WILL THE EXPLOSION OF STUDENT DEBT WIDEN THE RETIREMENT SECURITY GAP?

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Introduction

Student loan debt was $1.2 trillion in 2015, compared to just $0.2 trillion in 2003. It now accounts for more than 30 percent of total household non-mortgage debt, having surpassed credit card debt in 2011. The average student debt level for recent college students in 2013 was $31,000.[1] The question is whether starting out $31,000 in the hole could have a big impact on households' retirement preparedness.

This *brief* uses the National Retirement Risk Index (NRRI) to assess the impact of growing student debt on the retirement security of today's working-age households. The NRRI is calculated by comparing households' projected replacement rates – retirement income as a percentage of pre-retirement income – with target replacement rates that would allow them to maintain their standard of living. These calculations are based on the Federal Reserve's *Survey of Consumer Finances,* a triennial survey of a nationally representative sample of U.S. households. As of 2013, the NRRI showed that, even if households worked to age 65 and annuitized all their financial assets (including the receipts from reverse mortgages on their homes), 51.6 percent of households were at risk. The question at hand is how this percentage will be affected by the growth in student loans.

The discussion proceeds as follows. The first section briefly describes the nuts and bolts of the NRRI. The second section explores the growth in student debt and the paths through which it can affect retirement security. The third section looks at the relationship between having student debt and retirement risk status. The fourth section estimates the impact on the NRRI of assuming that all of today's working households started out with the same level of loans as recent college students. The results show that such an increase in student debt would raise the share of households at risk in retirement by 4.6 percentage points. The final section concludes that the growth of student debt will add to an already alarmingly high rate of households that are not on track for retirement.

Nuts and Bolts of the NRRI

Calculating the NRRI involves three steps: 1) projecting a replacement rate – retirement income as a share of pre-retirement income – for each household; 2) constructing a target replacement rate that would

allow each household to maintain its pre-retirement standard of living in retirement; and 3) comparing the projected and target replacement rates to find the percentage of households "at risk."

Retirement income at age 65, which is defined broadly to include all of the usual suspects plus housing, is derived by projecting assets that households will hold at retirement, based on the stable relationship between wealth-to-income ratios and age evident in the 1983-2013 *Survey of Consumer Finances* (SCFs). As shown in Figure 1, wealth-to-income lines from each survey rest virtually on top of one another, bracketed by 2007 values on the high side and 2013 values on the low side.
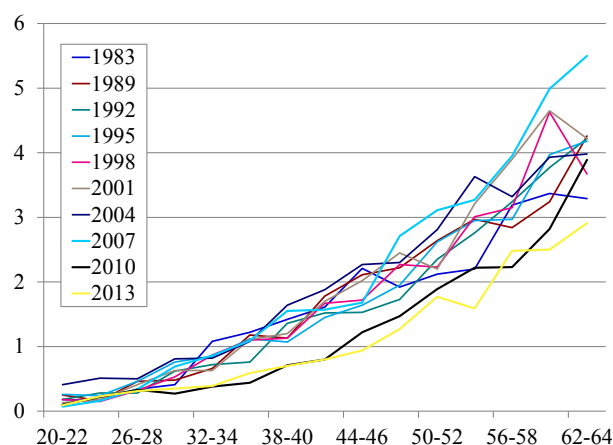
Source: Authors' calculations based on U.S. Board of Governors of the Federal Reserve System, *Survey of Consumer Finances* (SCF) (1983-2013).

Sources of retirement income that are not derived from SCF-reported wealth are estimated directly. For defined benefit pension income, the projections are based on the amounts reported by survey respondents. For Social Security, benefits are calculated directly based on estimated earnings histories for each member of the household.

A calculation of projected replacement rates also requires income *prior to* retirement. The items that comprise pre-retirement income include earnings, the return on taxable financial assets, and imputed

rent from housing. In essence, with regard to wealth, income in retirement equals the annuitized value of all financial and housing assets; income before retirement is simply the return on those same assets.[2] Average lifetime income then serves as the denominator for each household's replacement rate.

To determine the share of the population at risk requires comparing projected replacement rates with the appropriate target rates. Target replacement rates are estimated for different types of households assuming that households spread their income so as to have the same level of consumption in retirement as they had before they retired. Households whose projected replacement rates fall more than 10 percent below the target are deemed to be at risk of having insufficient income to maintain their pre-retirement standard of living. The NRRI is simply the percentage of *all* households that fall more than 10 percent short of their target.

The NRRI has increased over time due to longer life expectancies, reduced Social Security replacement rates, and very low interest rates (see Figure 2). In 2013, the NRRI shows that 51.6 percent of today's working-age households were at risk of being unable to maintain their pre-retirement levels of consumption once they stopped working. The question is how the growth of student loans affects this percentage.
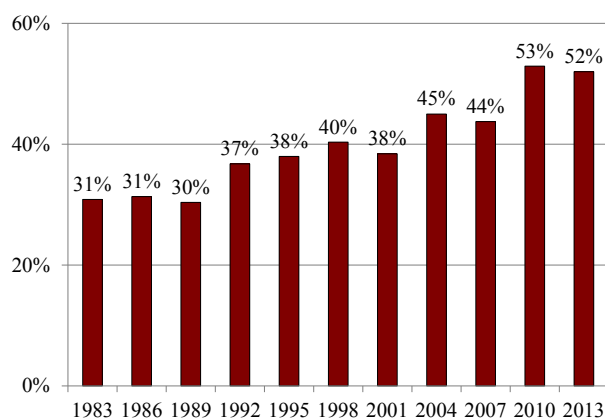
Source: Munnell, Hou, and Webb (2014).

The Growth of Student Debt

Higher education is an important investment that helps young workers obtain better jobs and higher incomes. College graduates have lower unemployment rates, fare better during recessions, and enjoy wages roughly double those of high school graduates. But rising tuitions have made a college education very expensive, and 55 percent of households ages 21-29 in 2013 had student debt, with an average amount of $31,000.[3]

Total student debt now amounts to $1.2 trillion, exceeding all other forms of non-mortgage debt, including auto loans, credit cards, and home equity loans (see Figure 3).[4] The reasons for the growth are not only that tuitions have increased but also that more people are attending college and going on to graduate school; parents are taking out college loans for their children; and repayments are lower as borrowers delay through deferments and forbearances.

FIGURE 3. NON-MORTGAGE DEBT BALANCES, TRILLIONS OF DOLLARS, 2003-2015
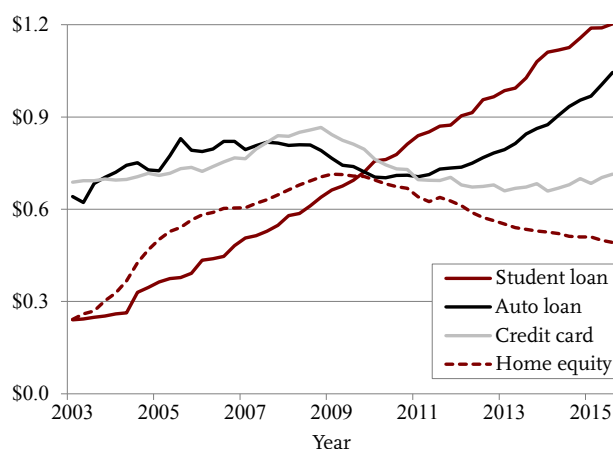
Source: Federal Reserve Bank of New York, *Consumer Credit Panel/Equifax* (2015).

In 2012, 17 percent of borrowers were 90+ days delinquent (see Figure 4). With student debt and particularly delinquent student debt, it can be harder to get a mortgage. Thus, in addition to getting a late start on saving in a 401(k) plan, those with student debt may also delay buying a house, a potential source

FIGURE 4. PERCENTAGE OF STUDENT LOAN BORROWERS 90+ DAYS DELINQUENT, 2004, 2008, AND 2012
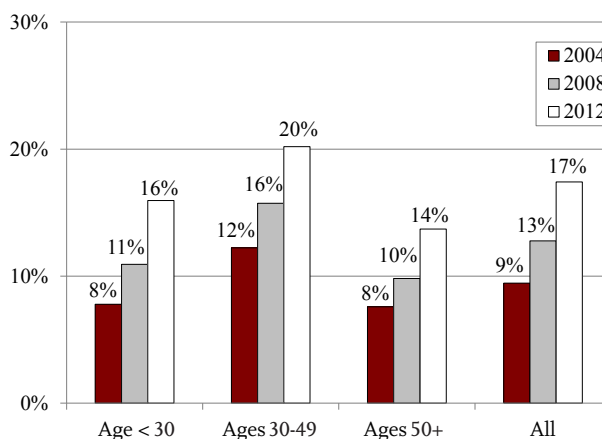
Source: Consumer Credit Panel/Equifax (2015).

of income in retirement.[5] Indeed, while student debt is only one contributing factor, the SCF shows that homeownership among households ages 30-39 declined from 58 percent to 53 percent between 2001 and 2013.

The SCF provides detailed data on student loan debt by age and income level. The data by age show that student debt is not just an issue for younger people, but also for their parents. The same increasing trend appears for all age groups (see Figure 5). The

FIGURE 5. PERCENTAGE OF HOUSEHOLDS WITH STUDENT DEBT, BY AGE OF HOUSEHOLD HEAD
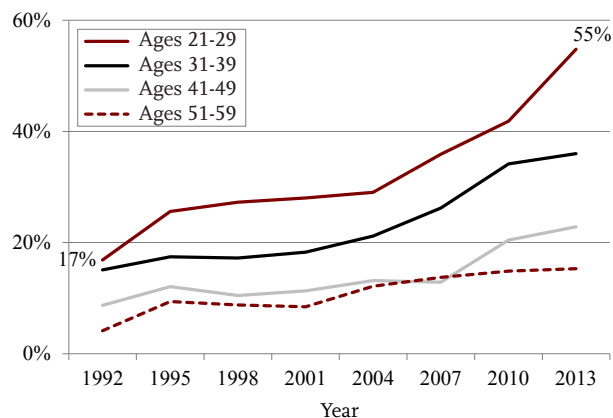
Source: 2013 SCF.

data by income show that middle- and high-income households are more likely to have student debt than those in the bottom third of the income distribution, since those with higher incomes are more likely to have attended college (see Table 1).

TABLE 1. PERCENTAGE OF HOUSEHOLDS WITH STUDENT DEBT BY INCOME GROUP, 2013

Student debt	Income group			Total
	Low	Middle	High	
Yes	14.6%	25.6%	26.0%	22.1%
No	85.4	74.4	74.0	77.9

Source: Authors' calculations from the 2013 SCF.

Student Debt and the NRRI

Before estimating the impact of student debt on the NRRI, it is useful to look at the relationship between having student debt and retirement risk status. Figure 6 shows that 60.1 percent of households with student debt are at risk compared to 49.2 percent of those without debt. These numbers suggest that – if the two groups of households were identical – eliminating student debt could reduce the NRRI to 49.2 percent from the reported 51.6 percent.

FIGURE 6. NRRI FOR HOUSEHOLDS WITH AND WITHOUT STUDENT DEBT, 2013
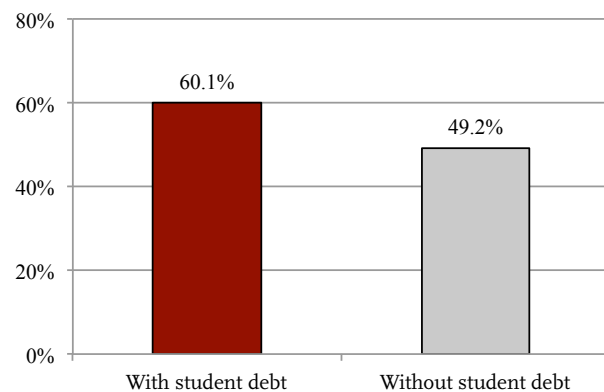
Source: Authors' calculations.

The biggest difference in risk status occurs within the group that has student debt (see Figure 7). Those with student loans who have completed college have only a slightly higher percentage at risk than those without student debt (52.9 percent versus 49.2 percent), but for households with student loans that *did not complete college* the difference is enormous (67.1 percent versus 49.2 percent).

FIGURE 7. NRRI FOR HOUSEHOLDS WITH STUDENT DEBT, BY COLLEGE COMPLETION, 2013
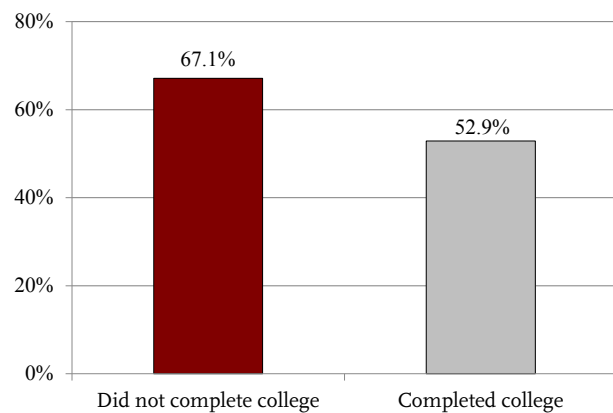
Source: Authors' calculations.

Student Debt Going Forward

The following exercise estimates the impact on the retirement security of today's working households if they had started out with the same student debt profile as recent college students. As discussed above, student debt can directly reduce saving that would have occurred through a retirement plan and indirectly reduce retirement saving through mortgage repayment.[6]

The first step involves giving the households in the NRRI the same student loans when they were in their twenties as recent college students. The 2013 SCF data for those ages 21-29 are used as an approximation for recent college students. Among this age group, 55 percent of households had student debt, with an average amount of $31,000.[7] Thus, for NRRI households, say ages 30-39, the percentage with student debt in their twenties was increased from their actual 29 percent to 55 percent. These additional

households were assigned student debt of $31,000; and those who already had student debt in their twenties had their loan amount increased from their actual $18,000 to $31,000 (in 2013 dollars). Paying off these extra loans is assumed to reduce a household's retirement saving dollar for dollar. The foregone savings grow at a real rate of 4 percent to age 65, at which point they reduce assets, annuity income, and thereby replacement rates. The same procedure is applied to households ages 40-49 and 50-59.[8]

The second step involves assigning, to the NRRI sample, lower homeownership levels and lower house values and thereby less home equity at retirement. The adjustment for the house comes from two equations that use data from the 2013 *Survey of Consumer Finances* that relate the probability of owning a home and the value of the home to the household having student loan debt.

Eq.1: Probability owning a home = f(age, having student loan, education, marriage, log income)

Eq.2: Log house value = f(age, having student loan, education, marriage, log income)

The results of these equations show that households with student debt are 6.7 percent less likely to own a home and that the homes they do own will have a 5.4-percent lower value. To incorporate the effect of student debt, homeownership and home values are decreased by these percentages for the NRRI sample. As with the direct reduction in retirement saving due to student debt, the reduction in home equity reduces the amount that is annuitized at age 65, and this amount is subtracted from the household's retirement income – the numerator of the replacement rate. The new replacement rate for each household is then compared to its target to determine whether the household is at risk.

The results of increasing student debt for NRRI households are shown in Table 2 (by age) and Table 3 (by income). The higher debt raises the NRRI from its baseline level of 51.6 percent to 56.2 percent – 4.6 percentage points. This number probably should be interpreted as an upper bound of the impact.[9]

Is 4.6 percentage points a big increase? One way to put the number into context is to compare it to a very dramatic policy change – a 19.6-percent across-the-board benefit cut in Social Security (exempting current retirees) to eliminate the program's long-term financing shortfall. Such a cut would raise the NRRI by 10.7 percentage points. So, extrapolating the

effects of the growth in student debt into the future has an impact that is roughly half as large as a huge and unprecedented cut in the nation's main source of retirement income. The bottom line is that student loans definitely have a meaningful adverse effect on retirement security.

TABLE 2. CURRENT NRRI AND PROJECTED NRRI WITH HIGHER STUDENT DEBT, BY AGE GROUP

NRRI	Age group			Total
	30-39	40-49	50-59	
Current	58.9%	51.7%	45.3%	51.6%
Projected	62.0	55.8	51.6	56.2

Source: Authors' calculations.

TABLE 3. CURRENT NRRI AND PROJECTED NRRI WITH HIGHER STUDENT DEBT, BY INCOME GROUP

NRRI	Income group			Total
	Low	Middle	High	
Current	59.5%	52.2%	43.4%	51.6%
Projected	65.8	56.9	46.2	56.2

Source: Authors' calculations.

Conclusion

Student loan debt has been growing at a rapid clip over the past decade, prompting widespread concerns about its impact on the financial futures of young Americans. This *brief* has focused on whether the potential impact of growing student debt on future retirement security is big. This impact occurs through two channels: directly, by reducing saving in retirement plans; and indirectly, by reducing the rate of home ownership and home values.

The key finding is that – if today's working-age households had the same level of student debt as those recently leaving college – an additional 4.6 percent of households would be at risk of having inadequate income in retirement. This change represents a substantial increase in the already alarming rate of households at risk – from 51.6 percent to 56.2 percent. The bottom line is that college costs should be included in broader policy discussions over how to improve lifelong financial security.

Endnotes

1 The aggregate loan data come from the Federal Reserve Bank of New York. The average loan amount comes from the *Survey of Consumer Finances* produced by the U.S. Board of Governors of the Federal Reserve System.

2 For the measures of retirement income and pre-retirement income, both mortgage debt and non-mortgage debt are subtracted from the appropriate income components.

3 These data include both those who graduated college and those who attended but did not graduate. A recent study by the Institute for College Access & Success (2015) that was limited to new college graduates found that about 70 percent had student loan debt.

4 For more details on trends in student debt and other borrowing activity, see Brown and Caldwell (2013).

5 Brown et al. (2013) present an analysis of how student debt may affect access to other forms of borrowing, including home mortgages.

6 Hiltonsmith (2013) analyzed the effects of student debt – in dollar terms – on both savings and home-ownership. His study assumes different earnings profiles for households with and without student debt. However, Fry (2014) points out that earnings profiles for households with and without student debt show little variation, but net wealth does. Therefore, our approach directly affect household wealth, rather than earnings.

7 The sample excludes 6 percent of households in their twenties who reported that they had college loans but that neither spouse had education beyond high school.

8 No student loan data are available in the SCF before 1992. Therefore, for households ages 50-59, the analysis estimates the percentage who would have had loans in their twenties and the average dollar amount of the loans based on the 1992-2013 data.

9 The 4.6 percentage-point change is an upper bound for two reasons. First, the analysis implicitly assumes that student debt displaces retirement saving dollar for dollar, but students could instead repay a portion of the loan by reducing their consumption. Second, with respect to homeownership, our equation assumes that student debt affects homeownership equally for all ages but, in fact, the difference is probably larger at younger ages as households defer home purchase and smaller at age 65, when the analysis reduces the homeownership rate.

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