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DO YOUNG ADULTS WITH STUDENT DEBT SAVE LESS FOR RETIREMENT?

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Introduction

The rapid rise in student loan debt has received much attention from policymakers and the media. Student debt nearly *tripled* in real terms between 2005 and 2017, and both the share of college graduates with loans and their average outstanding loan balances soared.[1] Student debt, of course, has clear benefits: it helps individuals pay for a college education, putting those who finish their degree on track to earn more over their careers. But student loan payments leave young adults entering the workforce with less money available to save. Even if the payments are manageable, the lingering presence of a student loan may loom large over other financial decisions, including retirement saving. This *brief*, based on a recent study, examines the relationship between student loans and retirement saving using data from the *National Longitudinal Survey of Youth 1997 Cohort* (NLSY97).[2]

The discussion proceeds as follows. The first section briefly reviews prior studies on how student loans affect financial well-being. The second section describes the data and methodology for the analysis. The third section presents the results on participation in 401(k) plans and asset accumulation separately for those who finish college and those who attend but do not graduate. The final section concludes that the picture is a bit mixed. On the participation side, student debt appears to have little effect on either group. On the accumulation side, similarly, debt does not have a significant impact on the non-graduate group. However, student debt does appear to affect the graduate group – those with debt have much lower 401(k) assets by age 30 than those without debt. This result holds whether the loans are large or small, suggesting that the presence of the loan may be more important than the size of the payments.

Student Loans and Financial Well-Being

The existing research makes two points clear: 1) college graduates fare better financially than those who attend college but do not graduate;[3] and 2) graduates without student debt tend to have better financial outcomes than those with student debt. For example, those with debt tend to have lower net worth and financial wealth.[4] In addition, larger amounts of student debt are also associated with greater credit constraint, an increased likelihood of falling behind

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on debt payments, and a greater risk of bankruptcy.[5] Some studies indicate that student loans also make it harder for young people to buy a home.[6]

Only a couple of studies have analyzed whether student debt affects the retirement saving of the borrowers, and these studies use hypothetical borrowers over a full career rather than examining actual borrowers.[7] This study provides results from the NLSY97, a dataset with more direct information on borrowing by young workers for their education.

Data and Methodology

The NLSY97 collects information about the transition from childhood to adulthood for young Americans. In 1997, it sampled about 9,000 teenagers born between 1980 and 1984, and has followed up with them annually or biennially. The NLSY97 collects information about assets and debts only at ages 25 and 30, so our study examines differences in 401(k) participation and assets at age 30 based on student debt outstanding at age 25.[8] The NLSY97 also includes detailed personal characteristics, which can be used to account for differences between those with and without student debt. The analysis includes both graduates and non-graduates. Graduates make up just less than half of the overall sample, but they account for 71 percent of student debtors because many non-graduates do not have any debt.

The analysis considers the effects of both the presence of a student loan and its balance. Economic theory and common sense would predict that the size of the loan *payment* would impact the amount of retirement saving. In reality, however, a young worker with a student loan may focus solely on paying off that loan before shifting to a longer-term objective like retirement saving. This notion is similar to the mental accounting framework, in which people think of their financial obligations as putting money in separate "buckets" with different priority levels.[9] In this case, just having a loan could affect the retirement saving decision, regardless of the loan size.

The *brief* presents estimates on 401(k) participation and asset balances at age 30, based on regressions that control for factors that may differ between those with and without loans. The basic equation is:

401(k) outcome at age 30 = f (having a student loan at 25, student loan balance at 25, earnings, personal and college characteristics)

The regression controls for the individual's earnings at age 30 to account for their ability to pay down loans and save for retirement, as well as for differences in demographics, family structure, and auto-enrollment in retirement plans in their employer's industry. The regression analysis also includes controls unavailable in most other data sources, including measures of college quality, parents' education and income when the respondent was age 18, and the respondent's score on an aptitude test.

Controlling for the characteristics of young workers with and without loans is important because, as Table 1 shows, these groups differ considerably. For example, within the college graduate group, those with student debt tend to earn less, have a higher probability of being black, and have parents with less education and lower earnings. So, one might expect these individuals who tend to have lower socio-economic status to have less in retirement savings regardless of whether they have any student debt.

Table 1. Select Characteristics of College Graduates by Debt Status

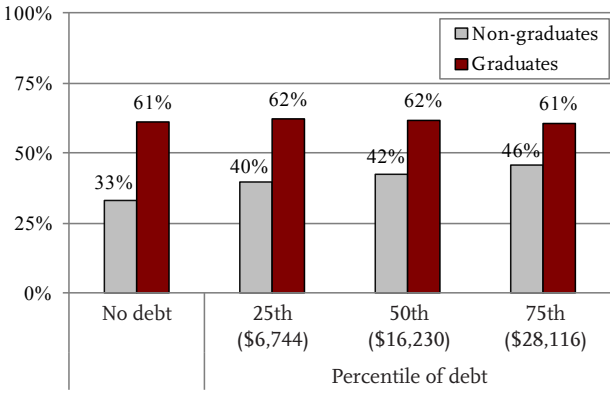
	College graduates	
	Without student debt	With student debt
Earnings at age 30	$47,931	$43,894
Black	13.3%	22.6%
Mother with college degree	45.3%	33.8%
Parent's income at age 18	$83,017	$66,593
Number of observations	725	783

Source: Authors' calculations from the *National Longitudinal Survey of Youth, 1997 Cohort* (NLSY97).

Student Loans and 401(k)s

The regression results show that 401(k) participation does not vary much between young workers with and without student loans, nor by the size of the loans (see Figure 1 on the next page and Appendix Table A1). In fact, for non-graduates, those with loans appear to be slightly *more* likely to participate in a retirement plan, but this difference is not statistically significant. In the case of student loan size, participation rates among graduates with low, medium, and high loan balances are nearly identical.

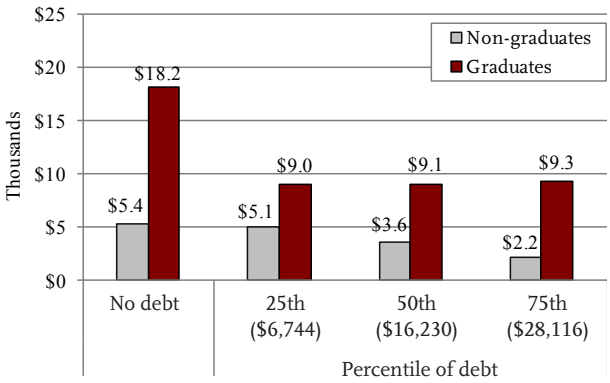
Figure 1. Retirement Plan Participation Rate at Age 30 by Percentile of Student Debt



Note: Estimates are based on regressions of retirement plan participation on student loan variables and personal and school characteristics.
Source: Authors' estimates from NLSY97 (1997-2013).

While retirement plan participation does not appear to be hampered by student loans, the findings suggest that retirement wealth accumulation may be affected for the graduate group. Figure 2 shows 401(k) asset levels at age 30 by individuals' student loan status and whether they graduated. (See Appendix Table A2 for detailed results.) Non-graduates have much less in retirement assets at age 30 than graduates; but neither the presence of a loan nor the outstanding balance have a significant effect on those assets. For graduates, however, assets are about 50 percent lower for those with student loans compared to those with no loans. The difference is both large and statistically significant.[10] These results suggest that among college graduates, the presence of a student loan does impact retirement saving.

Figure 2. Retirement Plan Assets at Age 30 by Percentile of Student Debt



Note: Estimates are based on regressions of retirement plan participation on student loan variables and personal and school characteristics.
Source: Authors' estimates from NLSY97 (1997-2013).

Interestingly, college graduates with small loans have no more in retirement assets than those with large loans.[11] This result suggests that young graduates consider the simple existence of a student loan – rather than its size – to be a constraint on their 401(k) saving. The drawback to such behavior, of course, is that some individuals end up saving less for retirement than they could afford to early in their career, giving up the opportunity for a lifetime of investment earnings on the foregone savings. A related concern is that some participants also may not contribute enough to receive the full employer match, leaving money on the table.

Conclusion

The rise in student loan debt has become a growing policy concern. This *brief* explores whether that growth has impacted retirement savings. The results are a bit mixed, and depend on whether one looks at participation or asset accumulation and whether one considers graduates or non-graduates. While student loans appear to have no effect on participation and no significant effect on the asset accumulation of non-graduates, graduates with student loans accumulate 50 percent less retirement wealth by age 30. Interestingly, graduates' retirement plan assets are not sensitive to the size of their student loans, suggesting that the simple presence of a loan looms large in their financial decision-making. Future research should examine whether this counterintuitive result holds when other data sources are used.

Endnotes

1 For nationwide student debt totals, see Federal Reserve Bank of New York (2017). The Institute for College Access and Success (2014) reports that, in 1993, 47 percent of graduates had student loans averaging about $10,000 (in 2013 dollars). By 2012, 71 percent of graduates had loans, and the average amount tripled to about $30,000.

2 Rutledge, Sanzenbacher, and Vitagliano (2016).

3 Avery and Turner (2012).

4 Fry (2014) and Cooper and Wang (2014).

5 Gicheva and Thompson (2015).

6 See Chiteji (2007); Brown and Caldwell (2013); Cooper and Wang (2014); Gicheva and Thompson (2015); and Houle and Berger (2015).

7 Hiltonsmith (2013) and Munnell, Hou, and Webb (2016). Another study – Elliott, Grinstein-Weiss, and Nam (2013) – did look at actual, rather than hypothetical, behavior but its sample consisted of households of all ages with education-related debt, which includes parents who borrowed for their children's education.

8 401(k) is used as a shorthand for all defined contribution plans.

9 Thaler (1999).

10 In the college graduate sample shown in Figure 2, the coefficient on the student loan indicator is statistically significant when the balance of the student loan is included in dollars. The magnitude and statistical significance are also similar when the balance is not included. Alternatively, when the balance is included as a natural logarithm, the coefficient is of similar magnitude, but the standard error is larger, so the estimate is not statistically significant. The similarities between the unadjusted numbers and the estimates from all other regression specifications suggest the natural log regression result is an outlier. See Rutledge, Sanzenbacher, and Vitagliano (2016) for details.

11 Elliott, Grinstein-Weiss, and Nam (2013) also find no difference between those with large and small loans, using data from the *Survey of Consumer Finances* that includes education debt taken out by students' parents.

References

Avery, Christopher and Sarah Turner. 2012. "Student Loans: Do College Students Borrow Too Much – or Not Enough?" *Journal of Economic Perspectives* 26(1): 165-192.

Brown, Meta and Sydnee Caldwell. 2013. *Young Adult Student Loan Borrowers Retreat from Housing and Auto Markets*. Liberty Street Economics Report. New York, NY: Federal Reserve Bank of New York.

Chiteji, Ngina S. 2007. "To Have and to Hold: An Analysis of Young Adult Debt." In *The Price of Independence: The Economics of Early Adulthood*, edited by Sheldon Danziger and Cecilia Rouse, 231-258. New York, NY: Russell Sage Foundation.

Cooper, Daniel and J. Christina Wang. 2014. *Student Loan Debt and Economic Outcomes*. Current Policy Perspectives 14-7. Boston, MA: Federal Reserve Bank of Boston.

Elliott, William, Michal Grinstein-Weiss, and Ilsung Nam. 2013. "Student Debt and Declining Retirement Savings." Working Paper 13-34. St. Louis, MO: Center for Social Development at Washington University.

Federal Reserve Bank of New York. 2017. *Quarterly Report on Household Debt and Credit*. New York, NY: Federal Reserve Bank of New York.

Fry, Richard. 2014. "Young Adults, Student Debt, and Economic Well-Being." Washington, DC: Pew Research Center Social and Demographic Trends Project.

Gicheva, Dora and Jeffrey Thompson. 2015. "The Effects of Student Loans on Long-Term Household Financial Stability." In *Student Loans and the Dynamics of Debt*, edited by Kevin Hollenbeck and Brad Hershbein, 287-316. Kalamazoo, MI: Upjohn Institute Press.

Hiltonsmith, Robert. 2013. "At What Cost? How Student Debt Reduces Lifetime Wealth." Debt-for-Diploma Series. New York, NY: Demos.

Houle, Jason N. and Lawrence Berger. 2015. "Is Student Loan Debt Discouraging Homeownership among Young Adults?" *Social Service Review* 89: 589-621.

Munnell, Alicia H., Wenliang Hou, and Anthony Webb. 2016. "Will the Explosion of Student Debt Widen the Retirement Security Gap?" *Issue in Brief* 16-2. Chestnut Hill, MA: Center for Retirement Research at Boston College.

Rutledge, Matthew S., Geoffrey T. Sanzenbacher, and Francis M. Vitagliano. 2016. "How Does Student Debt Affect Early-Career Retirement Saving?" Working Paper 2016-9. Chestnut Hill, MA: Center for Retirement Research at Boston College.

The Institute for College Access and Success (TICAS). 2014. "Quick Facts About Student Debt." Available at: http://ticas.org/sites/default/files/pub_files/Debt_Facts_and_Sources.pdf

Thaler, Richard H. 1999. "Mental Accounting Matters." *Journal of Behavioral Decision Making* 12(3): 183-206.

United States Department of Labor, Bureau of Labor Statistics. 1997-2013. *National Longitudinal Survey of Youth, 1997 Cohort*. Washington, DC.

APPENDIX

Table A1. Estimated Relationship between Student Debt and Retirement Plan Participation at Age 30, by College Degree Status

	Non-graduates	Graduates
Student loan (0/1)	0.049	0.017
	(0.037)	(0.037)
Real loan balance at 25 ($1,000s)	0.003	-0.001
	(0.002)	(0.001)
Log earnings at 30	0.020***	0.019***
	(0.003)	(0.005)
Share of industry auto-enrolled	0.431***	0.109
	(0.167)	(0.163)
Public institution	0.052	0.118*
	(0.036)	(0.060)
Private institution	0.094*	0.100
	(0.057)	(0.066)
Undergrad quality index	-0.001	0.000
	(0.002)	(0.002)
Mother had college degree	-0.004	0.013
	(0.042)	(0.036)
Father had college degree	-0.011	-0.030
	(0.042)	(0.037)
Parents' income at 18 ($10k)	0.010***	0.002
	(0.003)	(0.002)
Aptitude test score	0.016	0.059***
	(0.012)	(0.015)
Sample size	1,293	978
R-squared	0.169	0.163

Notes: Students' variables are measured as of age 30. Regressions also include gender, marital status, presence of children, race, Hispanic ethnicity, firm size, and birth cohort dummies. Robust standard errors in parentheses. Statistically significant at 10-percent (*) or 1-percent level (***).
Source: Authors' estimates from the NLSY97 (1997-2013).

Table A2. Estimated Relationship between Student Debt and Retirement Plan Assets at Age 30, by College Degree Status

	Non-graduates	Graduates
Student loan (0/1)	0.100	-0.647**
	(0.560)	(0.269)
Real loan balance at 25 ($1,000s)	-0.041	0.002
	(0.030)	(0.008)
Log earnings at 30	0.543***	0.092**
	(0.078)	(0.046)
Share of industry auto-enrolled	0.850	-0.281
	(2.435)	(1.263)
Public institution	-0.309	0.206
	(0.605)	(0.483)
Private institution	-0.056	0.210
	(0.904)	(0.513)
Undergrad quality index	0.015	0.007
	(0.037)	(0.013)
Mother had college degree	0.289	0.046
	(0.612)	(0.246)
Father had college degree	-0.018	0.303
	(0.621)	(0.251)
Parents' income at 18 ($10k)	0.015	0.000
	(0.040)	(0.000)
Aptitude test score	0.039	0.168
	(0.752)	(0.114)
Sample size	427	568
Pseudo R-squared	0.0751	0.0601

Notes: Dependent variable is the log of retirement assets; sample includes only those with positive assets. Students' variables are measured as of age 30. Regressions also include gender, marital status, presence of children, race, Hispanic ethnicity, firm size, and birth cohort dummies. Robust standard errors in parentheses. Statistically significant at 5-percent (**) or 1-percent level (***).
Source: Authors' estimates from the NLSY97 (1997-2013).

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