



Center for Social Development

GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Education Loans and Wealth Building among Young Adults

Min Zhan

Xiaoling Xiang

University of Illinois at Urbana-Champaign

2014

CSD Working Papers

No. 14-14

Campus Box 1196 One Brookings Drive St. Louis, MO 63130-9906 • (314) 935.7433 • csd.wustl.edu



Washington University in St. Louis

Acknowledgments

Support for this study comes from the Citi Foundation. The authors would like to thank Chris Leiker for his very helpful review.

Education Loans and Wealth Building among Young Adults

Abstract

This study examines the association between education loans and postcollege wealth accumulation among young adults. Data come from the 1997 National Longitudinal Survey of Youth, and the analyses control for a number of student characteristics, college experiences, and parental income. Results from a treatment-effect model indicate that having education loans upon leaving college is negatively related to postcollege net worth, financial assets, nonfinancial assets, and value of primary housing. Furthermore, having education loans also has a negative impact on the value of net worth among Black young adults. The relationship between the amount of education loans and wealth accumulation is not statistically significant among those with outstanding loans.

Key words: *education loans; National Longitudinal Survey of Youth; treatment-effect model; wealth; young adults*

Use of education loans as a way to finance college education has grown rapidly in recent years (College Board, 2012; Dynan, 2009; Fry, 2012; Payea, Baum, & Kurose, 2013). Increases in the number of borrowers and the amount of borrowing indicate a growing reliance on such loans. For example, about 23% of undergraduates had loans during the 2001–2002 academic year, and this number jumped to 35% in 2011–2012 (College Board, 2012). The average outstanding student loan among student borrowers also has increased (Fry, 2012). As a result, household debt from education loans has risen more sharply in the last decade than other debt (e.g., credit card debt, mortgages). In 2010, education loans became the second-largest source of household debt (next to mortgages; Ratcliffe & McKernan, 2013).

The burden of education loans is particularly prominent among certain groups, including young adults and minorities. A recent analysis of a national sample of adults aged 20 or older indicates that the likelihood of having debt from education loans is about twice as high among Blacks (34%) and Hispanics (28%) as among Whites (16%; Ratcliffe and McKernan, 2013). The same study reports that younger people are more likely to be burdened with debt from loans: 40% of those aged 20 to 29 have student loan debt. In contrast, 30% of adults aged 30 to 39 have such debt, as do 19% of those aged 40 to 49. Fry (2012) reports that 40% of all households headed by individuals younger than age 35 have outstanding student debt. Young adults, minorities, and individuals from low-income families have reported difficulties with and concerns about repayment of student loans. In part, this is because debt burdens are heavier among these groups than among others (Baum & O'Malley, 2003; Baum & Saunders, 1998; Ratcliffe & McKernan, 2013). For example, a recent study by Fry, Parker, and Rohal (2014) indicates that, among young adults (under age 40), debt from education loans is positively associated with the likelihood of having other types of debt; the median debt burden (measured as a debt-to-income ratio) among college graduates with debt from loans is as high as 205% (compared to 108% among their counterparts without education loans).

Along with the widespread availability and use of education loans for higher education, wealth inequality has widened across racial, ethnic, and age groups since the recent economic recession. Median net worth has declined substantially across households, but the decline has been disproportionately large among minority households (Kochhar, Fry, & Taylor, 2011). Similarly, the gap in wealth between the young and old also has risen quickly. Young adults were already falling behind before the Great Recession and were among those hit hardest by it (see, e.g., Emmons 2012; Steuerle, McKernan, Ratcliffe, & Zhang, 2013). During the period from 1984 through 2009, average median net worth increased by 42% among households headed by a person aged 65 or older, but it dropped by 68% among households headed by someone younger than age 35 (Taylor et al., 2011). In 2009, the average net worth of a household headed by a person aged 65 or older was 47 times greater than that of a household headed by someone under 35 (Taylor et al., 2011).

Given the rapid rise in reliance on education loans and declining wealth among young adults, it is timely and important to examine how education loans may affect their ability to build wealth in the future. In this study, we explore the two research questions. First, are education loans (i.e., both whether one has a loan and the loan amount) associated with future accumulation of wealth among young adults? Second, does the relationship between education loans and wealth differ by the young adult's race?

This research expands on emerging studies in several ways. First, some studies examine the impact of education loans on financial well-being (e.g., Elliott, Grinstein-Weiss, & Nam, 2013a, 2013b, 2013c; Elliott & Nam, 2013; Fry et al., 2014; Hiltonsmith, 2013), but most of these do not focus on young adults.

Second, previous research has not explored the possibility that the relationship between education loans and wealth building has different effects on White young adults than on their Black counterparts. Such variations could be caused by the differences in loan burden, availability of parental economic support, and job opportunities. This examination may identify corresponding policies and practices to improve wealth building among both groups.

Third, previous studies tend to include single or few dimensions of wealth; this study includes several measures of wealth accumulation: net worth, financial assets, nonfinancial assets, and values of primary housing. These measures enable us to capture the impact of education loans on different dimensions of wealth. In addition, previous studies analyze snapshots (e.g., Fry et al., 2014), assessing short-term impacts of education loans (e.g., Elliott et al., 2013a, 2013b, 2013c), but we examine these issues over a relatively longer time frame.

Literature Review

Rationales

Although education loans may help young people to enroll in and graduate from college by bridging the gap between family economic resources and rising college costs, the resulting debt may compromise their postcollege financial well-being. Education debt also may impose credit constraints and heighten debt holders' aversion to taking out additional loans.

Debt from education loans may impose credit constraints by negatively affecting borrowers' credit scores. Studies consistently indicate that debt, especially heavy debt, can limit borrowers' ability to obtain subsequent loans (Gruber, 2001; Nam & Huang, 2009). A study finds that nearly 41% of education loan holders have been delinquent on their loan or have defaulted on it (Cunningham & Kienzl, 2011). Such behavior heightens the likelihood that their subsequent loan applications will be denied; if their applications are approved, they likely will pay high interest rates. Among young adults, credit is a key mechanism for consumption and purchases of financial assets (Keister, 2000; Oliver & Shapiro, 1995). Thus, constrained credit may significantly challenge their ability to accumulate wealth. Home purchase is an apt example. One's debt-to-income ratio is a key factor in qualifying for a home mortgage; borrowers obligated to allocate a large proportion of their income for education loans and other debt will not qualify for many types of housing loans (Mishory & O'Sullivan, 2012).

In addition, debt from education and other expenses may prompt young adults to voluntarily delay the process of wealth accumulation because of associated budget constraints and financial stress. Similarly, education loans may cause aversion to debt for wealth purchase. The study by Hira, Anderson, and Peterson (2000) reports that students with high education debt consider the amount of required student loan payments in deciding whether to purchase a vehicle. . Shand (2007) indicates that aversion to debt appears to account for the negative association between education loans and homeownership rates. Having heavy education debt also might result in financial stress (Drentea, 2000), reducing the indebted student's capacity for future planning and orientation.

As we have mentioned, research suggests that other factors affect the relationship between education loans and wealth building. We specifically examine the influence of race and ethnicity, because the credit constraints and financial stress experienced by minority loan holders may be disproportionately higher than those faced by nonminority counterparts. Previous findings strengthen our expectation that such disparities play an important role. First, as we mention above, minority students are more likely to take out loans to finance college expenses (Alon, 2007; Elliott & Friedline, 2013; Perna, 2000; Ratcliffe & McKernan, 2013). They also report greater difficulties with and concerns about repayment (Baum & O'Malley, 2003; Ratcliffe & McKernan, 2013). Therefore, they may face higher credit constraints after leaving school. Second, due to racial and ethnic disparities in income and assets (e.g., Bricker et al., 2012; Kochhar et al., 2011), young adults from minority families are less likely to receive financial support from their parents. Third, labor market opportunities and economic returns from a college degree differ by the race and ethnicity of young adults. Studies indicate that Black students receive less of an economic return from their college education than do their White counterparts (e.g., Crissey, 2009). Also, the risk of losing a job in a time of economic recession is greater for Black college graduates than for White ones (Austin, 2009). Therefore, education loans could pose greater risks for Black borrowers than for their White counterparts.

Evidence

Despite increasing research into the impact of education loans on college enrollment and graduation, few studies investigate how debt affects adults' economic well-being after they have completed their education. Most examine the influence of education loans on career choices, earnings capacity, homeownership, and wealth accumulation.

Career choices and earnings capacity

Studies consistently find that education loans are positively related to initial salaries (Eyermann, 1999; Hiltonsmith, 2013; Minicozzi, 2005; Rothstein & Rouse, 2011). This association may be due in part to the need to repay education debt. However, evidence suggests that, despite their association with initial wages, education loans are negatively related to wage growth over time. The study by Minicozzi (2005) examines wage outcomes among a group of men who finished their schooling before age 35. The data come from the National Postsecondary Student Aid Study, and Minicozzi's findings indicate that an increase in education debt from \$5,000 to \$10,000 is associated with a decline (from 8% to 5%) in wage growth over a 4-year period.

However, in presenting results from an analysis of seniors from 27 colleges and universities, Monks (2001) reports that their job plans do not differ by levels of borrowing. Perhaps the subjective measure in Monk's research accounts partly for the differences between his results and findings from other studies.

Homeownership

Education loans are associated with reduced homeownership rates and delayed purchase of homes. Examining Survey of Consumer Finances data (1992–2004) on young households (i.e., household heads aged 23–32), Shand (2007) reports that each additional \$1,000 in debt from education loans is associated with about a 3% decrease in the homeownership rate among adults who graduated from college in 2003. Stone, Van Horn, and Zukin (2012) analyze survey data from a nationally representative sample of 444 college graduates (classes of 2006–2011), finding that 40% reported delaying decisions on purchase of a home or a car due to the burden of debt from their education loans.

Wealth accumulation

Studies indicate that having student loans hurts an individual's net worth and other outcomes used to measure wealth accumulation. A report on analyses of the most recent data from the Survey of Consumer Finances indicates that average net worth is seven times greater for college-educated young adults (aged 40 or younger) without education debt than for counterparts with such debt (Fry et al., 2014). A study by Hiltonsmith (2013) also analyzes Survey of Consumer Finances data, projecting that an average education loan of \$53,000 leads to a lifetime wealth loss of \$208,000. He notes that most of this loss would come from retirement savings and home equity.

Several studies by Elliott and his colleagues (Elliott et al., 2013a, 2013b, 2013c; Elliott & Nam, 2013) examine the impact of education loans on different measures of wealth accumulation during the recent economic recession (2007–2009). Those studies find that median 2009 values for net worth, home equity, retirement savings, and financial assets are all much higher among the households without education loans than among households with such loans; and these findings also apply to those with a 4-year college degree. Among the households with education loans, higher loan amounts are related to greater net worth loss between 2007 and 2009, but the loan amount is not related to the value of home equity, retirement savings, or financial assets.

Financial hardship

The recent study by Akers (2014) reports on the relationship between education loans and financial hardships, which the study measures with late bill payments and payments overdue by 60 days. It finds that those with higher education loans face only slightly higher rates of hardships than do their counterparts without such loans.

This study

Building upon these studies, our research examines the long-term impact (approximately 9 years, on average) of education loans on different wealth outcomes measured among a nationally representative sample of young adults. We explore how this impact differs among White and Black respondents. To examine whether having education loans influences wealth accumulation, we use a treatment-effect model (Guo & Fraser, 2010; Maddala, 1983), which enables us to control effectively for selection bias.

Methods**Data and sample**

We use data from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97) to examine the proposed relationships between education loans and wealth during young adulthood. The NLSY97 sample consists of 8,984 respondents who are representative of the U.S. population born between 1980 and 1984. The survey collects detailed information on the education, college finances, income, and program participation of these respondents. At ages 20, 25, and 30, youth also answered questions about their assets and debts. The first round of the survey took place in 1997. Collected in 2011 and 2012, data from the latest wave were released in the summer of 2013. This study uses data from all 15 rounds.

The sample for this study consists of participants who met three criteria. First, respondents completed at least 1 year of college by age 30. Second, they received their highest degree by age 25. This allows a window of at least 5 years in which to observe the longitudinal impact of any education loan. Third, they completed interviews about their assets at age 30. A total of 1,207 respondents met these criteria and are included in the analysis.

Variables and measures*Education loans*

The NLSY97 asks respondents how much they borrowed through government-subsidized loans and other types of loans during each term of college enrollment. If they indicate that they received loans during a term, they are asked, “How much is still owed on these loans?” We use responses to calculate the total amount of loans still owed upon leaving college (due to graduation or dropout). We also created two variables: one dichotomous indicator that captures whether the respondent had outstanding student loans during the last year of college and a continuous variable that captures the total amount of outstanding loans during the last year of college.

Wealth

We examine four dependent variables intended to elucidate different aspects of wealth: total net worth, the value of financial assets, the value of nonfinancial assets (excluding primary housing), and total market value of primary housing. These detailed, composite asset variables come from NLSY97. They capture the reported value of assets held by respondents at age 30. *Net worth* is measured as the total value of financial assets, nonfinancial assets, and primary housing, less the value of liabilities. *Financial assets* include the value of bank savings, retirement plans or pensions, and tax-advantaged accounts, as well as the market value of stocks, bonds, and mutual funds. *Nonfinancial assets* include equity in real estate (excluding primary housing), the value of any business, and that of any vehicle. *Liabilities* include mortgage and land contracts, family mortgage debt, education debt owed for personal and government loans, and other debt. To ascertain the total market value of primary housing, the survey asks respondents, “About how much would it bring if it were sold today?”

We use inverse hyperbolic sine transformation to address skewness of the variables for net worth, financial assets, and nonfinancial assets. A substantial proportion of the values in the wealth data are zero or negative. Log transformation drops zero and negative values or stacks the nonpositive values. Unlike natural log transformation, the inverse hyperbolic sine transformation retains zero and negative values without distorting standard errors (Pence, 2006). The transformation can be written as follows:

$$\text{Sinh}^{-1}(\theta w) = \log(\theta w + [\theta^2 w^2 + 1]^{1/2}) / \theta,$$

in which θ is a scale parameter and w is a measure of wealth. We follow Pence’s (2006) recommendation in setting the scale parameter at .0001. The interpretation of the coefficient depends on the scale parameter. Except for very small values of w , $\text{Sinh}^{-1}(\theta w)$ is approximately equal to $\theta^{-1} \log(2\theta w)$, or $\log(w) = \theta * \text{Sinh}^{-1}(\theta w) - \log 2\theta$. With a scale parameter of .0001, the approximate marginal effect of outstanding education loans on the original dollar scale of wealth can be written as $w = e^{(0.0001 * \beta_x + 8.52)}$, in which β_x is the coefficient for education loans. The coefficient can be interpreted in a way that is similar to the interpretation of a coefficient from logistic regression. For example, a coefficient of $-\$20,000$ on education loans means that those with education loans have about 86% less wealth than do those without education loans.

Covariates

To adjust for potential confounders, we include measures of a student’s sociodemographic and health information, college experiences, and education achievement, as well as of the number of years between graduation and age 30. Demographic variables include the respondent’s gender (*male* = 0, *female* = 1), race (*White* = 0, *Black* = 1), whether the respondent was married or cohabited while enrolled in college (*yes* = 1, *no* = 0), and whether the respondent had any children by age 20 (*yes* = 1, *no* = 0). To control for family financial background, we include parents’ income in 1996, when this information was collected. Because family income is highly skewed, we recode it into quartiles. To measure health status, we use the respondent’s self-rated health at age 20. Ratings range from 1 to 5; a higher score indicates better self-rated health. To address the paucity of respondents in certain categories (and, thus, possible concerns about the statistical power of analyses involving those

categories), we combine responses of 1 through 3 into the same health-status category. We also include a binary indicator of respondents' insurance status at age 25 when this information was available (*insured* = 0, *uninsured* = 1), because previous research demonstrates the relationship between health insurance and wealth (Bernard, Banthin, & Encinosa, 2009). We include a variable indicating whether the respondent attended a 4-year private university at the time of the latest survey (*yes* = 1, *no* = 0) and whether, by the time of that survey, a respondent had ever enrolled part-time in a nonsummer term (*yes* = 1, *no* = 0). We measure the respondent's educational attainment as the highest degree received by age 30 (high school diploma, associate's degree, bachelor's degree, and graduate degree; those with bachelor's degrees serve as the reference group).

Statistical analysis

We first use the treatment-effect model with maximum likelihood estimator to test whether having outstanding education loans upon leaving college (*yes* = 1, *no* = 0) affects asset accumulation at age 30. The term *treatment effect* refers to the average causal effect of a binary variable on an outcome of interest. A treatment-effect model is used when the binary variable is endogenous—in other words, when selection bias is present. Simple or regression-adjusted comparisons may provide estimates that are subject to omitted variable bias. Maddala (1983) based the treatment-effect model on and developed it from Heckman's (1979) sample selection model. It differs from the sample selection model in two ways: (a) the binary variable is directly entered into the regression equation and (b) the outcome variable is observed for both conditions (Guo & Fraser, 2010). The treatment-effect model simultaneously estimates two regressions with different sets of covariates. The selection equation is estimated using a probit regression to predict the probability of treatment. In this case, the prediction represents the probability of having outstanding debt from education loans upon leaving college. Either a linear or probit regression can be used to estimate the average treatment effect on outcome variables. The analysis controls for selection biases introduced by the endogeneity of the treatment assignment (Guo & Fraser, 2010). The treatment-effect model assumes that the correlation between the two error terms of the regression equation and the selection equation, denoted as parameter ρ , is not zero. Therefore, it is useful to test $H_0: \rho = 0$. A significant test against $H_0: \rho = 0$ suggests that applying the treatment-effect model is appropriate. To test whether the effects of education loans differ by racial groups, we expand the treatment-effect models to include a term for the interaction between loans and race.

We conduct regression analysis to examine whether, among respondents who have outstanding debt from education loans, the amount of loan debt when one leaves college is associated with assets accumulated in the future. All analyses use version 11.2 of Stata SE software.

Results

Sample characteristics

Table 1 provides weighted descriptive statistics for the study sample and stratifies results by loan status (i.e., with and without loans). The sample ($N = 1,207$) includes 626 young adults with outstanding loans and 581 without outstanding loans. Their average age as of January 2014 was 33 years. Over half of the sample (53%) is female and White (86%). Slightly over one-quarter (27%) of the sample was married or cohabiting during college enrollment, and about 8% of sample members

Table 1. Weighted Sample Characteristics by Loan Status

Variables	Full sample (N = 1,207)	With loans (n = 626)	Without loans (n = 581)
Student characteristics			
Age in 2014 (years)	33.02	33.01	33.02
Gender (% female)	53.42	55.94	50.77
Race			
White (%)	86.02	82.75	89.81
Black (%)	13.98	17.25	10.19
Avg. parental income in 1996 (\$)	47,720.70	43,734.20	51,995.09
Married or cohabited during college (%)	26.68	32.15	21.23
Had children at age 20 (%)	8.46	9.47	7.86
Ever enrolled in a private university (%)	24.20	31.59	15.17
Ever enrolled part-time in a nonsummer term (%)	21.54	25.09	18.02
Self-rated health at age 20 (mean)	4.07	4.04	4.09
Did not have health insurance at age 25 (%)	21.50	22.60	20.05
Highest degree received by age 25 (%)			
High school diploma	44.74	38.01	52.81
Associate's degree	10.91	11.28	11.00
Bachelor's degree	38.86	45.51	30.55
Graduate degree	5.49	5.20	5.64
No. of years after graduation to age 30	8.95	8.63	9.33
Educational loans			
Had outstanding loan debt upon graduation (%)	50.77	100	0
Avg. outstanding loan debt upon graduation (\$)	7,726.31	15,217.99	0
Wealth by age 30			
Avg. net worth (\$)	68,995.41	50,747.91	84,655.47
Avg. financial assets (\$)	31,350.51	25,843.67	35,797.55
Avg. nonfinancial assets (\$) ^a	41,610.18	39,488.79	43,445.93
Avg. value of primary housing (\$) ^b	79,277.85	79,227.24	77,487.91
Avg. value of primary housing among homeowners (\$)	182,041.30	176,776.00	186,115.70

Source. National Longitudinal Survey of Youth, 1997 Cohort.

Note. Sample statistics were weighted to adjust for oversampling, clustering, noninterviews, and differential base year participation.

^a Nonfinancial assets are the total value of nonfinancial assets, excluding primary housing but including other real estate owed

^b Value of primary housing is the estimated total market value of respondents' primary housing. The value of this variable is zero for respondents who did not own housing.

had a child when they were 20 years old. At some point prior to the survey, approximately 24% of the sample enrolled in a private 4-year college or university and 22% enrolled part-time in a nonsummer term. About 22% of the sample did not have health insurance at age 25. The average total parental income in 1996 was about \$47,721.

By age 25, nearly half of the sample (45%) dropped out of college; thus, a high school diploma is their highest degree. About 11% of the sample obtained an associate's degree, and 39% obtained a bachelor's degree. About 5% of the sample received a master's or other postgraduate degree by age 25. On average, approximately 9 years passed between the respondent's receipt of his or her highest degree and his or her thirtieth birthday. Upon graduation or dropping out of college, over half of the

sample (51%) had outstanding debt from an education loan, and the average amount owed was approximately \$15,218.

At age 30, respondents lived in households with an average net worth of \$68,995. The average value of their financial assets was \$31,351, and that of their nonfinancial assets was \$41,610. About 39% of respondents were homeowners at age 30. Among these homeowners, the average market value of primary housing was \$182,041.

Table 1 also shows differences between the two groups by loan status. Compared to young adults without outstanding loans during the last year of college, those with such loans are more likely to be female (56% vs. 51%), to be Black (17% vs. 10%), to have enrolled at some point in a private 4-year college or university (32% vs. 15%), to have enrolled part-time in a nonsummer term (25% vs. 18%), and to lack health insurance coverage at age 25 (23% vs. 20%). Loan holders are more likely to have a bachelor's degree (46% vs. 31%), and their parents had lower income in 1996 (\$43,734 vs. \$51,995).

There were disparities between these two groups in wealth levels at age 30. Compared with those who had no loan, the respondents with loans reported on average about \$33,907 less in total net worth, \$9,954 less in financial assets, \$3,957 less in nonfinancial assets, and \$9,340 less in primary housing values (among homeowners).

Results from the treatment-effect model

Table 2 presents the results from the treatment-effect model on wealth. Tests of rho for all models produce statistically significant results, and the null hypothesis, $H_0: \rho = 0$, is rejected. This suggests that the treatment model is appropriate. Results from the selection equations (not shown) come from a probit regression. A positive coefficient indicates an increase in the probability of having outstanding education loans. Compared with the respective reference groups, respondents who were Black, married or cohabiting during college enrollment, had children at age 20, ever enrolled part-time in a nonsummer term, and ever enrolled in a private 4-year institution are more likely to have outstanding education loans. Respondents who dropped out of college are less likely than college graduates to have outstanding education loans.

Results from the regression equations provide estimates of the marginal effects of education loans on wealth, and the analyses control for the covariates in the model. We find that education loans have significant marginal effects on all four wealth indicators. Compared to respondents with no outstanding education loans at graduation, counterparts with such loans have \$13,683 (75%) less in net worth, \$39,631 (80%) less in financial assets, and \$12,676 (72%) less in nonfinancial assets at age 30. The average total market value of the primary housing of respondents with outstanding education loans is approximately \$102,906 lower than that of the primary housing of those without outstanding education loans.

Compared with White counterparts, Black respondents consistently report significantly less wealth on all indicators but house value: \$6,441 (47%) less in net worth, \$14,092 (76%) less in financial assets, and \$3,927 (32%) less in nonfinancial assets. The average house value among Black respondents is \$16,322 lower, but this estimate was not statistically significant. In addition to the

Table 2. Estimated Treatment-Effect Models of Outstanding Student Loan Debt on Wealth by Age 30

Predictor variable	Net worth ^a	Financial assets ^a	Nonfinancial assets ^a	House value ^b
Female (ref. is male)	-2,279.87* (1,075.08)	-5,240.60* (2,360.91)	-1,500.01 (991.05)	8,877.13 (10,717.76)
Black (ref. is White)	-6,441.41** (1,927.10)	-14,092.02** (4,618.41)	-3,926.711* (1,923.54)	-16,321.78 (25,260.29)
Avg. parental income in 1996				
Lower (ref.)				
Middle	6,564.35*** (1,466.78)	7,036.94* (3,223.36)	4,535.85** (1,368.60)	-12,117.10 (14,833.66)
Upper middle	6,186.00*** (1,534.45)	12,713.95*** (3,410.16)	4,571.04** (1,462.73)	4,946.48 (15,154.95)
Upper	3,831.46* (1,561.78)	8,575.25* (3,405.81)	3,921.52** (1,434.93)	-4,432.54 (15,444.12)
Married or cohabited in college	4,534.16*** (1,257.28)	8,631.04** (2,742.87)	4,567.24*** (1,159.75)	537.68 (11,812.44)
Had children at age 20	2,379.69 (1,793.30)	717.84 (3,909.41)	3,675.15* (1,650.31)	-40,759.83* (20,518.43)
Ever enrolled part-time in a nonsummer term	933.14 (1,299.07)	7,251.11* (2,833.68)	1,458.04 (1,196.81)	6,621.29 (14,216.87)
Ever enrolled in a private college	4,029.55** (1,489.32)	7,445.66* (3,330.32)	1,832.71 (1,494.58)	15,776.27 (14,080.45)
Self-rated health	1,696.87* (655.46)	2,519.58 (1,431.94)	1,381.62* (605.80)	-15,134.87* (7,075.63)
Uninsured at age 25	-4,867.78*** (1,114.22)	-12,199.43*** (2,374.99)	-4,917.69*** (1,090.35)	-31,003.42* (14,507.14)
Highest degree received				
High school diploma	-15,484.68*** (2,373.70)	-41,793.11*** (5,038.93)	-8,422.07*** (2,324.54)	-110,196.10*** (24,646.21)
Associate's degree	-8,090.10*** (1,809.17)	-18,693.72*** (3,980.81)	-2,546.96 (1,698.18)	-92,907.20*** (17,864.98)
Bachelor's degree (ref.)				
Graduate degree	6,518.14* (2,766.25)	4,825.27 (6,119.47)	1,631.30 (2,538.72)	26,196.39 (22,959.80)
No. of years after graduation to age 30	1,323.85** (394.70)	2,906.55** (843.68)	903.80* (386.08)	8,720.44* (4,435.96)
Had outstanding student loan upon graduation	-13,682.54** (3,999.04)	-39,631.48*** (10,231.36)	-12,676.49** (4,673.14)	-102,905.80** (38,218.92)
Loan × Black interaction	-5,300.30* (2,200.43)	-3,284.19 (5,032.69)	1,374.86 (2,165.36)	-34,201.41 (28,491.57)
Constant	101,794.3*** (3,755.52)	87,731.6*** (8,398.47)	94,736.44*** (3,803.47)	260,447*** (41,340.38)
Rho	.60*** (.10)	.67*** (.10)	.41* (.15)	.69*** (.12)

Source. National Longitudinal Survey of Youth, 1997 Cohort.

Note. ref. = reference category. Results from selection equation are not presented in the table due to limited space. The table presents coefficients and (in parentheses) standard errors.

^a The original variable was transformed using the inverse hyperbolic sine (IHS) transformation with a scale parameter of .0001.

^b Analysis was restricted to homeowners ($n = 483$).

main effects of race and education loans on wealth, we also find that the interaction between education loans and race is statistically significant. Compared to White respondents without outstanding student loans, Black respondents with such loans report \$5,300 (40%) less net worth. Similar patterns are observed in the estimates of the effect of the interaction between race and education loans on other wealth indicators; however, none of these is statistically significant.

Noteworthy differences can be found in results for other covariates. Compared to counterparts with a high school diploma, respondents with a bachelor's degree have higher values on all four measures of wealth. Similarly, values on all wealth measures are higher for young adults who had health insurance at age 25 than for those without insurance at that age. Values for net worth, financial assets, and nonfinancial assets are higher among respondents who were married or cohabiting during enrollment than among those who were neither married nor cohabiting. Respondents with parents who had higher income in 1996 report higher values of net worth, financial assets, and nonfinancial assets. In addition, net worth and financial assets are higher among male respondents than female ones and higher among those enrolled in private colleges than among counterparts enrolled in public colleges. Nonfinancial assets are higher for respondents who had children by age 20 than for counterparts who were childless at that age. Both net worth and nonfinancial assets are higher among those with better self-reported health status. The value of primary housing is lower among young-adult homeowners with children than among those without children, and lower housing values are associated with better self-reported health status.

Results from regression analysis

To examine the relationship between the amount owed on education loans and the five indicators of wealth, we conduct an analysis restricted to those with outstanding loans and estimate a multivariate regression model. We find no statistically significant main effects of education loans on any of the wealth indicators (Table 3). Results from further analyses suggest possible quadratic effects of education loans; that is, wealth appears to increase with the amount of education loans until the loan amount reaches the top 25% of the debt distribution among those with outstanding education loans. At that level of debt, wealth starts to drop. Unfortunately, none of these patterns is statistically significant, although that may be due to relatively low statistical power.

Results from Table 3 point to several positive predictors of wealth. Having a bachelor's degree and having health insurance are associated with wealth, as is being White and being married or cohabiting during enrollment. So too, parental income, health insurance coverage, and self-rated health are all positively associated with at least one indicator of wealth. Having children at age 20 is negatively associated with the value of financial assets.

Discussion

This study examines two major research questions. First, it investigates the relationship of education loans with postcollege wealth accumulation. After controlling for a range of students' characteristics, college experience, and parental income, we find that having education loans is negatively related to net worth, financial assets, nonfinancial assets, and the value of primary housing. This is consistent with previous findings that education loans compromise future financial well-being (Elliott & Nam, 2013; Elliott et al., 2013a, 2013b, 2013c; Fry et al., 2014; Hiltonsmith, 2013). Since this study

Table 3. Regression Analysis on Wealth among Young Adults with Outstanding Loan Debt upon Graduation

Predictor variable	Net worth ^a	Financial assets ^a	Nonfinancial assets ^a	House value ^b
Female (male)	-228.90 (1,349.99)	-3,853.63 (2,901.70)	-546.44 (1,375.53)	8,481.25 (13,697.72)
Black (White)	-3,673.99* (1,445.27)	-15,681.31*** (3,078.03)	-6,651.31*** (1,445.73)	-9,285.02 (18,490.91)
Avg. parental income in 1996				
Lower (ref.)				
Middle	5,330.71** (1,811.77)	-97.81 (3,872.42)	2,867.18 (1,838.79)	-3,396.61 (20,363.59)
Upper middle	4,520.72* (1,825.17)	4,784.55 (3,904.54)	3,678.89* (1,870.53)	-21,012.00 (19,932.10)
Upper	6,229.63** (1,881.08)	10,356.06** (4,008.33)	4,924.14** (1,885.34)	-10,073.63 (19,320.02)
Married or cohabited in college	2,850.80* (1,385.57)	8,001.85** (2,957.33)	3,575.05** (1,391.62)	-11,746.26 (13,539.99)
Had children at age 20	320.39 (2,179.79)	-9,990.23* (4,599.68)	2,858.86 (2,172.60)	-15,194.16 (28,981.30)
Self-rated health	1,719.32* (810.17)	2,187.11 (1,720.47)	1,421.11 (820.22)	-3,305.21 (8,364.57)
Uninsured at age 25	-3,710.52* (1,507.87)	-14,679.14*** (3,242.29)	-6,280.04*** (1,545.22)	-20,821.68 (22,519.08)
Highest degree received				
High school diploma	-8,831.30** (3,013.90)	-30,799.25*** (6,479.90)	-5,657.19 (3,081.47)	-105,863.70** (33,166.30)
Associate's degree	-6,712.72** (2,064.41)	-14,531.30** (4,455.48)	-2,698.05 (2,160.05)	-88,700.59*** (22,797.60)
Bachelor's degree (ref.)				
Graduate degree	9,375.64** (3,357.87)	5,969.04 (7,145.58)	3,520.26 (3,32.73)	53,974.45 (28,418.99)
No. of years after grad. to age 30	829.95 (520.18)	2,782.13* (1,115.31)	563.39 (535.23)	11,401.10 (6,219.99)
Amount of outstanding loan upon grad. ^c	2,549.87 (8,480.28)	23,502.99 (17,159.65)	5,069.18 (8,080.99)	53,217.50 (85,613.13)
Loan-square	-153.67 (471.00)	-1,397.12 (948.75)	-319.85 (450.07)	-3,402.01 (4,729.15)
Constant	82,679.13* (38,074.20)	-28,781.91 (77,416.96)	71,906.25* (36,257.91)	-57,542.24 (386,953.50)
R-square	.15	.28	.13	.14

Source. National Longitudinal Survey of Youth, 1997 Cohort.

Note. grad. = graduation. Results are coefficients and standard errors (in parentheses).

^a The original variable was transformed using the inverse hyperbolic sine (IHS) transformation with a scale parameter of .0001.

^b Analysis was restricted to homeowners ($n = 241$).

^c The original variable was transformed using natural log transformation.

examines the impact of education loans over a longer period of time (average 9 years after college) than that captured in previous studies (2 years or less), the finding suggests that, in addition to the short-term influences, education loans may also have longer term impact on wealth accumulation. Also similar to findings from previous studies (e.g., Elliott et al., 2013a, 2013b, 2013c), this research indicates that the amount of education loans is not related to measures of wealth accumulation among the young adults who had education loans upon leaving college.

Second, the study explores whether education loans' relationships with wealth differ between White and Black young adults. The significant interaction between race and education loans in their effect on net worth indicates that such loans have an additional, negative impact on the balance sheet for Black young adults, and that impact differs from the main negative effects of race and outstanding education loans. As we mention above, Black young adults are more likely than White counterparts to have education loans and their loan burden is much higher (measured with loan-to-income ratios and loan-to-financial assets ratios). These findings may help to explain why the effects of loans are stronger for Black respondents than for White ones.

Some of the results from covariates are worthy of mention. Values on all four measures of wealth are higher for respondents with a bachelor's degree than for those without a 4-year degree, and the differences persist in results from analyses that control for education loans as well as other variables. This finding highlights the importance of a college degree in building wealth among young adults, although education loans reduce the payoff among college graduates. Parental income and health insurance are also important predictors of young adults' wealth accumulation.

A few limitations are notable and point to useful directions for future research. First, the study is not experimental research. Although we use a well-regarded longitudinal data set and conduct sophisticated analyses (e.g., the treatment-effect model helps us to control for selection bias), it is impossible to fully rule out alternative explanations for the findings. For example, there could be unobserved factors that explain the levels of education loans as well as variation in wealth building among young adults. Second, we cannot differentiate types of education loans (e.g., federal, state, private; subsidized or unsubsidized) in the NLSY97 data, and those distinctions could affect college outcomes. Also, education loans can be issued to parents and to students, but the data do not specifically denote who took out the loans. Future studies could capture these differences. Third, theory suggests but this study does not examine the possible mechanisms, such as the credit constraints and aversion to debt, through which education loans influence wealth accumulation. Future research in this direction may help to clarify how loans affect wealth building. Such analyses also will help develop a new knowledge base and theoretical frameworks as well as effective policy and practice interventions.

In a period of increasing debt from education loans and marked age disparities in wealth accumulation, it is critical to examine the links between these two factors among young adults. Consistent with the emerging research in this area, the current study indicates that having education loans is a barrier to future wealth building. Adding to the literature, this study further suggests that education loans reduce wealth building over a longer period of time than was previously known. The findings also show some evidence that having education loans hurts the net worth of Black young adults even more than it hurts the net worth of their White counterparts. Therefore, addressing college students' financial needs with additional education loans and other types of credit may be

counterproductive for young adults' future financial health and even may magnify racial disparities in wealth.

Several approaches have been discussed or undertaken to reduce college students' reliance on loans and to limit the financial strain on loan holders. Examples include expanding Pell grants and income-contingent repayment initiatives (Ratcliffe & McKernan, 2013). Providing financial education is another critical priority for those who seek to help youth and their families make informed financial decisions about planning and paying for college. It is equally important to create and implement strategies for addressing the financial needs of college students. In particular, there is a need to enhance opportunities for students and their families to prepare early for the costs of a college education and to be self-reliant. Some promising strategies include college savings plans (also known as 529 plans) and Child Development Accounts. College savings plans are broadly available and promising vehicles to facilitate college savings (Lassar, Clancy, & McClure, 2011). Child Development Accounts are incentivized accounts that encourage households to save for children's higher education (Beverly, Elliott, & Sherraden, 2013). Such approaches may have the potential to improve the long-term educational and financial development of young adults (Elliott, Destin, & Friedline, 2011).

References

- Akers, B. (2014). *How much is too much? Evidence on financial well-being and student loan debt* (Report, American Enterprise Institute Series on Reinventing Financial Aid). Washington, DC: American Enterprise Institute. Retrieved from http://www.aei.org/files/2014/05/14/-how-much-is-too-much_100837569045.pdf
- Alon, S. (2007). The influence of financial aid in leveling group differences in graduating from elite institutions. *Economics of Education Review*, 26(3), 296–311. doi:10.1016/j.econedurev.2006.01.003
- Austin, A. (2009, April 22). *Among college-educated, African Americans hardest hit by unemployment* (Economic Snapshot). Washington, DC: Economic Policy Institute. Retrieved from http://www.epi.org/economic_snapshots/entry/snapshots_20090422/
- Baum, S., & O'Malley, M. (2003). College on credit: How borrowers perceive their education debt. *Journal of Student Financial Aid*, 33(3), article 1. <http://publications.nasfaa.org/jsfa/vol33/iss3/1>
- Baum, S., & Saunders, D. (1998). Life after debt: Results of the National Student Loan Survey selected text from the final report. *Journal of Student Financial Aid*, 28(3), article 1. <http://publications.nasfaa.org/jsfa/vol28/iss3/1>
- Bernard, D. M., Banthin, J. S., & Encinosa, W. E. (2009). Wealth, income, and the affordability of health insurance. *Health Affairs*, 28(3), 887–896. doi:10.1377/hlthaff.28.3.887
- Beverly, S. G., Elliott, W., & Sherraden, M. (2013). *Child Development Accounts and college success: Accounts, assets, expectations, and achievements* (CSD Perspective 13-27). St. Louis, MO: Washington University, Center for Social Development. Retrieved from <http://csd.wustl.edu/Publications/Documents/P13-27.pdf>
- Bricker, J., Kennickell, A. B., Moore, K. B., & Sabelhaus J. (with Ackerman, S., Argento, R., Fries, G., & Windle, R. A.). (2012). Changes in U.S. family finances from 2007 to 2010: Evidence from the Survey of Consumer Finances. *Federal Reserve Bulletin*, 98(2). <http://www.federalreserve.gov/Pubs/Bulletin/2012/articles/scf/scf.htm>
- Center for Human Resource Research. (2003). *NLSY97 user's guide: A guide to the rounds 1–5 data National Longitudinal Survey of Youth 1997*. Columbus, OH: Ohio State University. Retrieved from <http://www.bls.gov/nls/97guide/rd5/nls97ugall.pdf>
- College Board. (2012). *Trends in student aid 2012* (Trends in Higher Education Series Report). New York, NY: College Board. Retrieved from <http://trends.collegeboard.org/student-aid>
- Crissey, S. R. (2009). *Educational attainment in the United States: 2007* (Report No. P20-560). Retrieved from <http://www.census.gov/prod/2009pubs/p20-560.pdf>
- Cunningham, A. F., & Kienzl, G. S. (2011). *Delinquency: The untold story of student loan borrowing* (Report). Washington, DC: Institute for Higher Education Policy. Retrieved from http://www.ihep.org/assets/files/publications/a-f/delinquency-the_untold_story_final_march_2011.pdf

- Drentea, P. (2000). Age, debt and anxiety. *Journal of Health and Social Behavior*, 41(4), 437–450. doi:10.2307/2676296
- Dynan, K. E. (2009). Changing household financial opportunities and economic security. *Journal of Economic Perspectives*, 23(4), 49–68. doi:10.1257/jep.23.4.49
- Elliott, W., III, Destin, M., & Friedline, T. (2011). Taking stock of ten years of research on the relationship between assets and children’s educational outcomes: Implications for theory, policy, and intervention. *Children and Youth Services Review*, 33(11), 2312–2328. doi:10.1016/j.chidyouth.2011.08.001
- Elliott, W., III, & Friedline, T. (2013). “You pay your share, we’ll pay our share”: The college cost burden and the role of race, income, and college assets. *Economics of Education Review*, 33, 134–153. doi:10.1016/j.econedurev.2012.10.001
- Elliott, W., III, Grinstein-Weiss, M., & Nam, I. (2013a). *Does outstanding student debt reduce asset accumulation?* (CSD Working Paper 13-32). St. Louis, MO: Washington University, Center for Social Development. Retrieved from <http://csd.wustl.edu/Publications/Documents/WP13-32.pdf>
- Elliott, W., III, Grinstein-Weiss, M., & Nam, I. (2013b). *Is student debt compromising homeownership as a wealth-building tool?* (CSD Working Paper 13-33). St. Louis, MO: Washington University, Center for Social Development. Retrieved from <http://csd.wustl.edu/Publications/Documents/Do%20Child%20Development%20Accounts%20Promote%20Account%20Holding,%20Saving,%20and%20Asset%20Accumulation%20for%20Children's%20Future.pdf>
- Elliott, W., III, Grinstein-Weiss, M., & Nam, I. (2013c). *Student debt and declining retirement savings* (CSD Working Paper 13-34). St. Louis, MO: Washington University, Center for Social Development. Retrieved from <http://csd.wustl.edu/Publications/Documents/WP13-34.pdf>
- Elliott, W., III, & Nam, I. (2013). Is student debt jeopardizing the short-term financial health of U.S. households? *Federal Reserve Bank of St. Louis Review*, 95(5), 405–424. <http://research.stlouisfed.org/publications/review/13/09/Elliott.pdf>
- Emmons, W. R. (2012, January). Don’t expect consumer spending to be the engine of economic growth it once was [online extra]. *Regional Economist*, 20(1). <http://www.stlouisfed.org/publications/re/articles/?id=2201>
- Eyermann, T. S. (1999). *The effects of loan indebtedness on students’ educational attainment, career choice, and post-collegiate income* (Unpublished doctoral dissertation), University of California, Los Angeles.
- Fry, R. (2012, September 26). *A record one-in-five households now owe student loan debt: Burden greatest on young, poor* (Social and Demographic Trends Report). Washington, DC: Pew Research Center. Retrieved from <http://www.pewsocialtrends.org/2012/09/26/a-record-one-in-five-households-now-owe-student-loan-debt/>
- Fry, R., Parker, K., & Rohal, M. (2014, May 14). *Young adults, student debt and economic well-being* (Social and Demographic Trends Report). Washington, DC: Pew Research Center. Retrieved from http://www.pewsocialtrends.org/files/2014/05/ST_2014.05.14_student-debt_complete-report.pdf

- Gruber, J. (2001). The wealth of the unemployed. *Industrial and Labor Relations Review*, 55(1), 79–94. doi:10.2307/2696187
- Guo, S. & Fraser, M. W. (2010). *Propensity score analysis: Statistical methods and applications*. Thousand Oaks, CA: Sage.
- Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica*, 47(1), 153–161. doi:10.2307/1912352
- Hiltonsmith, R. (2013). *At what cost? How student debt reduces lifetime wealth* (Report). New York, NY: Dēmos. Retrieved from http://www.demos.org/sites/default/files/publications/AtWhatCostFinal_Demos.pdf
- Hira, T. K., Anderson, M. M., & Petersen, K. (2000). Students' perceptions of their education debt and its impact on life after graduation. *Journal of Student Financial Aid*, 30(1), article 4. <http://publications.nasfaa.org/jsfa/vol30/iss1/4>
- Keister, L. A. (2000). *Wealth in America: Trends in wealth inequality*. Cambridge, United Kingdom: Cambridge University Press.
- Kochhar, R., Fry, R., & Taylor, P. (2011, July 26). *Twenty-to-one: Wealth gaps rise to record highs between Whites, Blacks and Hispanics* (Social and Demographic Trends Report). Washington, DC: Pew Research Center. Retrieved from http://www.pewsocialtrends.org/files/2011/07/SDT-Wealth-Report_7-26-11_FINAL.pdf
- Lassar, T., Clancy, M., & McClure, S. (2011). *College savings match programs: Design and policy* (CSD Policy Report No. 11-28). St. Louis, MO: Washington University, Center for Social Development. Retrieved from <http://csd.wustl.edu/Publications/Documents/RP11-28.pdf>
- Maddala, G. S. (1983). *Limited-dependent and qualitative variables in econometrics*. Cambridge, United Kingdom: Cambridge University Press.
- Minicozzi, A. (2005). The short term effect of educational debt on job decisions. *Economics of Education Review*, 24(4), 417–430. doi:10.1016/j.econedurev.2004.05.008
- Mishory, J., & O'Sullivan, R. (2012). Denied? *The impact of student debt on the ability to buy a house* (Report). New York, NY: Young Invincibles. Retrieved from <http://younginvincibles.org/wp-content/uploads/2012/08/Denied-The-Impact-of-Student-Debt-on-the-Ability-to-Buy-a-House-8.14.12.pdf>
- Monks, J. (2001). Loan burdens and educational outcomes. *Economics of Education Review*, 20(6), 545–550. doi:10.1016/S0272-7757(00)00030-3
- Nam, Y., & Huang, J. (2009). Equal opportunity for all? Parental economic resources and children's educational attainment. *Children and Youth Services Review*, 31(6), 625–634. doi:10.1016/j.childyouth.2008.12.002
- Oliver, M. L., & Shapiro, T. M. (1995). *Black wealth, White wealth: A new perspective on racial inequality*. New York, NY: Routledge.
- Payea, K., Baum, S., & Kurose, C. (2013). *How students and parents pay for college* (Trends in Higher Education Series Analysis Brief). New York, NY: College Board Advocacy and Policy Center. Retrieved from <http://trends.collegeboard.org/sites/default/files/analysis-brief->

how-students-parents-pay-college.pdf

- Pence, K. (2006). The role of wealth transformations: An application to estimating the effect of tax incentives on saving. *Contributions to Economic Analysis & Policy*, 5, 1–24.
- Perna, L. W. (2000). Differences in the decision to attend college among African Americans, Hispanics, and Whites. *Journal of Higher Education*, 71(2), 117–141. doi:10.2307/2649245
- Ratcliffe, C., & McKernan, S.-M. (2013). *Forever in your debt: Who has student debt, and who's worried?* (Report.) Washington, DC: Urban Institute. Retrieved from <http://www.urban.org/UploadedPDF/412849-Forever-in-Your-Debt-Who-Has-Student-Loan-Debt-and-Whos-Worried.pdf>
- Rothstein, J., & Rouse, C. E. (2011). Constrained after college: Student loans and early-career occupational choices. *Journal of Public Economics*, 95 (1–2), 149–163. doi:10.1016/j.jpubeco.2010.09.015
- Shand, J. M. (2007). *The impact of early-life debt on the homeownership rates of young households: An empirical investigation* (CFR Seminar Paper). Washington, DC: Federal Deposit Insurance Corporation, Center for Financial Research. Retrieved from http://www.fdic.gov/bank/analytical/cfr/2008/jan/CFR_SS_2008Shand.pdf
- Steuerle, E., McKernan, S.-M., Ratcliffe, C., & Zhang, S. (2013). *Lost generations? Wealth building among young Americans* (Report). Washington, DC: Urbana Institute. Retrieved from <http://www.urban.org/UploadedPDF/412766-Lost-Generations-Wealth-Building-Among-Young-Americans.pdf>
- Stone, C., Van Horn, C., & Zukin, C. (2012). *Chasing the American Dream: Recent College Graduates and the Great Recession* (WorkTrends Report). New Brunswick, NJ: Rutgers University, John J. Heldrich Center for Workforce Development. http://www.heldrich.rutgers.edu/sites/default/files/content/Chasing_American_Dream_Report.pdf
- Taylor, P., Fry, R., Cohn, D., Livingston, G., Kochhar, R., Motel, S., & Patten, E. (2011, November 7). *The rising age gap in economic well-being: The old prosper relative to the young* (Social and Demographic Trends Report). Washington, DC: Pew Research Center. Retrieved from <http://www.pewsocialtrends.org/files/2011/11/WealthReportFINAL.pdf>

Suggested citation

Zhan, M., & Xiang, X. (2014). *Education loans and wealth building among young adults* (CSD Working Paper No. 14-14). St. Louis, MO: Washington, University, Center for Social Development.

Contact us

Min Zhan, PhD
Associate Professor
School of Social Work
University of Illinois at Urbana-Champaign
1010 W. Nevada Street
Urbana, IL 61801
Phone: 217-244-5252
mzhan@illinois.edu

Xiaoling Xiang
PhD Student
School of Social Work
University of Illinois at Urbana-Champaign
1010 W. Nevada Street
Urbana, IL 61801
xxiang3@illinois.edu