction (50%) had credit card debt. Among those age 65–74, almost half had mortgages or other loans on their primary residences, over one-third held credit card debt, and one-quarter had installment loans. In the same age group, two-thirds held some form of debt.

Others have noted that managing debt and other financial matters are problematic for many older adults. For instance, Agarwal et al. (2009) reported a U-shaped age pattern of financial decision-making quality in ten financial areas mostly related to debt. Fees and interest paid tend to be lowest for those in their early 50s and rise thereafter; moreover, older individuals pay some of the highest costs for these services. Furthermore, it has been suggested that debt drives when workers retire or start claiming their Social Security benefits (Butrica and Karamcheva, 2013).

Of late, there has also been an increase in the proportion of older Americans filing for bankruptcy. Pottow (2012) argued that the age 65+ demographic has been the fastest-growing in terms of bankruptcy filings, which stood at 2% in 1991 but rose over three times by 2007. Credit

⁴ For a few recent examples see AARP (2013), Cho (2012), Copeland (2013), Pham (2011), and Securian (2013).

card interest and fees were the most-cited reason for bankruptcy filings by such older people, with two-thirds of them providing these reasons. Data from the 2009 NFCS and the TNS Debt Survey showed that people age 55+ held widespread credit card debt and paid more in late payments and for exceeding their credit limits, despite the fact that they should have been at the peak of their wealth accumulation profiles (Lusardi, 2011; Lusardi and Tufano, 2009a,b). These studies also detected a link between debt management and financial literacy. Specifically the least financially literate regularly incur high fees and use high-cost borrowing. The least financially knowledgeable also reported that their debt loads were excessive and they often could not judge their debt positions (Lusardi and Tufano, 2009a). This group was also more likely to borrow from their 401(k) and pension accounts (Lu et al., forthcoming; Utkus and Young, 2011), and it used high-cost methods of borrowing such as payday loans (de Bassa Scheresberg and Lusardi, 2013).

Some recent literature has sought to understand the reasons for this rapid increase in debt among American adults. One commonly-cited culprit has been the rapid rise in housing prices, paired with the growth of mortgages (Christelis, Ehrmann, and Georgarakos 2013; Dynan and Kohn 2007; Mian and Sufi 2011). Another research finding is that technological change in the lending market induced risk-based pricing, reduced distribution costs, and other innovations which made it easier to for households to borrow (Dynan 2009; Edelberg 2006). Meanwhile, a separate strand of research has argued that improvements in the technology of persuasion through nonlinear contracts and uninformative sales tactics have “shrouded” customers’ understanding of financial contracts and, in turn, boosted total amounts borrowed and/or the costs of borrowing (Gabaix and Laibson 2006; Agarwal and Evanoff 2013; Bertrand et al. 2010; Gine, Martinez, and Keenan 2014; Gurun, Matvos, and Seru 2016). Still another strand of

literature has cited the impact of income inequality as an explanation for the rapid rise in debt (Kumhof, Ranciere, and Winant 2015).

While this literature does offer useful insights regarding the overall rise in debt, much less has been done regarding older Americans' debt patterns. Moreover, the little research that does exist has not looked at the determinants of indebtedness close to retirement. For this reason, in what follows, we contribute to the literature by examining two new empirical analyses. First, using the HRS, we compare three different cohorts of people on the verge of retirement (age 56-61) in three different time periods: 1992, 2002 and 2010. This permits us to document changes over a long period of time, both before and after the financial crisis and Great Recession. Second, we examine older individuals' debt patterns using the 2012 and 2015 NFCS, focusing on how older households manage their debt and the possible determinants for the increase in household debt.

Evidence from the HRS

The HRS is a panel dataset nationally representative of the US population, with both longitudinal/panel and cross-cohort features. Using this rich information, we have assembled asset and debt information for three cohorts of people age 56-61 when surveyed. Specifically, we focus on those interviewed in the 1992 HRS *Baseline* group, those in the 2004 *War Babies* group, and the 2010 *Early Boomers* group.⁵ For each cohort we have comparable data on assets

⁵ The HRS Baseline cohort was born 1931 to 1941; the War Babies group was born 1942 to 1947; and the Early Boomer group was born 1948 to 1953. For brevity, we sometimes refer to these three groups below as the 1992, 2004, and 2010 waves, respectively, and in all cases we focus on those who are 56-61 years old. We also note that the survey included different numbers of respondents per cohort, since the 1992 HRS survey was substantially larger than the subsequent groups. Results reported below use weighted data and all dollar values are expressed in \$2012.

and debt. The difference in time periods allows us to examine how the financial crisis affected the amount of debt that persons age 56-61 held as they neared retirement.

Cross-Sectional Results

Table 1 describes the evolution of total debt across three cohorts.⁶ Total debt is measured in the HRS as 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.). The percentage of people age 56-61 arriving on the verge of retirement with debt rose from 64% in 1992, to 71% by 2010. Additionally, the value of debt held rose sharply over time. While the median amount of debt in 1992 was about \$6,600, median debt more than quadrupled by 2004 and almost quintupled by 2010 (respectively \$30,400 and \$31,600, all in \$2012). We also see that the debt distribution appears to have changed across cohorts. The top quartile of the debt distribution held around \$50,000 in debt in 1992 (p75), while in the two later cohorts, this same quartile of the population held more than double that amount, at \$103,000 and almost triple, \$143,200, by 2010. Additionally, by 2010, the top 10 percent of the debt distribution (p90) reported debt of over \$263,000, more than double of what had been seen for this same age range of household 18 years earlier. Depending on the interest rate charged on this debt, these families would be very likely to face sizeable monthly debt repayments, and to carry debt well into retirement.

Table 1 here

One factor driving this important rise in debt across time is that the value of peoples' primary residence mortgages was substantially larger for the more recent cohorts. For instance in

⁶ The analysis attributes household assets and debt to each age-eligible individual in the HRS sample. This in effect implies that all household assets and liabilities influence married and single respondents when they make economic decisions. An alternative approach might seek to allocate assets and liabilities between members of a couple, but this is difficult if not impossible, and it would not affect the debt ratios examined below.

the second panel of Table 1, we see that the percentage of near-retirement individuals having mortgage debt has risen by almost nine percentage points, from 41% in 1992 to 49% by 2010. Moreover, mortgage debt amounts grew, as well. For instance, looking at the third quartile (p75) of the mortgage debt distribution in the whole sample (not conditional on having a mortgage), we see that mortgage debt more than tripled from 1992 to 2010. Over the same period, the third panel shows that the percentage of respondents with loans on their primary residence grew from 10% to 17%, an increase of 70%. Here too, peoples' mortgage values rose. Other mortgages (e.g., on secondary residences) also became more prevalent, as can be seen from the 4th panel, though relatively few (4-6%) held this form of debt.

The fifth panel of Table 1 indicates that other debt for persons on the verge of retirement also rose across cohorts, from 37% for the earliest group, to 42% for the most recent cohort. The debt distributions also became more skewed over time. For instance, the 90th decile in the distribution of other debt held about \$8,000 in 1992, while the same decile held over \$17,000 in debt by 2010 and \$21,000 by 2010. Because this category includes non-collateralized debt which tends to charge high interest rates, our findings imply that older Americans are increasingly likely to face high monthly payments to service their debt.⁷ Our concern regarding these indebtedness trends is that older households' debt and financial situation will deteriorate when short-term interest rates start to increase.

Additional insight into older adults' financial situations is provided by the ratios of debt to assets shown in Table 2. Here the total assets measure includes all checking and savings accounts, CDs, money market funds, T-bills, bonds/bond funds, stocks/stock market funds,

⁷ For example, it takes a monthly payment of \$547 to pay off a debt of \$21,000 charging an annual percentage rate (APR) of 20% in five years. Similar findings are reported by Butrica and Karamcheca (2013).

IRAs, 401(k)s/and Keoghs, the value of primary residence and other real estate, vehicles, business equity, and other savings.⁸ We also consider the ratio of housing debt (including home mortgages and other home loans) to the value of the house. And last, we consider the ratio of other debt to the value of liquid assets, where the latter are defined as the sum of checking and savings accounts, CDs, money market funds, T-bills, bonds/ bond funds, and stocks/stock market funds. These ratios allow us to evaluate older adults' leverage ratios, and to assess how much of their home loans they have paid off already. This, in turn, allows us to examine whether or not people will enter retirement having to make monthly mortgage payments.

Table 2 here

Comparing Table 2 with Table 1, we see that it is not just the *value* of debt that has increased over time, but the *proportion of debt to assets* as well. Thus older Americans today are much more leveraged on the verge of retirement than they were in 1992. For example, the first panel of Table 2 shows that the median value of total debt over total assets was rather small in 1992, i.e., only about 4%, but this ratio rose to 11% by 2004 and 15% as of 2010.⁹ Moreover, a sizable fraction of the 2010 cohort had ratios over 50% and some held debt worth as much as 90% of total assets.

One of the reasons for this observed increase in leverage is that people nearing retirement accumulated more debt on their homes over time. The second panel of Table 2 shows that many Baby Boomers nearing retirement were far more leveraged than prior waves: at the median, the ratio of primary mortgage to home value rose from 5% to 30%, and the top ten percent of the

⁸ We use the measure of wealth provided in the RAND HRS, with wealth values are winsorized at the top and bottom 0.5%.

⁹ Ratios are defined only for those who have a strictly positive value of total assets.

group went from 64% to 94%. This means that Boomers on the verge of retirement will need to continue servicing their mortgages well into retirement.

The third panel of Table 2 indicates that one reason why mortgage debt rose was that recent cohorts purchased more expensive homes than their predecessors. For instance, the median HRS baseline respondent had homes worth about \$140,000, and by 2004, the median household of the same age owned a home worth \$182,000 (in constant dollars). Home values for the median Baby Boomer were even higher, at \$211,000 in 2010, even with the collapse of the housing market in the Great Recession which sliced home values by half in some states. The trend to buying more expensive homes also meant that the percentage of total assets accounted for by the home was larger for more recent cohorts. Thus at the median of the debt ratio distribution, the 1992 cohort held about 46% of their total assets in their primary residences, but the percentage for the Early Boomers was 50%. In our previous work, we had documented the great importance of housing in Baby Boomers' wealth holdings (Lusardi and Mitchell, 2007).

The fifth panel of Table 2 indicates that non-mortgage debt also rose as a percentage of liquid asset values, and for some people, it rose a great deal (we note that Table 2 reports these ratios conditional on the respondent having strictly positive liquid assets). A much higher proportion of Boomer households held such debt worth the same as or more than their liquid assets, and at the mean the ratios rose by nine times. Again, this implies that older persons must increasingly borrow or sell off other (less) liquid assets to pay off this non-collateralized debt. It is also interesting that a large fraction of respondents had liquid assets even while carrying debt. Since debt is likely to incur higher interest rates than bank accounts, some families may be overlooking opportunities to better manage their balance sheets.

Next we turn to several *financial vulnerability indicators*, to permit an assessment of how individuals fare as they near retirement.¹⁰ Older adults close to retirement would be anticipated to be at or near at the peak of their wealth accumulation process, and one important decision after retirement is how to decumulate wealth. As noted above, however, recent cohorts will also need to manage and pay off their rising debt burdens in retirement. This is made more difficult by the fact that older persons often move some of their assets to fixed income assets. In addition, if equity returns are lower in the future than they were in the past (as many predict), it will be important for current older cohorts to manage assets and liabilities wisely and pay off some of their higher-interest debt first. Accordingly, it appears that new cohorts entering retirement will need to ensure that their income and asset drawdowns suffice not only to cover not just their target consumption streams, but also to service their mortgage and other debt during retirement. This is made increasingly complex by older workers' lack of flexibility in adjusting mortgage payments apart from selling their homes, moving to smaller homes, or engaging in reverse mortgages (which many older cohorts in the past seemed unwilling to do, at least until late in the life cycle; Venti and Wise, 1990, 1991; Hurd, 1990).

Table 3 underscores the conclusion that the prevalence of financial vulnerability has risen over time. Fewer than 10% of the HRS baseline cohort stood on the cusp of retirement with large debt to asset ratios (>0.5), but by 2010, more than one-fifth (23%) of them did so, as shown in the first panel.¹¹ Moreover, this pattern was in place prior to the financial crisis, since the ratio of debt to assets was already higher in 2004 (16%) compared to 1992. As noted earlier, part of this increase in debt can be attributed to the rise in home mortgages, which led to recent cohorts

¹⁰ The present analysis excludes pension and Social Security wealth. While these are important components of total wealth, in these cohorts, most still have defined benefit plans which often prohibit taking a lump sum.

¹¹ These values refer to only those with strictly positive assets.

nearing retirement with far higher ratios of mortgage debt to home values. In particular, this explains why the collapse of the housing market starting in 2007 exacerbated the role of mortgages and other loans in driving near-retiree debt.

Table 3 here

The second panel of Table 3 shows that only about 16% of the HRS baseline group had loan/value ratios on their primary residences greater than 0.5, compared to almost 35% of the War Babies and 26% of the Early Boomers. The third panel confirms that non-mortgage debt to asset ratios also rose rapidly over time. Accordingly, Early Boomers are likely to need to dedicate some of their liquid wealth to pay off debt in retirement, and hence this recent cohort is more exposed to the negative consequences of possible interest rate increases than were their earlier counterparts.

The last panel in Table 3 focuses on measured changes in the prevalence of very low wealth, defined here as having less than \$25,000 in savings. We focus on this cutoff as it is about half of median household income, and it is not a very high level in the event of an old-age shock to health or some other unpleasant surprise. Our results show that around 15% had such low net worth in the HRS baseline and in 2004, while 25% of the 2010 cohort was in this condition. Accordingly, it seems clear that over time, savings have shrunk and debt has ballooned, for older Americans on the verge of retirement.

Multivariate Analysis

To further examine the factors associated with financial fragility among older Americans, Table 4 summarizes results from a multivariate regression analysis on the four outcomes just discussed overall, and separately by marital status. That is, Panel A shows for the full sample

which factors are associated with having (a) a total debt/asset ratio >0.5 , (b) a ratio of primary residence loans to home value >0.5 ; (c) other debt/liquid asset ratio >0.5 ; and (d) total net worth $< \$25,000$. Panel B focuses on the same outcomes for those married/living with a partner at the time of the survey, and Panel C includes only the nonmarried subset.

Table 4 here

Several interesting findings obtain in the overall group (Panel A). First, and confirming our earlier tabular results, all of the cohort indicators are statistically significant and positive for all four dependent variables. This means that both the War Babies and Early Boomers were more likely to be in debt and be financially fragile relative to the reference group, the HRS Baseline cohort. In other words, our directional conclusions from Tables 1-3 are supported even after including controls for potential cross-cohort differences in socio-demographic factors (we held constant respondents' age, marital status, sex, number of children ever born, race, educational attainment, income, and whether they reported being in poor health). Moreover, results show that for all three debt-to-asset measures, the Early Boomers held significantly more debt compared to the War Babies – around double - and were significantly more financially fragile than – six times - the War Babies respondents of the same age when surveyed.

We mention in passing that some of the socio-demographic controls we include in Table 4, panel A, are also significantly associated with respondents' financial fragility. For instance, being unmarried, nonwhite, less educated, and having lower income, rendered respondents much more likely to be financially fragile. Additional factors significantly associated with greater fragility include having had more children and being in poor health.

Panels B and C have a similar story to tell, in that both single and partnered Early Boomers were significantly more fragile than their counterparts in the 1992 Baseline HRS

cohort. Thus coupled respondents in the Early Boomer cohort were more vulnerable than prior married cohorts, while singles were also at greater risk (though slightly less so). Additionally, it is of interest to examine associations with specific correlates. For instance, poor health was a strong predictor of high debt ratios for the full sample in Panel A (in particular, non-mortgage debt ratios) and low wealth holdings close to retirement, perhaps because of medical debt. This association was quantitatively more important for singles than for couples, as can be gleaned from a comparison of Panels B and C. Similarly, singles did better when they had higher income compared to those with partners. The role of education is also worth highlighting: compared to high school dropouts, singles having college degrees were markedly wealthier and less likely to have high levels of debt.

Evidence from the NFCS

We turn next to an analysis of the 2012 and 2015 NFCS surveys. These data nicely complement the HRS analysis in two ways. First they provide quite recent information, and second, they include a rich set of questions about debt and debt management unavailable in other surveys.¹² The 2012 wave can readily be aligned with the 2010 wave of HRS respondents in the same age bracket to show that the two data sources yield similar conclusions.¹³ The 2015 NFCS provides more recent information along with additional questions about debt and indicators of retirement preparedness.¹⁴

¹² For information on the NFCS, see Lusardi (2011).

¹³ Nevertheless, this survey does not report information about debt levels.

¹⁴ Even though the age group does not align, as age was not a continuous variable in the 2009 NFCS, the data from the 2009 NFCS wave align well with data from the HRS. For example, comparing respondents 57–62 year old in 2009 with the 2008 HRS cohort (the cohort closer to the NFCS data in terms of time) confirms that statistics are rather similar between surveys. For example, similar to the 2008 HRS cohort, more than half of NFCS respondents who own their

We examine respondents in the same age group as in the HRS data, in both the 2012 and 2015 waves of the NFCS. We do so to focus on the most recent cohort of persons on the verge of retirement as above, but several years after the collapse of the housing market and their financial crisis.

Table 5 provides several indicators of both debt and financial distress. Once again, we see that mortgage debt and other debt were problematic for many near-retirees. In 2012, about 17% of homeowners (8% of respondents) reported being underwater, owing more on their homes than they thought they could sell them for. Outcomes improved by 2015, but 9% of homeowners were still underwater. Moreover, almost one in five near-retirees had been late with mortgage payments at least once in 2012, and about one in ten had been late with mortgage payments in 2015. About 3% had faced a home foreclosure in 2012.¹⁵

Table 5 here

As far as non-mortgage debt is concerned, many near-retirees in both waves reported that they did not pay off credit card balances in full (if they had them); more than half of credit card holders carried credit card debt in 2012, a percentage that rose to 46.5% in 2015. About one-third of credit card holders engaged in costly borrowing behaviors such as paying only the minimum due or using the card for cash advances. They were also charged fees for late payment or exceeding the limits. About 23% of near retirees had unpaid medical bills in 2012, a percentage that fell by 2015, yet 19.4% still had unpaid medical bills in 2015. We reported these statistics as

home get close to retirement carrying a mortgage on their home. The NFCS data also show that down payments have been decreasing over time; those who recently bought homes had put down only 5 or 10 percent. Moreover, the 2009 NFCS shows that many older respondents pay the minimum only on their credit cards and that a sizeable proportion have made use of high-cost methods of borrowing, such as payday loans, pawn shops, etc. For more information, see Lusardi and Mitchell (2013).

¹⁵ This information is not available in the 2015 NFCS.

delaying payments is a form of credit. Additionally, some borrowing uses very high-cost methods such as rent-to-own stores, pawn shops, payday loans, and auto title loans that normally charge very high interest rates. Nearly one-fifth of the age 56-61 group reported having engaged in these methods of borrowing. Turning to other indicators, 6-7% of those who had retirement accounts borrowed on them, and 5-6% took a hardship withdrawal. These findings underscore the point that many older Americans are exposed to illiquidity and face problems in debt management.

In the last two rows of Table 5, we examine two indicators of financial distress illustrate near-retirees' perception of their financial situation. While the NFCS does not report respondent assets and debt values, the survey did ask respondents to evaluate their debt and also their capacity to deal with shocks. Specifically, the following question was asked to measure peoples' perceptions of their debt position:

How strongly do you agree or disagree with the following statement: I have too much debt right now. Please give your answer from a scale from 1 to 7, where 1= strongly disagree, 7= strongly agree and 4= neither agree nor disagree. *Possible answers:* 1-7; don't know, prefer not to say.

A second way we can evaluate households' financial positions probes how people judge their ability to deal with a financial shock.¹⁶ The wording of the question was as follows:

How confident are you that you could come up with \$2000 if an unexpected need arose within the next month? *Possible answers:* I am certain I could come up with the full \$2,000, I could probably come up with \$2,000, I could probably not come up with \$2,000, I am certain I could not come up with \$2,000, don't know, prefer not to say.

The \$2,000 amount was selected to represent a medium-sized shock such as having a car or house repair, or an out-of-pocket medical bill. This question is particularly informative because,

¹⁶ This approach was piloted by Lusardi, Schneider, and Tufano (2011).

in other research we have found that it is related to having precautionary savings and to households' borrowing capacity and debt situation.

As described in the last two rows of Table 5, when asked to evaluate their debt, about 40% indicated they had too much debt in 2012 (having values of 5, 6, or 7), and the percentage decreased only slightly in 2015, to 36%. As shown in Figure 1, the proportion of individuals saying they had too much debt is hump-shaped with age, yet it remains quite high among the group nearing retirement. Accordingly, continuing to manage and paying down debt will surely be required for many people during retirement.

Table 5 also indicates that about 33-35% of the age 56-61 respondents stated they probably could not/were certain they could not come up with \$2,000 in a month's time. Despite the fact that one might expect this age group to be at the peak of its wealth accumulation, in fact many respondents felt they had little or no ability to shield themselves against financial shocks. The age profile in Figure 1 fragility declines initially with age, but it increases again in mid-life - - perhaps because of the child-related expenses -- and it declines again later in life. As for debt, however, financial fragility is still high close to retirement.

Table 6 reports additional information useful in gauging retirement readiness as well as debt and financial fragility. About 40% of these older respondents were saving, but it is worrisome that fewer than half of the older respondents had ever tried to figure out how they needed to save for retirement. This is indicative of problems to come, as in our previous work we showed that planners are much more likely to have retirement wealth; moreover, those who plan arrive at retirement with much higher wealth than do non-planners (Lusardi and Mitchell 2007, 2009, 2011b,c, 2014). It is thus not surprising that so many of these older respondents (56.8%)

were worried about running out of money in retirement, a new question added to the NFCS in 2015.

Table 6 here

Multivariate Regression Analysis

Table 7 explores the NFCS datasets in more detail using a multivariate analysis of debt and financial fragility indicators. As noted above, respondents were asked if they thought they had too much debt (the indicator goes from 1 to 7 for the question), and we use this variable as a proxy of problems with debt (in place of the ratios we developed for the HRS). We also use an indicator equal to 1 for those who said they could not (probably or certainly) come up with \$2,000 in an emergency within a month. We explore variation in these indicators using the same socio-demographic controls used with the HRS resurveys (age, marital status, number of financially dependent children, gender, race and ethnicity, education, and income). In addition, we are able to include an indicator for whether respondents said they experienced a large and unexpected drop in income in the previous year. The NFCS, unlike the HRS, also included a very valuable set of questions on financial literacy, permitting us to assess respondents' basic financial literacy.¹⁷ We can therefore include a financial literacy index (constructed as the number of correct answers to the five financial literacy questions). As these variables are measured similarly in both waves, we pool the surveys together and use a year dummy to test for differences across time.

Results appear in Table 7. The evidence shows that Asians as well as older/higher income persons were less likely to report being in debt, while being African-American and having had more children was associated with reporting excessive debt. Those who had experienced a large

¹⁷ The NFCS includes five questions assessing respondent numeracy, knowledge of inflation, risk diversification, mortgages, and basic asset pricing concepts (Lusardi, 2011).

and unexpected income drop in the previous year also agreed they were over-indebted, suggesting that shocks play a role in debt accumulation close to retirement. Finally, financial literacy is negatively related to reporting one had excessive debt. We conclude that shocks do predict debt accumulation among older Americans, but having resources is not enough. People also need the capacity to manage those resources, if they are to stay out of debt as they head into retirement.¹⁸

Table 7 here

Next we explore the factors associated with whether people said they could come up with \$2,000 within a month (which is roughly the monthly value of \$2,000 multiplied by 12). As was true in the HRS, being male and having higher income are associated with a greater chance they could obtain this liquidity; African-Americans and Hispanics were likely to say they could not. Additionally, having financially dependent children and having experienced an income shock made respondents more likely to report they were financially fragile. Overall, people reporting such shocks were 15 percentage points more likely to be financially fragile. Education also plays an important role here; those with high school or more education were substantially less likely to be financially fragile. Yet education is only a part of the story: Table 7 shows that financial literacy is also key. Being able to answer one additional financial literacy question correctly was associated with a lower probability (by 2 percentage points) of being financially fragile. In other words financial literacy has an independent effect in reducing financial frailty, above and beyond the impact of education.

¹⁸ One could argue that financial literacy is a choice variable and one cannot simply perform OLS regressions. While our analysis here aims to be only descriptive, in other papers we have shown that the OLS estimates understate the true effect of financial literacy.

Implications and Policy Relevance

Prior to the recent financial crisis and Great Recession, consumer credit and mortgage borrowing expanded rapidly, leaving relatively unsophisticated consumers in the historically unusual position of being able to decide how much they could afford to borrow. It is important to learn whether and how cohorts on the verge of retirement changed their debt levels and financial fragility in the wake of the economic crisis, on its own and also for understanding likely future consequences. Thus, for instance, debt among older persons may rise as an important factor spurring elder bankruptcy, and even in determining lifetime wealth sufficiency and retirement security.

Our paper has analyzed older persons' debt and debt management practices using data from both the HRS and the NFCS. Specifically, we examined three different cohorts of individuals age 56–61 surveyed by the HRS, at three different time points: 1992, 2004 and 2010. This analysis provided insights into cross-cohort changes in debt over time. We also explored two recent waves of the NFCS, for 2012 and 2015, which showed how older persons manage their debt on the verge of retirement and their capacity to shield themselves against shocks.

Our goal was to assess how wealth and debt among older persons has evolved over time, along with the potential consequences for retirement security. We find that recent cohorts have taken on substantially more debt and face more financial insecurity as they near retirement, mostly due to having purchased more expensive homes with smaller down payments. In addition, Early Boomers were more likely to have engaged in the use of costly alternative financial services. Factors reducing exposure to debt include having higher income, more education, and greater financial literacy. Factors associated with greater financial fragility include having had more children, poor health, and unexpected large income declines. Thus

shocks do play a role in the accumulation of debt close to retirement, but having resources is insufficiently protective. That is, people also need the capacity to manage those resources, if they are to stay out of debt as they head into retirement. This finding complements our recent analysis which found that financial literacy can explain 30 to 40% of wealth inequality (Lusardi, Michaud and Mitchell, forthcoming).

It is interesting that most theoretical models of household portfolios to date have tended to focus on household portfolio patterns without devoting much attention to debt patterns (e.g., Lusardi, Michaud, and Mitchell, forthcoming; Delavande, Rohwedder, and Willis, 2008; Chai et al. 2011). Our research suggests that analysts and policymakers should explore ways to enhance debt management practices as they examine factors driving retirement security. The fact that there is often a wedge between interest rates charged on debt versus returns that people can earn on their saving is generally not taken into account. Moreover, existing models have tended to overlook the fact that interest rates charged to individuals are not fixed but can be shaped by peoples' behavior. Our paper thus motivates additional research on key aspects of debt and debt management to inform future policy.

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Table 1. Levels and Distribution of Cohort Total Debt and Debt Components in the Health and Retirement Study (HRS)

	Debt holders in sample	p10	p25	p50	p75	p90	Mean
1. Total debt (\$)							
HRS baseline	64.04%	0	0	6,545	49,091	116,181	40,598
War Babies	69.76%	0	0	30,389	103,322	206,644	73,364
Early Boomers	71.42%	0	0	31,587	143,196	263,228	99,557
2. Value of all mortgages/land contracts (\$; 1ry residence)							
HRS baseline	40.76%	0	0	0	32,727	90,000	28,221
War Babies	49.00%	0	0	0	85,089	176,256	56,066
Early Boomers	48.68%	0	0	0	105,291	210,582	74,602
3. Value of other home loans (\$; 1ry residence)							
HRS baseline	11.18%	0	0	0	0	6,545	5,049
War Babies	15.24%	0	0	0	0	18,233	6,425
Early Boomers	17.21%	0	0	0	0	26,323	9,909
4. Value of all mortgages/land contracts (\$; 2ndry residence)							
HRS baseline	5.97%	0	0	0	0	0	3,542
War Babies	3.69%	0	0	0	0	0	4,168
Early Boomers	4.30%	0	0	0	0	0	6,316
(\$)							
HRS	36.72%	0	0	0	2,455	8,182	3,786
War Babies	39.17%	0	0	0	4,619	17,018	6,705
Early Boomers	41.89%	0	0	0	5,265	21,058	8,731

Note: The sample includes all age-eligible individuals age 56-61 in the cohort indicated. HRS cohort observed in 1992; War Babies observed in 2004; and Baby Boomers observed in 2010 (data are weighted). 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 \$2012.

Table 2. Levels and Distribution of Cohort Total Debt Ratios and Debt Ratio Components (HRS)

	p10	p25	p50	p75	p90	Mean
1. Total debt/Total assets						
HRS	0	0	0.04	0.22	0.47	0.45
War Babies	0	0	0.11	0.34	0.61	2.26
Early Boomers	0	0	0.15	0.48	0.89	10.39
2. All 1ry res. loans/1ry res. value						
HRS	0	0	0.05	0.36	0.64	0.22
War Babies	0	0	0.21	0.53	0.73	4.58
Early Boomers	0	0	0.30	0.69	0.94	0.40
3. Value of 1ry res./total assets						
HRS	0	0.21	0.46	0.74	0.91	0.47
War Babies	0	0.25	0.52	0.79	0.92	0.50
Early Boomers	0	0.20	0.50	0.79	0.94	0.49
4. Value of 1ry residence (\$)						
HRS	52,363	85,091	139,090	229,090	343,635	182,758
War Babies	60,778	103,322	182,333	316,044	547,000	261,685
Early Boomers	73,704	126,349	210,582	326,402	579,101	295,747
5. Other debt/Liquid assets						
HRS	0	0	0	0.13	1.67	5.93
War Babies	0	0	0	0.33	5.17	30.41
Early Boomers	0	0	0	0.69	12.50	54.48

Note: Total assets include all checking and savings accounts, CDs, money market funds, T-bills, bonds/bond funds, stocks/stock market funds, IRAs, 401(k)s/and Keoghs, the value of primary residence and other real estate, vehicles, business equity, and other savings. Housing debt includes home mortgages and other home loans. Liquid assets are defined as the sum of checking and savings accounts, CDs, money market funds, T-bills, bonds/ bond funds, and stocks/stock market funds. See also notes to Table 1.

Table 3. Levels of Cohort Total Debt/Asset Ratios, and Debt Component/Asset Ratios (HRS)

	%
<i>1. Total debt/Total assets > 0.5</i>	
HRS	8.92%
War Babies	15.55%
Early Boomers	23.15%
<i>2. All 1ry res. loans/1ry res. value >0.5</i>	
HRS	16.60%
War Babies	26.07%
Early Boomers	35.12%
<i>3. Other debt/Liquid assets >0.5</i>	
HRS	16.64%
War Babies	22.41%
Early Boomers	26.88%
<i>4. Respondents with < \$25K in savings</i>	
HRS	14.89%
War Babies	15.02%
Early Boomers	24.65%

Note: See notes to Tables 1 and 2.

Table 4. Multivariate Analysis of the Factors Associated with Financial Fragility (HRS)
A. Full Sample

	Tot. debt/Tot. assets > 0.50	lry res. debt/asset > 0.50	Other debt/Liquid assets > 0.50	Total net wealth < \$25K
War Babies	0.072 *** (0.012)	0.098 *** (0.017)	0.075 *** (0.015)	0.022 ** (0.011)
Early Boomers	0.153 *** (0.014)	0.195 *** (0.018)	0.134 *** (0.016)	0.125 *** (0.012)
Age	-0.011 *** (0.003)	-0.019 *** (0.004)	-0.012 *** (0.004)	-0.009 *** (0.003)
Married	-0.043 *** (0.014)	-0.012 (0.019)	-0.019 (0.017)	-0.205 *** (0.013)
Male	0.008 (0.009)	0.029 *** (0.011)	0.012 (0.010)	0.018 ** (0.009)
Childnum	0.011 *** (0.003)	0.023 *** (0.004)	0.016 *** (0.004)	0.013 *** (0.003)
White	-0.066 *** (0.016)	-0.026 (0.020)	-0.067 *** (0.020)	-0.130 *** (0.015)
Education_hs	-0.007 (0.015)	0.016 (0.019)	-0.032 * (0.019)	-0.122 *** (0.015)
Education_smcl	-0.009 (0.018)	0.026 (0.023)	-0.065 *** (0.022)	-0.167 *** (0.017)
Education_gtcl	-0.006 (0.022)	0.073 ** (0.029)	-0.046 * (0.026)	-0.193 *** (0.019)
Hitot (\$10k)	-0.002 *** (0.000)	0.001 (0.001)	-0.004 *** (0.001)	-0.003 *** (0.001)
Poorhealth	0.058 *** (0.015)	0.006 (0.018)	0.105 *** (0.018)	0.155 *** (0.014)
Constant	0.796 *** (0.192)	1.203 *** (0.253)	0.921 *** (0.226)	0.973 *** (0.164)
N	8,534	7,080	7,337	9,077
R2	0.049	0.045	0.051	0.247

(continued)

B. Married Only Sample

	Tot. Tot. assets > 0.50	lry res. debt/asset > 0.50	Other debt/Liquid assets > 0.50	Total net wealth < \$25K
War babies	0.071 *** (0.014)	0.110 *** (0.020)	0.074 *** (0.018)	0.017 * (0.010)
Early boomers	0.157 *** (0.017)	0.200 *** (0.021)	0.147 *** (0.019)	0.126 *** (0.014)
Age	-0.010 ** (0.004)	-0.016 *** (0.005)	-0.015 *** (0.004)	-0.007 *** (0.003)
Male	0.034 *** (0.009)	0.060 *** (0.011)	0.034 *** (0.010)	0.011 (0.007)
Childnum	0.012 *** (0.004)	0.023 *** (0.005)	0.020 *** (0.005)	0.012 *** (0.003)
White	-0.083 *** (0.021)	-0.033 (0.026)	-0.059 ** (0.025)	-0.101 *** (0.019)
Education_hs	-0.020 (0.017)	0.010 (0.021)	-0.055 ** (0.022)	-0.101 *** (0.017)
Education_smcl	-0.017 (0.021)	0.021 (0.026)	-0.075 *** (0.025)	-0.115 *** (0.019)
Education_gtcl	-0.016 (0.025)	0.041 (0.033)	-0.079 *** (0.030)	-0.130 *** (0.020)
Hitot (\$10k)	-0.002 *** (0.001)	0.001 (0.001)	-0.003 *** (0.001)	-0.003 *** 0.000
Poorhealth	0.042 ** (0.017)	0.000 (0.021)	0.110 *** (0.022)	0.117 *** (0.016)
Constant	0.669 *** (0.221)	1.001 *** (0.285)	1.039 *** (0.257)	0.638 *** (0.169)
N	6,272	5,626	5,544	6,398
R2	0.050	0.048	0.057	0.137

(continued)

(continued)

C. Single Only Sample

	Tot. Tot. assets > 0.50	lry res. debt/asset > 0.50	Other debt/Liquid assets > 0.50	Total net wealth < \$25K
War babies	0.075 *** (0.024)	0.057 * (0.032)	0.072 ** (0.029)	0.025 (0.026)
Early boomers	0.145 *** (0.023)	0.181 *** (0.032)	0.103 *** (0.028)	0.110 *** (0.023)
Age	-0.018 *** (0.007)	-0.034 *** (0.009)	-0.005 (0.008)	-0.015 ** (0.007)
Male	-0.068 *** (0.023)	-0.091 *** (0.031)	-0.048 * (0.028)	0.053 ** (0.023)
Childnum	0.006 (0.006)	0.024 *** (0.008)	0.003 (0.008)	0.012 ** (0.006)
White	-0.032 (0.026)	-0.002 (0.033)	-0.079 ** (0.033)	-0.147 *** (0.025)
Education_hs	0.022 (0.029)	0.032 (0.038)	0.031 (0.037)	-0.146 *** (0.030)
Education_smcl	0.007 (0.036)	0.032 (0.047)	-0.048 (0.043)	-0.270 *** (0.037)
Education_gtcl	-0.004 (0.042)	0.160 *** (0.060)	0.033 (0.054)	-0.313 *** (0.041)
Hitot (\$10k)	-0.004 *** (0.001)	-0.001 (0.002)	-0.005 *** (0.002)	-0.015 *** (0.003)
Poorhealth	0.086 *** (0.028)	0.018 (0.034)	0.093 *** (0.032)	0.195 *** (0.027)
Constant	1.181 *** (0.381)	2.089 *** (0.530)	0.534 (0.475)	1.392 *** (0.385)
N	2,262	1,454	1,793	2,679
R2	0.046	0.065	0.045	0.236

Notes: Coefficient estimates from OLS regression, standard errors in parentheses. See Table 2 for definitions of dependent variables. Explanatory variables include age, an indicator of being married, male, number of children, white, 3 educational attainment categories (high school, some college, college degree with reference category high school dropout), total household income (in 000), and an indicator of poor health. See also notes to Tables 1-2. Data weighted. *** p<0.01, ** p<0.05, * p<0.1

Table 5. Level and Composition of Self-Reported Household Debt and Debt Concerns (NFCS)

	2012	2015
Mortgage debt		
Underwater with home value*	16.7%	8.9%
Late with mortgage payments, at least once*	16.2%	10.6%
Foreclosure process on their home*	2.6%	
Other types of debt		
Credit card debt*	52.4%	46.5%
Credit card fees, at least one type*	36.7%	30.3%
Unpaid medical bills	23.4%	20.2%
High-cost borrowing**	19.8%	19.4%
Student loan***	9.6%	14.0%
Borrowing from retirement accounts		
Loan from retirement accounts*	7.0%	5.8%
Hardship withdrawal from retirement accounts*	5.7%	4.9%
Indicators of financial distress		
Too much debt	39.9%	36.5%
Cannot come up with \$2,000	35.5%	32.8%
N	2,983	2,942

Note: The sample includes all age-eligible individuals age 56-61. Statistics related to hardship withdrawal and loan from retirement account are conditional to owning a retirement account. Statistics weighted using sample weights.

* Values conditional on holding the asset or debt.

** High-cost borrowing refers to the use of alternative financial services, such as payday loans, pawnshops, rent-to-own products, and auto title loans.

*** Direct comparisons between the statistics for 2012 and 2015 are not possible because this question was asked differently.

Table 6. Self-Reported Financial Behaviors and Perceptions (NFCS)

	2012	2015
Propensity to save		
Spending less than income	44.2%	41.0%
Planning for retirement		
Figure out how much to save for retirement	47.1%	44.3%
Additional measure of potential financial problems		
Worry about running out of money in retirement		56.8%
N	2,983	2,942

Note: The sample includes all age-eligible individuals age 56-61.

Table 7. Multivariate Regression Model of Self-assessed Debt and Financial Fragility (2012 and 2015 NFCS)

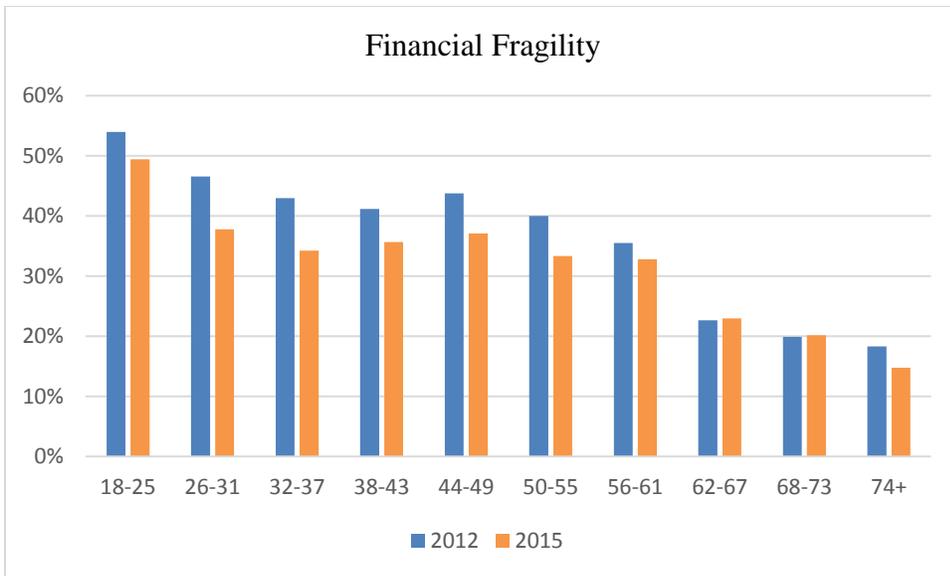
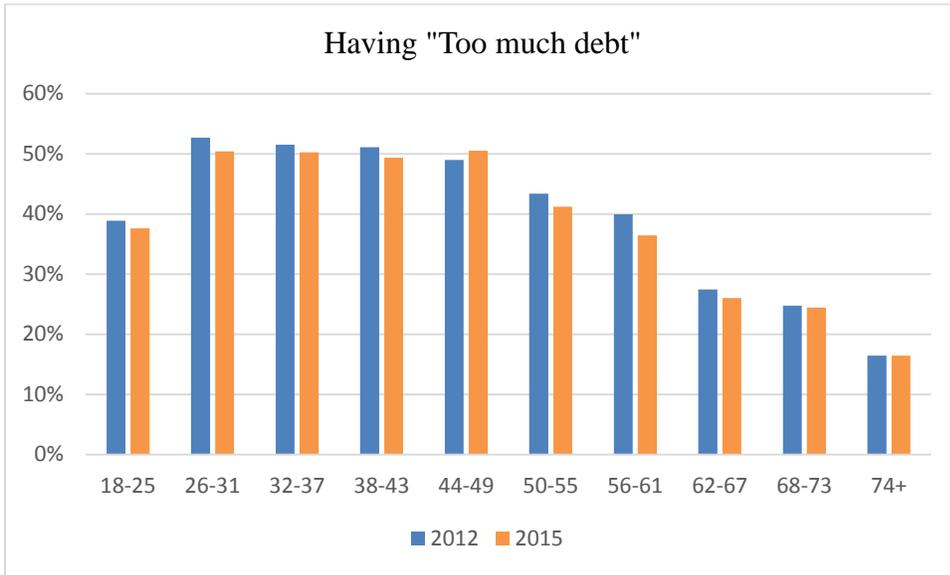
	Self-assessed Debt	Financial Fragility
Age	-0.074*** (0.019)	-0.005 (0.004)
Single	0.020 (0.107)	0.010 (0.022)
Separated or divorced	0.004 (0.093)	-0.006 (0.019)
Widow	0.082 (0.151)	-0.002 (0.031)
Male	0.007 (0.067)	-0.032** (0.013)
Number of dependent children	0.197*** (0.043)	0.021** (0.009)
Afro-American	0.184* (0.102)	0.098*** (0.021)
Hispanic	-0.059 (0.149)	0.053* (0.031)
Asian	-0.321* (0.181)	-0.028 (0.030)
Others	-0.034 (0.193)	0.067* (0.034)
High school	0.045 (0.184)	-0.076** (0.037)
Some college	0.060 (0.184)	-0.085** (0.037)
College or more	-0.081 (0.191)	-0.113*** (0.038)
Income \$15-25K	-0.003 (0.143)	-0.133*** (0.029)
Income \$25-35K	-0.138 (0.151)	-0.228*** (0.032)
Income \$35-50K	-0.205 (0.141)	-0.335*** (0.028)
Income \$50-75K	-0.459*** (0.141)	-0.433*** (0.028)
Income \$75-100K	-0.697*** (0.156)	-0.510*** (0.029)
Income \$100-150K	-0.780*** (0.159)	-0.581*** (0.027)
Income \$150K+	-1.371*** (0.170)	-0.578*** (0.029)
Income shock	0.863*** (0.079)	0.151*** (0.016)
FinLit index	-0.088*** (0.026)	-0.023*** (0.005)
Year 2015	-0.239*** (0.065)	-0.025** (0.013)

Constant	8.559*** (1.140)	1.108*** (0.224)
Observations	5,852	5,925
R-squared	0.100	0.272

Note: The sample includes all age-eligible individuals age 56-61 in the 2012 and 2015 NFCS; estimates weighted using sample weights. In the first column, the dependent variable is the response to the following question: "How strongly do you agree or disagree with the following statement? 'I have too much debt right now.'" Values range from 1 to 7, where 1 means I strongly disagree and 7 I strongly agree. Mean value of the dependent variable *Self-assessed Debt* is 3.78. In the second column, the dependent variable is a dummy variable response to the following question: "How confident are you that you could come up with \$2,000 if an unexpected need arose within the next month?" Outcome coded as 1 for those certain or probably could not come up with \$2,000. Mean value of the dependent variable *Financial Fragility* is 0.34.

Including *FinLit index* among the regressors does not change much the estimate and significance of the other variables. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 1. The Evolution of Self-assessed Debt and Financial Fragility over the life-cycle



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