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Is Student Debt Compromising Homeownership as a Wealth-Building Tool?

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Is Student Debt Compromising Homeownership as a Wealth-Building Tool?

In this study, the authors use 2007–2009 Survey of Consumer Finance longitudinal data to examine if having student loans affected home equity during the Great Recession. We find that median 2009 home equity ($90,000) for households with no outstanding student loan debt is twice as high as that of households with outstanding student loan debt ($45,000). Further, multivariate statistics reveal that a household with a college graduate, median 2007 home equity, and student loan debt had $54,334 (40%) less home equity in 2009 than a household with a college graduate, median home equity, and no college debt. The main policy implication is that outstanding student debt may be associated with reduced home equity. This finding raises questions about the short-term financial effects of overreliance on student borrowing as a financial aid strategy, particularly given the importance of home equity accumulation as a vehicle for economic security, itself a primary goal of higher educational attainment. However, this topic is complex, and more research is needed before suggesting policy prescriptions.

Keywords: *home equity, homeownership, student loans, survey of consumer finances, assets*

Highlights

- About 15% of U.S. households that own a house have outstanding student loan debt. The average outstanding student loan debt is $27,723.
- Median 2009 home equity in households with no student debt ($90,000) is twice that of households with student debt ($45,000).
- Households with home equity of $107,702 (50th percentile) and student debt in 2007 had a drop in home equity of $30,163 in 2009 compared to if they did not have student debt.
- Households with home equity of $155,339 (50th percentile) and student debt in 2007 had $54,333.87 less home equity in 2009 than households with no student debt, a loss of about 40%.
- Outstanding student debt may be associated with a reduction in the short-term financial health of households.

Introduction

The American Dream, a concept embedded in the psyches of most Americans, implies that hard work and ability will result in success. This idea shapes our perceptions of success and failure and influences social policies that undergird opportunities or perpetuate disadvantage. Creating a good life through "the pursuit of happiness" is central to our national identity but not necessarily an accurate description of economic mobility and prosperity in the US. Stagnant wages, rising college costs, and economic instability intensified by the Great Recession have all but destroyed Americans' belief in the axiom that subsequent generations would be more prosperous than previous ones. Over time, this pessimism may erode our belief in the links between opportunity, effort, and success and how we view the economy, education, and the future.

Especially since the beginning of the 20th century, public schools, colleges, and universities have been some of the strongest promoters of the American Dream (see Hochschild & Scovronick,

2003), and Horace Mann described education as "the great equalizer of the conditions of men" (1848, p. 59). Since then, Americans have believed that education can lessen economic disparity through the pursuit of and success in higher education. As Thomas Shapiro (2004) said, "The genius of the American dream is the promise that those who work equally hard will reap roughly equal rewards" (p. 87). However, recent studies suggest that education might not benefit everyone equally (e.g., Carnevale & Strohl, 2010; Hertz et al., 2007). Academic failure and subsequent career immobility—which result in hardship for many disadvantaged groups of Americans—might be caused by inherent flaws in the educational system rather than individual shortcomings. Indeed, higher education and the current financial aid system may reinforce patterns of disadvantage.

Are Student Loans a Source of Inequality?

Research on education and economic mobility has largely ignored the role that student loan debt might have on education's ability to function as a social equalizer. Many Americans see student loans as investments that support long-term achievement (Cunningham & Santiago, 2008), a down payment on the American Dream. Loans allow access to human capital that opens doors to promising opportunities. But this borrowing may have real costs for students' balance sheets that weaken the ability of education to act as an equalizer, especially because some students are far more likely to have to rely on loans. Some groups of potential students may even decide not to enroll in college, thus blocking their educational and economic progress, because their only option for financing their education is through student loans.

Student loans may introduce inequality to the educational system because of the potential negative effect of outstanding student debt on educational outcomes and postgraduation financial security. For example, two students who invest similar levels of effort and have similar abilities graduate and become doctors. One has outstanding student debt, while the other does not. The doctor with student loan debt accumulates less wealth because she pays hundreds or even thousands of dollars per month toward her student debt and must delay buying a home (or is forced to buy a home at a higher interest rate). However, this does not mean that the doctor with student loan debt is not better off for having gone to college. Rather, she is not as well off as her peer with no student debt.

Wealth-Building Tools

For all but the very wealthy, homeownership is the primary source of wealth in the United States, making up about 65% of all U.S. wealth (Mishel, Bivens, Gould, & Shierholz, 2013). Given this, it is not surprising that owning a home has long been part of the American Dream (Cullen, 2003). However, few households attain homeownership in today's complex economy without considerable policy intervention (e.g., the income tax deduction for home mortgage interest, the Homestead Act of 1862, and the GI Bill) (Shapiro, 2004) and institutional facilitation, the process by which institutions facilitate individuals' goals, promoting self-efficacy and development of positive future identities (e.g., college bound) (Assets and Education Initiative, 2013). In highly specialized and technical societies, institutions (e.g., financial aid policies or the education system) augment effort and ability to control who succeeds. These institutions often operate almost invisibly, distorting perceptions of factors that contribute to success or failure.

Evidence shows that owning a home is important for establishing economic well-being across the life course (Charles & Hurst, 2002; Oliver & Shapiro, 1995). Importantly, homeownership facilitates differential access to opportunities and builds a financial reserve that provides a measure of economic security. Shapiro (2004) describes how White middle- and upper class parents gain an educational advantage for their children by leveraging homes and moving to better neighborhoods with high-quality schools in "a narrow, self-interested way" (p. 158). He rightly focuses on practices

in America that create racial inequality in the housing market, which affects children's educational outcomes (Shapiro, 2004). We suggest that student loans might be another way that inequality is introduced into the housing market.

Does Owning a Home Still Matter?

Since the housing market bust that led to the Great Recession, many people have questioned whether or not a home is still an important form of wealth. In 2010, housing prices had dropped 35% from their peak in 2006 (Urahn, Currier, Wechsler, Wilson, & Colbert, 2012). The recession hit low- and middle-income households the hardest. For homeowners with income of less than $70,000, home equity is estimated to have declined by 54% between 2006 and 2010 (Urahn et al., 2012).

In spite of the housing market bust, having home equity remains important for the well-being of college graduates and increases the likelihood that children will enroll in college. Grinstein-Weiss and Key (2013) find that homeownership remains the dominant asset on the balance sheets of most Americans. Urahn et al. (2012) find that for every $10,000 of home equity, the likelihood that low- and middle-income students (i.e., those whose families have income below $70,000) enroll in college increases by six percentage points. They also find that low- and middle-income students' enrollment in four-year public flagship schools increases by 24 percentage points, and college graduation rates increase by nine percentage points when their families own a home. This helps us understand how wealth—specifically homeownership—might have implications for the intergenerational transfer of educational outcomes.

Theoretical Framework

Despite widespread concerns about the increased reliance on student loans, the effects that student debt has on postcollege outcomes have been studied very little because it is seen as necessary and normal. Many view debt accrual as essential for status attainment and allowing students, "to move toward goals their current income could not support" (Dwyer, McCloud, & Hodson, 2011, p. 729). Also, people generally accept that debt from student loans has little effect on consumption throughout the life course (Rothstein & Rouse, 2011). In this paradigm, students are assumed to be rational actors who weigh amount of student debt against their potential lifetime earnings. As Rothstein and Rouse (2011) suggest, "student debt has only an income effect—proportional to the ratio of debt to the present discounted value of total lifetime earnings—on career and other post-college decisions" (p. 149). They calculate that $10,000 in student debt represents less than 1% of the present value of the average college graduate's potential lifetime earnings. From this perspective, the student who graduates with debt is no worse off than the student who graduates without debt and certainly is better off than if she had not graduated from college because of the potential to earn more with a degree. The graduate also can earn a similar amount across her lifetime whether she has college debt or not. However, we contest three beliefs inherent in this economic perspective: (1) students are rational actors, (2) wealth is distinct from income, and (3) outstanding student debt does not result in credit constraints.

Are students rational decision makers?

Evidence suggests that students do not act rationally when deciding whether or not to take on student debt. Dwyer et al. (2011) find that while student debt is positively associated with their self-concept and sense of mastery during and soon after college (i.e., from ages 18 to 24 and 25 to 27), it has negative effects later in life (i.e., from age 28 on). They suggest that this raises critical questions about debtors' ability to think rationally about loans or long-term financial health:

> People may not make independent judgments on their likely future earnings and then take on debt accordingly. Rather, they may be offered an amount of debt that may exceed their own estimation of their earning potential and then adjust their anticipated earning upward in response. (p. 737)

If students overestimate their future earnings relative to the amount of debt they are taking on, they may find that they are financially overextended when attempting to purchase a wealth-building asset (e.g., a home). As a result, they would have to delay buying a home or buy it with less-than-favorable terms. For example, Stone, Van Horn, and Zukin (2012) find that 40% of four-year college graduates with student loan debt delay major purchases such as a home or car.

Wealth is different from income

The economic perspective, which focuses on income, fails to recognize the importance of assets (i.e., wealth) in creating advantage or disadvantage. Even if the doctor with student debt earns the same amount over a lifetime as the classmate who graduated without debt, her ability to accumulate wealth (i.e., total assets minus total debt) may be less. Wealth is different from income in an important way: wealth reflects ownership power or control over resources stored over time and used for human development and social mobility and to transfer advantage from one generation to the next. In contrast, income represents resources earned over a week or month. As Shapiro (2006) points out, "Two families with similar incomes but widely disparate wealth most likely do not share similar life trajectories, and we must consider this when thinking about inequality and public policy" (p. 56). For example, Shapiro, Meschede, and Osoro (2013) find that each $1 increase in income translates to a $5 increase in wealth for Whites but only $0.70 for Blacks. Therefore, graduates with similar abilities who expend the same amount of effort may be equally able to earn, but their capacity to accumulate wealth may be very different. This is important because higher education is valued primarily as a means of attaining economic security, not as a good itself. Therefore, looking at the circumstances in which the same degree does or does not result in financial well-being plays an important role in determining how valuable it really is.

Credit as a wealth-building tool

Young graduates' annual earnings are often much lower than what they will be once they reach their prime earning years during middle age, and most young adults cannot rely on parents' financial help in purchasing big-ticket wealth-building assets. Of course, this is particularly true for young adults who had to rely on student loans to finance their higher education. Therefore, most young adults must use credit as the key mechanism for smoothing consumption when purchasing wealth-building assets such as a home (Oliver & Shapiro, 1995; Keister, 2000). For many Americans, credit functions as a tool for building wealth.

The life-cycle hypothesis of student debt assumes that there are few or no constraints on credit (i.e., a perfect credit market) and that individuals—particularly those with lower incomes—are able to borrow against future earnings to purchase items that require a considerable financial investment. However, having outstanding student debt can compromise a graduate's chances of being granted access to credit, further deepening inequality.

Despite the notion that there is a perfect credit market, evidence suggests that credit constraints force young adults with outstanding student debt to delay purchasing a home—and earning equity—or purchase it at a high interest rate in the subprime loan market, potentially introducing another source of inequality into the housing market. For example, Mishory and O'Sullivan (2012) find that average, single student debtors would not qualify for FHA or many private housing loans because

they would have to put close to 50% of their monthly income toward student loan and mortgage payments. Following Rothstein and Rouse (2011), we posit that these credit constraints may result in substantial negative effects on postcollege outcomes not accounted for by the traditional life-cycle hypothesis in economics.

Research Questions

Research on the negative effects of outstanding student debt on students' ability to accumulate wealth in young adulthood has begun to emerge. For example, Steuerle, McKernan, Ratcliffe, and Zhang (2013) suggest that student debt has contributed to lower wealth accumulation among today's young adults than those in previous generations, who accumulated less debt. They find that adults in their mid-30s or younger have accumulated about the same amount of wealth as their counterparts did 25 years ago. However, they do not directly test student loans' association with stagnant wealth. In this study, we test the effects that student loans have on college graduates' ability to accumulate equity in their homes. We suggest that since home equity is one of the primary ways of building wealth in the US, findings have implications for whether (a) the current debt-dependent financial aid system augments or hinders the educational system's ability to act as the "great equalizer" in society and (b) student debt increases inequality in the housing market.

Does depending on loans to finance higher education compromise graduates' ability to build a strong financial future through homeownership—the primary way that most Americans build wealth? Does relying on borrowing to finance college undercut one of the purposes of higher education in some significant ways? More specifically, we explore three research questions:

1. Is having outstanding student loan debt associated with home equity?
2. Is the amount of outstanding student loan debt associated with home equity?
3. Do households with a college graduate and outstanding student loan debt have less home equity than households with a college graduate and no outstanding student loan debt?[1]

Methods

Data

We used panel data from the 2007–2009 Survey of Consumer Finances (SCF) survey, sponsored by the Federal Reserve Board. The data include observations on 3,857 families in the US who responded in 2007 and 2009. Instead of the usual cross-sectional SCF data, these panel data are longitudinal which provides an opportunity for researchers to avoid causality issues.

We analyzed data on survey respondents instead of household heads because the SCF does not provide information on key variables (e.g., race) for the household head. The respondent in a household is defined as, "the economically dominant single individual or the financially most knowledgeable member of the economically dominant couple" (Kennickell, 2010, p. 4). Survey questions focus on the primary economic unit, which "includes the core individual or couple and any other people in the household or away at school who were financially interdependent with that person or couple" (Kennickell, 2010, p. 4).

The aggregate sample for this study consists of all 2,918 households that own their homes included in the SCF. We restricted the sample to homeowners since our dependent variable is home equity. We then created two subsamples. First, we restricted the sample to include respondents who

[1] In this paper, *college graduate* is anyone with a bachelor's or postgraduate college degree.

graduated from a four-year college (n = 1,783) to test whether the effects of student loan debt on financial well-being are mitigated by college completion. Second, we restricted the sample to households with outstanding student loan debt (n = 543) to determine whether the amount of student loan debt influences home equity.

Measures

We used the macro created for use with the 2007–2009 survey panel to construct the variables in this sample.[2]

Dependent variables

Home equity equals home value minus all home-secured debt. We transformed home equity values using the inverse hyperbolic sine (IHS). The transformation can be expressed as:

$$\sinh^{-1}(\theta a) = \theta^{-1}\ln(\theta a + [\theta^2 a^2 + 1]^{1/2})$$

in which θ is a scaling parameter and a is homeownership value. To make interpretation of results easier, we converted IHS assets values back into dollar amounts. The conversion can be expressed as:

$$\frac{1}{2}\left(e^{\theta y} + e^{-\theta y}\right)\beta_X$$

and can be considered a marginal effect of a change in independent variable X on dollars of assets w, where $y = \sinh^{-1}(a)$, θ is a scaling parameter for IHS transformation, and β_X is a coefficient for variable X. The IHS marginal effects depend on the chosen value of θ. Regression estimates in this study are based on a θ of 0.0003, the optimal value as estimated by the maximum likelihood method.[3]

Covariates

We include eight covariates in our analyses: (a) four-year college or postgraduate degree of any household member, (b) respondent's age, (c) respondent's occupational prestige, (d) respondent's marital status, (e) household's use of welfare programs, (f) respondent's race, (g) respondent's health status, and (h) respondent's income.

We determined four-year college graduate status—a dichotomous variable—using the respondent's answer to the survey question about the highest grade of school or year of college attained by any member of the household. Age is a continuous variable. We measured occupational prestige using the SCF's classifications of respondents' job titles: professional, technical/service, other, and not working. The SCF measured marital status by asking respondents if they are married, living with a partner, separated, divorced, widowed, or never married, which we coded as married = 1 and all others = 0. The survey measured the use of welfare programs by asking respondents if they or anyone else in the household receives income from Temporary Assistance for Needy Families (TANF), the Supplemental Nutrition Assistance Program (SNAP), or other forms of welfare or assistance, such as Social Security Insurance (SSI). Respondents described themselves as White, Black, Hispanic, or Asian and measured their health status by choosing one of the following categories: excellent, good, fair, or poor, which we coded as excellent = 4, good = 3, fair = 2, and

[2] The macro can be found at http://www.federalreserve.gov/econresdata/scf/files/fedstables.macro.txt.
[3] To calculate the optimal values we used a macro created by Pence (2006) available at http://works.bepress.com/karen_pence/16/.

poor = 1. Income is a continuous variable. Respondents were asked how much total income they received from all sources before taxes and other deductions in 2007.

We include two variables of interest: (a) home equity (see description above) and (b) outstanding student loan debt amount. The SCF asked respondents if they or anyone in the household owes money or has student loan debt. We examine student loan amounts as a continuous variable. We drew all controls from the 2007 wave of the SCF using the macro provided by the SCF (see footnote 1).

Analysis

Median regression

We used Stata (version 12) and median regression to analyze the data. According to Pence (2006), median regression offers two advantages over ordinary least squares regression. First, median regression can handle extreme values in data without a major distortion in estimation because it is affected by the order of the data only. Thus, highly skewed variables can be analyzed without being transformed because median regression does not post any assumption of distribution (Hao & Naiman, 2007). Second, the difference-in-difference estimator by median regression is an unbiased estimator of percentage change (Wooldridge, 2002). Using a series of median regression analyses, we estimate the effect of outstanding 2007 student loan debt on 2009 home equity using four sample groups: the aggregate sample, a sample of four-year college graduates with or without loans, a sample of respondents with student loans (graduated or did not graduate), and a sample of respondents between the ages of 30 and 60 years with or without student loans.

Missing data and adjustment of standard errors

Because many respondents in dataset were reluctant to reveal the values of their assets (Kennickell, 1998), imputation for unbiased model estimation was inevitable. This introduces uncertainty into the process. Additionally, median regression standard errors and median regression standard errors potentially are inaccurate because of the heteroscedasticity. Finally, standard errors should be adjusted because of the complex stratification and clustering in the SCF sample design.

We used the same methods Pence (2006) used in her study with tools provided by the SCF to adjust standard errors for heteroscedasticity, survey design, and imputation uncertainty. The first method we used was bootstrapping, using 999 bootstrapped sample weight replicates provided by the SCF (Kennickell, 1998, 2010; Pence, 2006). We also used the repeated-imputation inference technique to adjust the standard errors for imputation uncertainty (Pence, 2002, 2006).

Sensitivity analysis

We estimated models restricting the sample by (a) whether an individual with a four-year college degree or postgraduate degree lives in the household and (b) the respondent's age. In the main models, we control for four-year college graduation, but by restricting the sample to households in which a member has a four-year or postgraduate degree, we are able to better account for differences that might result from having a four-year degree (see Table 6).

We restricted the sample to those ages 25 to 50, 25 to 60, and 30 to 60 years. We used 60 years as the cutoff because retirement options might affect saving decisions for those older than 60 (Pence, 2006). Outstanding student debt is significant with the age restrictions of 25 to 50 and 25 to 60 years but not for ages 30 to 60 years.

Results

Sample characteristics

SCF panel data were collected before and after the start of the Great Recession. Median 2007 home equity ($200,373) declined in 2009 ($151,955). Approximately 41% of households have a member with a four-year college degree or higher. Among households that own their homes, about 15% have outstanding student loan debt with an average of $27,723. The average respondent's age is approximately 52 years (minimum, 19; maximum, 95). Median 2007 income is $110,754, and about 5% of households use welfare (Table 1).

Table 1. Sample Characteristics (*N* = 77,995,185)

	Number or mean	% or median
Student loan use	11,485,398	15%
Amount of student loan debt (student loan users only)	$27,723	$17,000
2009 home equity	$151,955	$81,000
2007 home equity	$200,373	$107,702
Four-year college graduate	31,839,204	41%
2007 income	$110,754	$64,964
Occupational prestige		
Professional	25,319,103	33%
Technical services	15,271,199	20%
Other	15,943,705	20%
Not working	21,461,176	28%
Age	53	52
Married	53,180,866	68%
Uses welfare	4,174,786	5%
Race		
White	62,552,758	80%
Black	7,340,179	9%
Hispanic	5,050,640	7%
Asian	3,051,608	4%
Health status		
Excellent	21,615,114	28%
Good	38,970,011	50%
Fair	13,850,818	18%
Poor	3,559,242	5%

Note: Weighted data are from the SCF 2007–2009. SCF imputes data using multiple imputations. Column percentages are rounded to the nearest whole percentage or number. Sample only includes households that own their home.

Sample characteristics by student loan use

Table 2 provides information about student loan borrowers. Among respondents with four-year college degrees, about 20% live in households with outstanding student loan debt. The median age of this group is 41 years. In contrast, nearly 80% of respondents with four-year college degrees live in households with no outstanding student loan debt. The median age of this group is 55. The median household income is $77,743 for households with student loan debt and $61,769 for households with no student loan debt.[4] Twenty-three percent of Black respondents' households and 15% of Hispanic respondents' households have student loan debt (see Table 2).

[4] All households with student loan debt have a member with at least some college, while households with no student loans may or may not have a member with some college. This might explain income differences.

Table 2. Sample Characteristics by Student Loan Use (*N* = 77,995,185)

	Has student loan debt		Does not have student loan debt	
	Number or mean	% or median	Number or mean	% or median
2007 home equity	$123,261	$68,349	$213,689	$115,987
2007 income	$98,637	$77,743	$112,846	$61,769
Four-year college graduate	6,242,211	20%	25,596,994	81%
Not a four-year college graduate	5,243,188	11%	40,912,793	89%
Occupational prestige				
Professional	5,187,747	21%	20,131,359	80%
Technical services	2,682,164	18%	12,589,036	82%
Other	2,817,821	18%	13,125,883	82%
Not working	797,667	4%	20,663,509	96%
Age	42	41	55	54
Married	9,172,954	17%	44,007,932	83%
Is not married	2,312,444	9%	22,501,855	91%
Uses welfare	407,105	10%	3,767,681	90%
Does not use welfare	11,078,294	15%	62,742,106	85%
Race				
White	8,502,395	14%	54,050,363	86
Black	1,687,119	23%	5,653,059	77
Hispanic	747,448	15%	4,303,192	85
Asian	548,436	18%	2,503,172	82
Health status				
Excellent	3,818,281	18%	17,796,834	82%
Good	6,061,032	16%	32,908,979	84%
Fair	1,453,047	11%	12,397,771	90%
Poor	153,039	4%	3,406,203	96%

Note: Weighted data are from the SCF 2007–2009. Percentages are rounded to the nearest whole. Sample only includes households that own their home.

Home equity amount by student loan use

Table 3 provides information about home equity by student loan use. Median 2009 home equity for households with no outstanding student loan debt ($90,000) is twice as high as home equity for households with outstanding student loan debt ($45,000). To a lesser extent, this pattern holds true for 2007 home equity ($115,987 for those with no student debt vs. $68,349 for those with student debt). Households with no outstanding student loan debt had a larger decrease in home equity from 2007 to 2009 (-$17,958) than households with outstanding student loan debt (-$15,819).

Regardless of whether we examine mean or median, the change in home equity represents a higher percentage of total 2009 home equity for households with outstanding student loan debt (mean, 52%; median, 35%) than it does for households with no outstanding student loan debt (mean, 30%; median, 20%).[5]

[5] We also investigated change in home equity amount as the dependent variable, which the data in this table suggest might not be the best option. Even though on average, households with no outstanding student loan debt experience larger declines in home equity than households that have outstanding student loan debt, the losses make up considerably less of their total home equity.

Table 3. Home Equity by Student Loan Use (N = 77,995,185)

	Has student loans		Does not have student loans	
Variables	Number or mean	% or median	Number or mean	% or median
2009 home equity	$81,235	45,000	$164,168	$90,000
2007 home equity	$123,260	68,349	$213,689	$115,987
Change in home equity	-$42,026	-15,819	-$49,521	-$17,958
Change in home equity/2009 home equity (%)	52%	35%	30%	20%

Note: Weighted data are from the SCF 2007–2009.

Predicting 2009 home equity amount by percentiles (25th, 50th, and 75th) of 2007 home equity amount

In the next series of analyses, we evaluate the marginal effects of coefficients at the 25th, 50th, and 75th percentiles of home equity. With regard to our variable of interest, having student loan debt is an important predictor of home equity amount after holding all other factors constant. The association between student loan debt and home equity amount in 2009 is negative (Table 4). A household at the 25th percentile with outstanding student loan debt and 2007 home equity of $45,566 had $12,789 (28%) less home equity in 2009 than a similar household with no student debt. A household at the 50th percentile with outstanding student loan debt and 2007 home equity of $107,702 had $30,163 (28%) less home equity in 2009 than a similar household with no student debt. A household at the 75th percentile with outstanding student loan debt and 2007 home equity of $225,242 had $63,057 (28%) less home equity in 2009 than a similar household with no student debt.

Lower occupational prestige of the respondent, the household's use of welfare programs, and the respondent's being of Black or Hispanic ethnicity have significant negative associations with 2009 home equity amounts. Of these covariates, use of welfare programs and being of Black or Hispanic ethnicity seem to be particularly influential. For example, households that use welfare programs have less 2009 home equity (-$21,162 at the 25th percentile, -$49,909 at the 50th percentile, and -$104,338 at the 75th percentile; a loss of 46% at each percentile) than households that had similar amounts of 2007 home equity and do not use welfare programs. Black respondents' households have less 2009 home equity (-$19,818 at the 25th percentile, -$46,740 at the 50th percentile, and -$97,713 at the 75th percentile; a loss of 43% at each percentile) than White respondents' households that had similar amounts of 2007 home equity. Hispanic respondents' households also have less home equity in 2009 (-$12,129 at the 25th percentile, -$28,605 at the 50th percentile, and -$59,801 at the 75th percentile; a loss of 27% at each percentile) than White respondents' households that had similar amounts of 2007 home equity.

In contrast, households with higher income, more 2007 home equity, and a four-year college graduate and respondents who are older, married, and Asian and have better health statuses have increased 2009 home equity. Of these, having a four-year college graduate, reporting better health statuses, and being married seem to be especially influential. Households with a four-year college graduate have more 2009 home equity ($7,031 at the 25th percentile, $16,582 at the 50th percentile, and $34,665 at the 75th percentile; a gain of 15% at each percentile) than households that had similar amounts of 2007 home equity but no four-year college graduate. Households whose survey respondents report better health statuses have more 2009 home equity ($2,966 at the 25th percentile, a gain of 3%; $6,994 at the 50th percentile, a gain of 6%; and $14,622 at the 75th percentile, a gain of 14%) than households that had similar amounts of 2007 home equity whose respondents report lower health statuses. Households in which the respondent is married have more 2009 home equity

($8,606 at the 25th percentile, $20,296 at the 50th percentile, and $42,431 at the 75th percentile; a gain of 19% at each percentile) than households that had similar amounts of 2007 home equity whose respondents are not married.

Table 4. Median Regression Results Predicting 2009 Home Equity Amount Using 2007 Home Equity Percentiles

	25th ($45,566)		50th ($107,702)		75th ($225,242)	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Student loan use	-$12,789**	4,257	-$30,163**	10,039	-$63,057**	20,987
2007 home equity	$0.13***	0.01	$0.30***	0.02	$0.64***	0.05
2007 income	-$0.01	0.00	-$0.02	0.01	-$0.03	0.02
Four-year college graduate	$7,031**	2,204	$16,582**	5,197	$34,665**	10,865
Occupational prestige (reference is professional)						
Technical/services	-$127	3,241	-$304	7,644	-$635	15,981
Other	-$10,925**	3,600	-$25,766**	8,490.	-$53,865**	17,749
Not working	-$4,513	3,596	-$10,643	8,482	-$22,251	17,731
Age	$945***	90	$2,229***	213	$4,660***	446
Married	$8,606***	2,176	$20,296***	5,131	$42,431***	10,728
Uses welfare	-$21,162**	7,349	-$49,909**	17,333	-$104,338**	36,235
Race (reference is White)						
Black	-$19,818***	3,648	-$46,740***	8,603	-$97,713***	17,984
Hispanic	-$12,129*	5,937	-$28,605*	14,003	-$59,801*	29,274
Asian	$3,413	5,045	$8,050	11,898	$16,829	24,873
Health status	$2,966**	896	$6,994**	2,113	$14,622**	4,418

Note: Weighted data are from the SCF 2007–2009.
SE = standard error. Standard errors are bootstrapped with 999 replications and are adjusted for imputation uncertainty (Pence, 2002, 2006). Coefficients are marginal effects evaluated at median home equity in 2007. Home equity in 2009 are transformed using the inverse hyperbolic sign transformation (Pence, 2006).
*p < .05; **p < .01; ***p < .001.

Predicting 2009 home equity among households with outstanding student loan debt

Among households with outstanding student loan debt, the debt amount does not have a significant negative association with 2009 home equity (Table 5). The respondent's occupational prestige, the household's use of welfare programs, and the respondent's race are significant negative predictors of home equity. Black respondents with median home equity in 2007 have $77,461 (72%) less 2009 home equity than White respondents' households.

Households with more home equity in 2007, households with a four-year college graduate, respondents who are older, respondents who are married, and respondents who report better health statuses have significant positive associations with 2009 home equity. Households in which the respondent is married and 2007 home equity is at the 50th percentile have $86,000 (80%) more 2009 home equity than households that had similar amounts of 2007 home equity whose respondents are not married.

Table 5. Median Regression Results Predicting 2009 Home Equity Amount Using Median 2007 Home Equity ($123,260) among Those with Outstanding Student Loan Debt

	Coefficient	SE
Student loan debt amount	$0.20	0.23
2007 home equity	$1.04***	0.12
2007 income	-$0.29	0.18
Four-year college graduate	-$11,372	22,523
Occupational prestige (reference is professional)		
Technical/services	-$51,470*	21,652
Other	-$29,8432	35,837
Not working	-$39,816	30,787
Age	$7,760***	862
Married	$86,000***	19,505
Uses welfare	-$65,717**	23,957
Race (reference is White)		
Black	-$77,461***	18,426
Hispanic	-$5,501	39,778
Asian	-$62,623	32,691
Health status	$30,210*	15,172

Note: Weighted data are from the SCF 2007–2009.
IHS, inverse hyperbolic sign; *β,* regression coefficients; *SE,* standard error. Standard errors are bootstrapped with 999 replications and are adjusted for imputation uncertainty (Pence, 2002, 2006). Coefficients are marginal effects evaluated at median 2007 home equity. Home equity in 2009 is transformed using the inverse hyperbolic sign transformation (Pence, 2006).
*p < .05; **p < .01; ***p < .001.

Predicting 2009 home equity amount among four-year college graduates

Student loan debt is significantly associated with 2009 home equity amounts when the sample is restricted to households with a college graduate (Table 5). Households with student debt and 2007 home equity of $155,339 (50th percentile) have $54,334 (40%) less home equity in 2009 than households with no student loan debt. Another factor that contributes to low home equity is lower occupational prestige of respondents.

The respondent's age, the household's home equity amount in 2007, and the respondent being married all are significantly related to increases in 2009 home equity. Findings suggest that being married is related to having relatively strong gains in home equity amounts. Households with median 2007 home equity whose respondents are married have about $35,686 (23%) more home equity in 2009 than households whose respondents are not married.

Table 6. Median Regression Results Predicting IHS 2009 Home Equity Amount Using Median 2007 Home Equity ($155,339) among Four-Year College Graduates

	Coefficient	SE
Student loan use	-$54,334**	17,246
2007 home equity	$0.33***	0.02
2007 income	$-0.004	0.01
Occupational prestige (reference is professional)		
Technical/services	$73	12,867
Other	-$90,110***	20,693
Not working	-$29,647	17,182
Age	$3,677***	638
Married	$35,686**	13,542
Uses welfare	-$69,885	217,822
Race (reference is White)		
Black	-$62,170	43,181
Hispanic	-$24,755	24,372
Asian	$19,687	23,066
Health status	$9,740	5,690

Note: Weighted data are from the SCF 2007–2009.
IHS, inverse hyperbolic sign; *SE,* standard error. Standard errors are bootstrapped with 999 replications and are adjusted for imputation uncertainty (Pence, 2002, 2006). Coefficients are marginal effects evaluated at median 2007 home equity among four-year college graduates. Home equity in 2009 is transformed using the inverse hyperbolic sign transformation (Pence, 2006).
*p < .05; **p < .01; ***p < .001.

Discussion

In our sample of homeowners, about 15% of households had outstanding student loan debt—with an average of $27,723—in 2007. Also, from 2007 to 2009, homeowners saw a sharp decrease in median home equity amounts from $107,702 to $81,000 as a result of the Great Recession and collapse of the housing market (Fry, 2012).

Our first research question in this study is whether having student loan debt is associated with home equity amount. We find that the median 2009 home equity amount for households with no outstanding student loan debt ($115,987) is nearly twice as high as the median home equity amount for households with outstanding student loan debt ($68,349). Moreover, the relative burden appears to be much greater for households with student loan debt. Whether we examine the mean or median, the change in home equity amount represents a higher percentage of total 2009 home equity for households with outstanding student loan debt (35%) than it does for households with no outstanding student loan debt (30%). This suggests that households with outstanding student loan debt are more burdened by the negative change in home equity from 2007 to 2009 than households with no outstanding student loan debt.

Younger adults are more likely to have purchased their homes more recently than older adults, and as Steuerle, McKernan, Ratcliffe, and Zhang (2013) note, "recent homebuyers who owed the most on their mortgages relative to their home values were hit the hardest" by the Great Recession (p. 2). In contrast, those who purchased homes during the late 1990s seem to have benefited from the rise in housing prices that led to increased home values. Our finding that 2007 home equity amounts are significantly associated with more 2009 home equity controlling for all other factors supports this hypothesis. Further, even though student loan debt is not significantly related to home equity amount when we restrict the sample to those ages 30 to 60 years, it significantly associated when we

include those in younger age groups (i.e., 25 to 50 and 25 to 60 years). Given this, it is not surprising that households with outstanding student loan debt—who are more likely to be younger[6]—are more burdened by the negative change in home equity from 2007 to 2009 than households without student debt. This finding has more to do with how student loans affect households' home equity amounts within the context of the Great Recession housing market than it has to do with age. Additional research must be completed to determine how student loan debt affects home equity amounts during nonrecession periods.

After controlling for demographic factors, we find that the pattern suggested by the descriptive data remains: having outstanding student loans is associated with having less home equity. A household with median 2007 home equity ($107,702) and outstanding student loan debt experienced a loss of about 28% in 2009 home equity compared to a household with similar levels of home equity but no student debt.

The idea that student loan debt might negatively affect household's outcomes is consistent with previous research. For example, students who graduate from a four-year college delay purchasing major assets such as a car or a home (Stone, Van Horn, & Zukin, 2012), delay marriage (Gicheva, 2011), and earn lower wages for the first year after graduating (Minicozzi, 2005). Our findings also suggest that outstanding student loan debt has a negative association with 2009 home equity amounts. It is important to highlight the finding that households with a four-year college graduate have more home equity than households without a four-year college graduate. However, the effect size of having a college graduate is larger for households with more home equity. Generally, having a four-year college graduate does not appear to inoculate households against the negative effects of student loan debt on home equity during periods of recession.

Our second research question in this study is whether higher *amounts* of outstanding student loan debt is associated with home equity. We find no evidence that higher amounts of outstanding student loan debt are associated with home equity. This might suggest that simply having student loan debt may reduce households' capacity to amass home equity. These findings are preliminary, and further research is necessary, however.

Our third research question in this study is whether home equity amounts are different for four-year college graduates with outstanding student loan debt than that of their counterparts with no student loan debt. We find that households with median home equity, a four-year college graduate, and outstanding student loan debt had a home equity loss of about 40% (-$54,334) from 2007 to 2009 compared to households with median home equity that have a four-year college graduate with no outstanding student loan debt. Again, this suggests that the current reliance on student borrowing within the financial aid system reduces the extent to which education can serve as an economic equalizer. However, it is important to point out that—after we control for outstanding student loan debt—our findings suggest that households with a four-year college graduate have more home equity than households without a four-year college graduate. This indicates that despite the potential for an unequal return, having a four-year college degree still yields more home equity for the household. In short, having a college graduate in the household does appear to payoff regardless of whether the household has student debt or not.

[6] The mean age of respondents in households with student debt is 41 years, while the mean age of respondents in households without student debt is 54 years.

Limitations

There are several important limitations to this study to consider. We cannot rule out student loan debt's having larger but unobserved household economic challenges. In other words, having outstanding student loan debt may not result in a household's having less home equity. We mitigated this potential somewhat by controlling for a number of factors believed to be important for predicting household home equity (e.g., race, income, education level). Also, when the sample is restricted by age (30 to 60 years), student loan debt is no longer a significant predictor of home equity amount. However, while outstanding student loan debt is not significant for those ages 30 to 60 years, it is significant for those ages 25 to 50 and 25 to 60 years. On the whole, findings only suggest that there might be an association between outstanding student loan debt and home equity, and many questions remain, including (a) are there other factors that caused the decline in home equity amounts? (b) to what extent did the collapse of the housing market reduce the central role of homeownership as a form of financial security in the US, and (c) if homeownership no longer serves as the backbone of financial security, does it matter if having outstanding student loan debt is negatively associated with home equity?

Policy implications

The main policy implication of this study is that having outstanding student loan debt may reduce home equity amounts during a recession. However, our findings are a first look at this question, and more research should refute or substantiate these findings. Moreover, policy issues are complex and must be considered within the broader context of educational and housing finance.

Conclusion

Educational achievement is the best-known method for achieving equality and prosperity in the US. However, given the growing gap in educational attainment by income and wealth, the current educational system—higher education, in particular—does not provide low-income and disadvantaged children with the same opportunities for economic mobility as it does for higher income children (Haskins, 2008). Confronting this gap has never been more important. As college graduates encounter an increasingly globalized economy, U.S. policies must go beyond increasing college enrollment and graduation rates to help college graduates financially as young adults.

Research on economic mobility clearly suggests that a college degree is still a conduit to greater financial security. The young adult who graduates with student loan debt is better off than if she had not received a degree, but postgraduation outcomes show that similar levels of effort and ability do not always lead to similar outcomes.

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