Is Student Loan Debt Discouraging Homeownership among Young Adults?

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ABSTRACT   Amid concern that rising student loan debt has social and economic consequences for young adults, many suggest that student loan debt is leading young adults to forgo home buying. However, there is little empirical evidence on this topic. In this study, we use data from the National Longitudinal Survey of Youth 1997 to estimate associations of student loan debt with homeownership, mortgage amount, and home equity. We use a variety of methodological techniques and test several model specifications. While we find a negative association between debt and home-ownership in some models, the association is substantively modest in size and is entirely driven by the debtor-nondebtor comparison; we find no association between debt amount and homeownership among debtors. Overall, we find limited evidence that student loan debt is responsible for declining young adult homeownership. Instead, indicators for the recession and transition to adulthood markers have a stronger association with homeownership.

INTRODUCTION

Student loan debt has risen dramatically in the past several decades, doubling since 2007 and now topping 1 trillion dollars in the aggregate (Project on Student Debt 2011; Federal Reserve Bank of New York 2013). The rapid rise in student loan debt has, justifiably, led to a great deal of scholarly and public concern regarding the potential social and economic consequences of a generation saddled with debt. Recently scholars and policy makers have speculated that the rise in student loan debt may be transforming the transition to adulthood among young adults under the age of 30. In particular, amid concern that high levels of debt may be slowing the housing market recovery, many media outlets and financial experts have suggested

that rising student loan debt is discouraging home buying among young adults because young adults, who now leave college with an average of $25,000 in student loan debt (Project on Student Debt 2011; Federal Reserve Bank of New York 2013), are either purposefully avoiding homeownership because they do not wish to take on additional debt or are unable to get approval for mortgages due to their high debt loads and poor credit scores. This is a major policy concern given that college-educated young people are integral to the growth of the economy and the housing market in particular (Brown and Caldwell 2013) and that young adulthood is a crucial time for wealth acquisition. But, despite the recent attention to this issue, there is little rigorous empirical research interrogating the claim that student loan debt has discouraged home buying among young adults.

In this article, we examine whether student loan debt is likely to be leading young adults to forgo or delay homeownership. Our analyses contribute to and extend the existing literature in several ways. First, we use individual-level longitudinal data on a recent cohort of young adults drawn from the National Longitudinal Survey of Youth 1997 cohort (NLSY97) rather than aggregate-level or repeated-cross-sectional data to test the claim that student loan debtors are less likely to buy homes or take on mortgages than their nonindebted counterparts. Second, we consider multiple outcomes related to home buying, including homeownership, amount of mortgage debt, and home equity, as high levels of student loan debt may lead young adults to buy less expensive homes or may limit their ability to build home equity in addition to or rather than leading them to avoid home purchase. Third, we test for a dose-response association and examine not only the difference in homeownership between debtors and nondebtors but also the association between the amount of debt and the probability of homeownership among debtors (e.g., by asking whether a young adult with $30,000 in debt would have a lower probability of homeownership than a young adult with $2,000 in debt). Fourth, we account for a range of confounders that may render any association spurious, including sociodemographic characteristics, postsecondary educational characteristics, and state fixed effects. At the same time, we consider several alternative explanations for declining homeownership among young adults. Finally, to account for the fact that student loan debt and home buying are endogenous, we conduct an instrumental variables analysis in addition to several additional analyses to test alternative specifications.

STUDENT LOAN DEBT AND HOME BUYING: A REVIEW OF THE LITERATURE AND ITS LIMITATIONS

THE DOMINANT NARRATIVE: STUDENT LOAN DEBT DEPRESSES HOMEOWNERSHIP

The claim that student loan debt is discouraging home buying among young adults is largely based on the correlation of two historical trends: rising student loan debt and falling rates of homeownership among young adults. First, student loan debt has grown substantially among young adults in the last several years as both the proportion of young adults with debt and the average amount of debt among debtors have increased over time (Federal Reserve Bank of New York 2013; Houle 2014b). Student loan debt was the only type of consumer debt that grew during the Great Recession, and, unlike other forms of debt, it cannot be discharged in bankruptcy (Atkinson 2010). From the early 1990s through 2010, the average inflation-adjusted debt for a college graduate who carried a positive debt balance increased from $13,000 to over $25,000 in constant 2010 dollars (College Board 2007; Rothstein and Rouse 2008; Project on Student Debt 2011). In 2010, outstanding student loan debt surpassed aggregate credit card debt for the first time in history, and it is now second only to home mortgage debt as the primary form of household debt in the United States (Federal Reserve Board 2015).

A second trend is that, whereas young adults make up a substantial portion of the housing market (as first-time home buyers), the proportion of young adults buying homes has declined in recent years (Segal and Sullivan 1998; Fisher and Gervais 2009; Houle 2014b). As shown in figure 1, American Community Survey data indicate that 35.1 percent of young adults under the age of 30 owned a home in 2006 but that only 30.2 percent owned a home in 2013. Taken together, these two trends paint a striking picture. As we show in figure 1, there is a clear negative aggregate-level correlation between outstanding student loan debt among young adults and the rate at which they are buying homes in the wake of the Great Recession; as student loan debt has increased, homeownership has declined.

The dominant narrative regarding this correlation is that student loan debt is leading young adults to eschew, or at least delay, home buying because they have low credit scores or wish to avoid taking on additional debt. Some researchers and policy makers have suggested that high debt loads
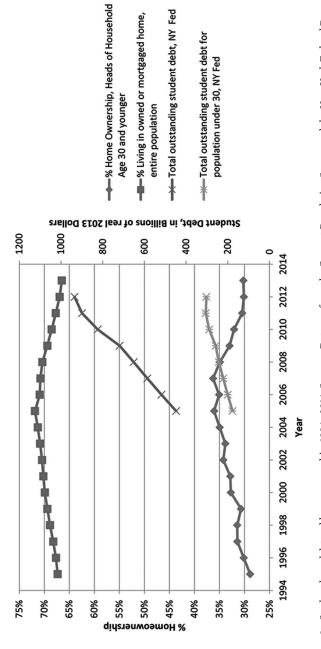
FIGURE 1. Student loan debt and homeownership, 1994–2014. Sources: Data are from the Current Population Survey and the New York Federal Reserve Bank. This figure is available in color online.

may depress credit scores among young adults, which would hurt their eligibility for mortgages, particularly in the wake of the Great Recession when credit markets tightened their lending standards and made it temporarily more difficult to be approved for a home mortgage (Brown and Caldwell 2013). Another possibility is that student loan debt leads young adults to avoid taking on more debt. Put simply, young adults saddled with high levels of student loan debt may not be buying homes because they do not want the added debt of a home mortgage.

While these narratives are compelling, very little research has examined the link between student loan debt and home buying. Among the few studies that have, the evidence is mixed. For example, Ngina Chiteji (2007), using data from the Panel Study of Income Dynamics, finds no significant association between noncollateralized debt (i.e., credit card and student loan debt) and transitioning into homeownership between the ages of 25 and 34. It is important to note, however, that the study did not estimate separate effects for credit card and student loan debt; thus, it is unclear whether these findings reflect a null association between student loan debt and homeownership.

A recent study from the New York Federal Reserve offers a more direct test of this claim. In a brief report, Meta Brown and Sydnee Caldwell (2013) use Equifax data to examine the link between outstanding student loan debt and home mortgage debt among a sample of college-going and non-college-going young adults. They report three key findings. First, they find that young adult student loan debtors have historically had higher rates of homeownership than those without debt, which is unsurprising given that student loan debtors are more educated and have higher incomes than those without debt, many of whom did not attend college. Second, they find that this association reversed in the recent recession such that, by 2011, student loan debtors had marginally lower rates of homeownership than nondebtors. Third, they find that, in recent years, young adults with student loan debt have lower credit scores than those without such debt. Whereas it is possible that the gap in credit scores could explain the finding that debtors are less likely than nondebtors to own homes, this potential mediation effect is not directly tested in their analyses. On the whole, Brown and Caldwell conclude that their findings suggest that high levels of student debt may dampen growth in the housing market. However, there are several shortcomings of the study that preclude causal interpretation. First, as Brown and Caldwell note, student loan debtors differ from nondebtors on a range

of factors for which their bivariate analysis is unable to account. Thus, it is possible that their key finding may be driven by other differences in characteristics of student loan debtors and nondebtors rather than by student loan debt per se. Second, their study compares debtors and nondebtors, but it does not take into account the amount of debt carried by young adults. If having student loan debt is leading young adults to eschew home buying, we would expect a dose-response relationship such that, among debtors, those with the highest debt levels would be the least likely to buy homes. Third, because their sample includes young adults who went to college and those who did not, they do not make an apples-to-apples comparison. To better isolate whether student loan debt deters home buying, it would be more appropriate to compare debtors and nondebtors who attended college and were thus eligible to accumulate student loan debt. For these reasons and others, recent policy reports have argued that Brown and Caldwell's findings do not provide compelling evidence for or against an effect of student loan debt on homeownership (Akers and Chingos 2014).

A handful of other recent studies find associations between student loan debt and delayed transition into adult social roles, with implications for understanding whether (and how) debt may be linked to delayed home buying. For example, Fenaba Addo (2014) uses data from the NLSY–97 and finds that young women—but not young men—with student loan debt are less likely to marry than their debt-free counterparts. Moreover, Michael Nau, Rachel Dwyer, and Randy Hodson (2015) find that high student debt loads delay fertility, particularly among young women. It follows that if young adults with student loan debt are delaying marriage and family formation, they are also likely to be delaying home buying as young adults who transition into adult roles are more likely to become home owners than those who have not transitioned into these roles (Rindfuss 1991; Furstenberg 2010; Settersten and Ray 2010). Thus, delayed family formation may be a key mechanism through which the link between student loan debt and homeownership operates. In addition, research taking a longer view across three generations of young adults—the early boomers, the late boomers, and the millennials—finds that, over time, student loan debt has replaced mortgage debt as the primary form of wealth-building debt (i.e., debt that allows for investment in human capital or asset ownership rather than consumer goods) on young adults' balance sheets, providing indirect evidence that having student loan debt might delay homeownership among young adults (Houle 2014b). Finally, recent polls of young adults show that a large

proportion of student loan debtors feel that they may have difficulty paying off their debt and also perceive that their debt will constrain their life choices, such as their ability to purchase a home and pursue their desired career (*USA Today*/National Endowment for Financial Education 2006; Ratcliffe and McKernan 2013). These findings provide suggestive, though not conclusive, evidence that student loan debt may be discouraging home buying among young adults.

STUDENT LOAN DEBT AND HOMEOWNERSHIP: ALTERNATIVE EXPLANATIONS

In contrast to the dominant narrative that student loan debt is leading young adults to flee the housing market, there are several alternative explanations for declining homeownership outcomes among young adults. First, the student loan debt—homeownership correlation may simply be a statistical artifact that we would not observe in high-quality or individual-level data. Second, the correlation may be spurious, whereby the decline in home-ownership is driven by other factors that are likely correlated with student loan debt. Third, there may be other factors that are more consequential for homeownership than student loan debt.

Some research casts some doubt on the existence of a relationship between student loan debt and homeownership. Recently Beth Akers (2014) replicated the Federal Reserve Bank of New York study (Brown and Caldwell 2013) using data from from 1989 to 2010 from the Survey of Consumer Finances, which has long been considered the gold standard data set for understanding debt and wealth in the United States. In contrast to the findings of the Federal Reserve Bank of New York study (Brown and Caldwell 2013), Akers finds that historically student loan debtors between the ages of 28 and 32 have had slightly lower homeownership rates than nondebtors and that, in recent years, debtors have actually had higher rates of homeownership than nondebtors. In other words, she finds little evidence for the argument that the link between student loan debt and homeowner-ship emerged in or is unique to this recessionary period or, indeed, recent decades (Akers and Chingos 2014). Such an explanation is in line with the fact that college-goers and graduates (who tend to have high debt levels) fared much better than non-college-goers in recent decades, including during the recession. In 2008, at the height of the recession, the unemploy-ment rate for those with a college degree or higher was 2.6 percent, com-pared to 3.7 percent for those with an associates degree, 5.1 percent for those

with some college but no degree, 5.7 percent for those with a high school degree but no college, and 9.0 percent for those without a high school degree (Bureau of Labor Statistics 2009). Moreover, the wage premium of a college degree remains high. Median annual earnings for college graduates in 2011 were about 67 percent higher than median earnings for those with only a high school education ($57,000 vs. $34,000; Oreopoulos and Petronijevic 2013). Finally, the typical (median) student loan debtor pays only 3–4 percent of his or her monthly income on student loan payments, a figure that has remained relatively constant since the early 1990s (Akers and Chingos 2014). In other words, student loan debt may be burdensome, but the payoff of a college degree may exceed these burdens by providing (or reinforcing) college graduates' access to middle-class jobs and earnings.

It is also possible that any correlation between student loan debt and homeownership is spuriously driven by other unmeasured factors. Two potentially important factors that may influence both student loan debt and homeownership are the recession and changes in the demographics and structure of the period of life known as the transition to adulthood (Elder, Johnson, and Crosnoe 2004). In addition to confounding the link between debt and homeownership, these factors may also make independent contributions to declining homeownership among young adults.

The Great Recession was characterized by the worst housing crisis in US history, during which millions of homeowners lost their homes to foreclosure and many potential first-time home buyers were hesitant to enter a down housing market. Thus, not surprisingly, homeownership rates fell precipitously over the recessionary period. Indeed, though student loan debt has been blamed for recent declines in homeownership rates of young adults, homeownership fell among all age groups since the recession, as we show in figure 1. For example, homeownership declined from about 36 percent in 2007 to about 30 percent in 2013 among households headed by an individual age 30 or younger. By comparison, it declined from approximately 71 percent to approximately 67 percent among all households during that time period. Moreover, the recession also contributed to the rise in student loan debt during this period. Prior research shows that, during recessions, young people tend to stay in school instead of entering a down labor market (Shanahan, Elder, and Miech 1997), which is likely to lead to increased student loan debt. In fact, student loan debt was the only type of debt that increased during the recession; other types of debt, including

credit card and home mortgage debt, declined sharply (due in part to tightened access to credit and debt discharge through bankruptcy). As such, the recession may have been a common cause of rising student loan debt and falling homeownership among young adults, at least during the latter half of the first decade of the 2000s.

Another reason why we might expect to see rising student loan debt and falling homeownership among young adults is because the period of life known as the transition to adulthood (when young adults transition from adolescent and into adult social roles) is in flux. The time of life when young adults exit their parental homes and educational institutions and enter marriage, parenthood, and full-time employment has changed dramatically over the past several decades. Life course scholars have long noted that young adults are increasingly taking longer to settle into their adult roles (Shanahan 2000) as the transition to adulthood has evolved from a short and narrow path to a long and winding road (Furstenberg et al. 2004). As shown in figure 2, the proportion of young adults under age 30 who are married and who are parents has declined steadily between 1995 and 2013, whereas the proportion of young adults who are enrolled in college and who are living with their parents has increased steadily. Finally, employment rates among young adults have declined considerably, particularly since 2007. One consequence of the shifting timing of young adults' transition to adulthood is that they have delayed or forgone entry into homeownership. In turn, current cohorts of young adults tend to have lower incomes, are less likely to own homes, and have less wealth than the cohorts that preceded them (Haveman and Wolfe 1994; Taylor et al. 2011; Houle 2014b). In fact, the downward trend in home buying among young adults predates the rise in student loan debt, and it may have more to do with structural shifts in the transition to adulthood than with the rise of student loan debt (Fussell and Furstenberg 2005; Furstenberg 2010; Houle 2014b).

Many other factors, in addition to the recession and shifts in the transition to adulthood, may confound the association between debt and homeownership. Notably, as college attendance has increased over time, the characteristics of student loan debtors have also likely changed and may confound the association of interest (Akers 2014; Akers and Chingos 2014; Houle 2014b). Even characteristics such as personality traits, risk tolerance, and financial literacy may be important confounders, none of which have been measured in prior research. Moreover, in the absence of an association
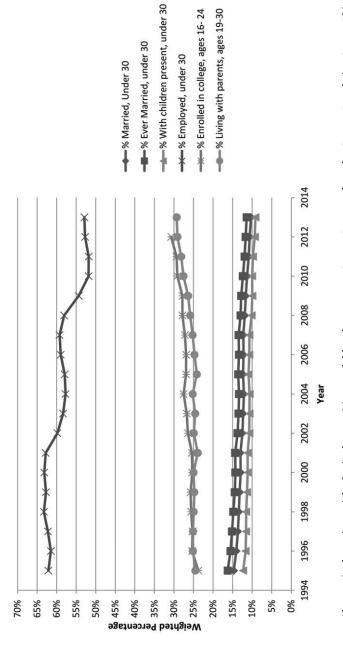
FIGURE 2. Changes in the major social roles in the transition to adulthood, 1994–2014. Source: Data are from the Current Population Survey. This figure is available in color online.

between debt and home ownership, factors such as the recession, changes in the transition to adulthood, and other variables may be more predictive of (and explain more variance in) homeownership than student loan debt.

In sum, there has been a great deal of concern but little rigorous research on the potential link between student loan debt and home buying. Correlational and trend evidence lend some support to the claim that student loan debt discourages home buying, but there are several shortcomings to the existing work that limit our ability to draw any strong or causal conclusions, and there are several potential alternative explanations for the observed homeownership association.

THE CURRENT STUDY

We use longitudinal data from the NLSY97 to examine whether student loan debt is associated with homeownership outcomes among young adults. We make several contributions to the existing literature and shed new light on whether and how student loan debt may influence homeownership.

First, we use longitudinal data on a recent cohort of college-going young adults (the most recent cohort for whom such data exist) to examine whether student loan debt is associated with subsequent homeownership outcomes. By focusing only on young adults who attended postsecondary institutions and are therefore eligible to accrue student loan debt, we make an apples-to-apples comparison of debtors and nondebtors and improve on prior research that has examined differences among student loan debtors and nondebtors in samples that include respondents who never attended postsecondary institutions. Our longitudinal design and use of individual-level data both increase our confidence in the causal ordering between student loan debt and home buying and offer an improvement over repeated-cross-sectional data of aggregate debt and homeownership rates, which may also suffer from the ecological fallacy problem. Moreover, our data are arguably better suited to address the question at hand than other data sets that are often used to study debt, such as the Survey of Consumer Finances. While the Survey of Consumer Finances is considered the gold standard data source in debt and wealth research in the general population, its relatively small sample of young adult households and repeated-cross-sectional design for most survey waves makes it difficult to draw strong conclusions about small subsamples of the data (Scholz and Seshadri 2007) such as young adults. The NLSY97 survey is ideal in this regard because it

is designed to be representative of young people and, as we show below, the measures of debt align well with national estimates.

Second, we use three key measures of home buying, including home-ownership, amount of mortgage debt owed, and home equity. By examining these outcomes, we can interrogate the link between student loan debt and several aspects of homeownership. For example, it is possible that student loan debt may not discourage home buying but may lead young adults to purchase less expensive homes (and thus carry less mortgage debt). In addition, large student loan burdens could mean that young adults have less disposable income for down payments or to pay down their mortgages, which would delay or reduce their home equity—an important contributor to wealth building.

Third, we consider that there may be heterogeneity in the association between debt and homeownership, and we ask whether debt may play a role in reinforcing or exacerbating inequalities in homeownership by race, gender, or family background. Recent research shows that youth from disadvantaged backgrounds and black youth tend to have greater student loan debt burdens than their more affluent white counterparts (Houle 2014*a*). They are also less likely to enter into homeownership, which is a key component of wealth acquisition (Conley 1999; Shapiro 2004). As such, young adults from disadvantaged backgrounds may be doubly disadvantaged due to their family background and student loan debt, and it is possible that debt may be one mechanism by which disparities in wealth are transmitted across generations.

Fourth, to further increase our confidence in our estimates, we consider potential sources of confounding and selection into educational debt. To deal with confounding, we control for a range of sociodemographic characteristics and individual-level characteristics, as well as state fixed effects, that could confound the link between student loan debt and home buying. To test for selection effects—whether the link between debt and home-ownership is due to selection into debtor status—we consider the implications of both debtor status (yes/no) and amount of debt among debtors for homeownership. If the association between student loan debt and home-ownership is causal, we would expect to see a strong dose-response association, whereby increases in debt are associated with declines in the probability of homeownership. However, if the association is primarily driven by unobserved compositional differences between debtors and nondebtors, we would expect to see a stronger association between debtor status and

homeownership outcomes than between debt amount and homeownership outcomes.

We also conduct an instrumental variables analysis as a robustness check for our main findings and to further account for both selection into educational debt and confounding variables. Specifically, we use the average amount of state, federal, and institutional grant aid per full-time enrolled student as a proportion of the sticker price of the institutions that respondents attended in a two-stage least squares analysis of student loan debt and homeownership, which we refer to as the aid-to-price ratio. We use this instrument because rising prices relative to flagging state, federal, and institutional aid are a primary culprit of rising student debt (College Board 2006, 2007, 2010) but should otherwise be independent of home buying, net of model covariates. Although we recognize that this variable may not be purely exogenous (and thus break a key assumption of instrumental variables models), this strategy is useful as a robustness check.[1] By examining variation in debt that is identified only by differences in the financial aid–to–sticker price ratio, we effectively net out some confounding characteristics—such as financial literacy or trouble with finances—that may render the association between debt and homeownership spurious. Moreover, recent research suggests that even imperfect instruments (such as ours) provide less biased estimates than ordinary least squares (OLS) regression (Basu and Chan 2013), and, at the very least, our instrumental variables strategy will reduce measurement error (Angrist and Krueger 2001) with regard to self-reporting of student loan debt by restricting variation in debt to that which is correlated with the aid-to-price ratio. We also conduct several additional supplementary analyses, which we discuss below in the "Additional Analyses" section.

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1. We recognize that institutional sticker price may not be purely exogenous. Individuals may choose institutions based, at least in part, on sticker price, and such choices may be associated with a range of characteristics (Grodsky and Jones 2007). Individuals may also consider financial aid availability when making decisions about postsecondary education. At the same time, however, current evidence suggests that individuals "persistently overestimate costs [of postsecondary education] and are uninformed about sources of potential aid" (Scott-Clayton 2012). Thus, it is possible (if not likely) that, in practice, variation in educational debt may be exogenously induced by the ratio of institutional cost and generosity to financial aid. Furthermore, by incorporating financial aid generosity, our instrument may, arguably, be more valid than simply using sticker price.

DATA AND METHOD

SAMPLE

Our individual-level data are drawn from the NLSY97, which began with a nationally representative sample of 8,984 12–16-year-olds in 1997. These individuals have been interviewed annually ever since. At each interview wave, data are collected on education, employment, family structure, childhood experiences, family processes, and income. Respondents are only asked questions about types and amounts of debt holdings, assets, and homeownership at approximately ages 20, 25, and 30 as part of the NLSY young adult asset modules (YAST). However, whereas these YAST modules are colloquially known as the ages 20, 25, and 30 modules, respondents do not necessarily receive the modules at these specific ages (e.g., respondents answered the YAST–25 module between the ages of 23 and 28).

The NLSY97 data are particularly well suited for our analyses because they follow a recent cohort of youth who hold historically high levels of student loan debt during their transition into adulthood. The NLSY97 data also allow us to identify all postsecondary educational institutions attended by an individual and thus to link each individual to price and financial aid data for these institutions. As such, our results may provide crucial insights into the role of education debt vis-à-vis homeownership patterns among a recent cohort of young adults.

From the full sample of 8,984 respondents, we limited our analyses to respondents who reported ever enrolling in a postsecondary secondary institution by the most recent survey wave ($N = 5,593$), by which time all respondents had been eligible to receive the YAST–20 and YAST–25 asset modules. However, only 2,953 respondents had completed the YAST–30 asset module. We supplemented the YAST–30 module with homeownership data from 2010–11 from the two most recent survey waves when the NLSY asked all respondents about homeownership status regardless of whether they were eligible for a YAST module. We then further limited our analyses to respondents who had valid data on student loan debt and homeownership status, as well as financial aid and institutional sticker price, at a given survey wave, resulting in a final analysis sample of 12,112 person-wave observations for which 5,107 individuals were observed at YAST–20, 5,148 individuals were observed at YAST–25, and 1,857 individuals were observed at YAST–30.

For all other variables with missing data, we replaced missing values with either the sample mean (for continuous variables) or zero (for dichotomous and categorical variables) and included in our regression models dummy variables indicating that the initial value was missing. The proportion of missing data was less than 1 percent for each of the control variables, with the exception of household income (15 percent missing), percent years enrolled full-time (9 percent missing), percent years in private institution (9 percent missing), consumer debt (3 percent missing), and parents' education (3 percent missing).

MEASURES

Homeownership Status
We focus on three homeownership-related outcomes that were measured in the YAST–20, YAST–25, and YAST–30 modules: whether the individual or his or her spouse owned their home, the amount of the mortgage held on the home, and home equity (home value – home debt) in constant 2010 dollars.

Student Loan Debt
Our key predictor is the total amount of student loan debt held by an individual, again measured at the YAST–20, YAST–25, and YAST–30 modules, scaled in $10,000 increments (in constant 2010 dollars). We also constructed a dummy variable indicating debtor status (1 = yes) for the spline analyses. While the accuracy of self-reported debt data is a serious concern, recent evidence suggests that borrower self-reports and official lender (credit) reports are extremely similar for nearly all forms of debt, including student loan debt (Brown et al. 2011). Moreover, our instrumental variables strategy, described below, also reduces measurement error.

Sociodemographic Background Characteristics
We control for a host of time-invariant and time-varying individual and family characteristics that are likely to be associated with both homeownership and educational debt. These include basic characteristics, such as respondent age at interview, survey year, and state fixed effects dummies. Sociodemographic and family background characteristics also include respondent race (black, other, and white [as the reference category; referent]),

sex (female, male [referent]), an indicator that the respondent lived in an urban locale at survey wave, region of residence at first survey wave (West, South, Central, and Northeast [referent]), family structure at age 12 (lived with a stepparent, with a single parent, in another family arrangement, and with both biological parents [referent]), parental net worth (measured in $10,000 increments) in 1997, and educational attainment of the respondent's most educated parent (high school degree or less [referent], some college, and 4-year college degree or more).

Young Adult Social and Economic Characteristics
We also control for time-varying measures of young adult social and economic characteristics, including residential independence from parents (1 = lives with parents, 0 = does not [referent]), marital status (married, not married [referent]), full-time employment status (employed full-time, not employed full-time [referent]), parental status (has children, does not have children [referent]), and consumer debt (auto and unsecured debt). We also control for the respondents' financial literacy, using questions regarding compound interest adapted from Lusardi, Mitchell, and Curto (2010; 1 = respondents answered both questions correctly, 0 = did not [referent]) and a measure of risk preference based on the average response to four questions about respondent's willingness to take risks (range = 0–10) in general life, financial matters, gambling, and major life events.

Postsecondary Educational Characteristics
Time-varying measures of respondents' postsecondary educational characteristics include educational attainment (some 2-year college, 2-year college degree, some 4-year college, 4-year college degree [referent]), current enrollment status (currently enrolled in a postsecondary educational institution or not [referent]), an indicator that the respondent dropped out or stopped out (respondents who are not currently enrolled and have not attained a degree), the number of years enrolled in postsecondary education, the percent of years enrolled full-time, the percent of years enrolled at a private institution, and an indicator for ever having attended a for-profit institution.

   As noted above, we used the average amount of financial aid (state, federal, and institutional aid per full-time enrolled student) as a proportion of the sticker price of the institutions an individual attended (the financial aid–to–sticker price ratio), a weighted average across all of the educational

institutions attended by an individual in the years in which he or she attended them to predict total educational debt in our instrumental variables models. We draw these data from the Integrated Postsecondary Education Data System (IPEDS) Delta Cost Project Database, which provides longitudinal information on characteristics of the postsecondary institutions attended by NLSY97 respondents.

ANALYTIC STRATEGY

We estimate four specifications of regression models for each outcome. First, we estimate OLS regressions (this constitutes a linear probability model for the dichotomous homeownership outcome), in which the homeownership outcomes were regressed on respondent-reported total educational debt and an increasingly detailed set of controls. In the first model, we control only for age, state of residence, and survey year. In the second model, we add sociodemographic background characteristics. In the third model, we add young adult social and economic characteristics. In the final model, we add young adult postsecondary educational characteristics. This strategy allows us to assess whether student loan debt is directly associated with homeownership net of a host of potential selection factors. These OLS models (with standard errors clustered at the person level) take the form:

$$Y_{i,w} = \alpha + \delta_1 \text{ED\_DEBT}_{i,w} + \beta_1 X_{i,w} + \varepsilon_i,$$

where the outcome (Y) is homeownership, mortgage debt, or home equity for person i at wave w, ED–DEBT is total educational debt, X is a vector of observed characteristics, and ε is the error term.

Second, we estimate spline functions of educational debt and disaggregate debt into two variables: a dichotomous indicator for debtor status (yes/no) and a continuous measure of educational debt. This allows us to distinguish the independent effects of debtor status and amount of debt among those with debt. Such a strategy is common in debt research (Dwyer, McCloud, and Hodson 2011), helps account for unobserved differences between debtors and nondebtors, and allows us to test for a dose-response association between amount of debt and homeownership outcomes. The OLS spline regressions take the form:

$$Y_{i,w} = \alpha + \Phi_1 \text{ANY\_ED\_DEBT}_{i,w} + \delta_1 \text{ED\_DEBT}_{i,w} + \beta_1 X_{i,w} + \varepsilon_i,$$

where ANY_ED_DEBT is a dichotomous indicator that the individual had any educational debt in the wave of observation and Φ_1 provides an estimate of the difference in the probability of homeownership between debtors and nondebtors, while δ_1 provides an estimate of the association between amount of debt and the probability of homeownership among those with debt.

Third, we estimate instrumental variables (two-stage least squares) models in which total educational debt was first predicted by the financial aid–to–sticker price ratio of the institutions attended. Associations between the predicted value of educational debt and the homeownership measures were then estimated in the second stage. The first-stage model, in OLS form, is

$$ED\_DEBT_{i,w} = \alpha + \theta_1 AID/PRICE_{i,w} + \beta_2 X_{i,w} + \varepsilon_i,$$

where θ_1 is the estimated first-stage coefficient for the effect of the financial aid–to–sticker price ratio on educational debt. The second-stage equation, also in OLS form, is

$$Y_{i,w} = \alpha + \hat{\delta}_1 ED\_DEBT_{i,w} + \beta_3 X_{i,w} + \varepsilon_i.$$

In theory, the coefficient $\hat{\delta}_1$ is an estimate of the effect of an exogenous difference in educational debt on a given homeownership outcome. As noted above, if our instrument is exogenous, then these models can be assumed to estimate the unbiased local average treatment effect of educational debt on homeownership. However, this may not hold for our current instrument because individuals may select educational institutions based, at least in part, on what they expect to pay. Thus, we use the instrumental variables approach simply as a robustness check to our OLS models under the assumption that this strategy will, at the very least, reduce bias due to measurement error in reporting educational debt. Finally, we also estimate a series of models to test for heterogeneity in the association across groups, as well as to test whether student loan debt mediates group differences in student loan debt.

RESULTS

DESCRIPTIVE STATISTICS

Descriptive statistics for the full sample of person-wave observations, as well as by student loan debtor status (yes/no), are presented in table 1. On

the whole, about 15 percent of the sample reported owning a home. Approximately 3.6 percent owned a home at the time of the YAST–20 module, 17.7 percent at YAST–25, and 37.3 percent at YAST–30 (see the appendix for descriptive statistics by YAST wave). Average student loan debt among debtors in this sample is $21,979, which is consistent with national estimates (Rothstein and Rouse 2008), suggesting that the respondents in the study are representative of student loan debtors in the United States (Houle 2014*a*). In table 1, we find that student loan debtors are more likely to be homeowners than nondebtors (20.6 percent vs. 13.0 percent), which is in contrast to popular views of debt and homeownership. However, these differences may reflect a range of individual differences between homeowners and nonhomeowners, which we describe below.

Student loan debtors and nondebtors differ on a host of background characteristics. Debtors are disproportionately black, older, and female. Debtors are also more likely to be married, to be employed, and to be parents. They generally consumed more postsecondary education (received higher degrees, attended longer, attended private schools) and are more likely to have attended for-profit institutions and earn higher wages than nondebtors. Results from multivariate OLS regression models that predict logged debt and adjust for all of the variables described above show that respondents who are female, black, from less advantaged backgrounds, and who consumed more postsecondary education have higher debt than their counterparts (not shown, results available from the authors upon request). Given the host of differences between debtors and nondebtors, we adjust for these characteristics in our regression models.

OLS ESTIMATES

We present results from our OLS models predicting homeownership in table 2 and OLS results for home equity and mortgage debt in table 3. We show four models for each outcome, in which we sequentially first adjust only for respondent age, state, and year (model 1) and then add controls for sociodemographic and family background (model 2), young adult social and economic characteristics (model 3), and postsecondary educational characteristics (model 4). Results from homeownership models (table 2) suggest a small, negative, and statistically nonsignificant association between student loan debt and homeownership, with the exception of the fully controlled model (model 4), which shows that a $10,000 increase in student loan debt

TABLE 1. Descriptive Statistics

| | Full Sample | Student Loan Debtor Status | | Significance |
		Nondebtor	Debtor	
Homeownership status:				
Homeowner	.148	.130	.206	***
Mortgage amount ($; among owners)	108,326.1	104,089.8	117,381.6	*
	(95,550.2)	(94,362.6)	(97,602.15)	
Home equity ($; among owners)	34,338.8	38,802.9	25,410.7	***
	(78,849.8)	(83,564.8)	(67,642.7)	
Educational debt:				
Any educational debt	.234			
Student debt ($)	5,144.7	0	21,979.9	***
	(15,013.3)		(24,353.0)	
Sociodemographic background:				
Survey year	2,005.5	2,004.8	2,007.8	***
	(3.420)	(3.422)	(2.150)	
Age	23.72	23.04	25.95	***
	(3.495)	(3.422)	(2.721)	
Race:				
White	.605	.610	.589	*
Black	.251	.241	.285	***
Other race	.135	.140	.120	**
Female	.539	.523	.593	***
Urban residence	.787	.784	.796	
Region of origin:				
Northeast	.179	.171	.207	***
North Central	.240	.234	.260	**
South	.357	.358	.354	
West	.224	.238	.179	***
Family structure of origin:				
Two-parent biological	.542	.537	.560	*
Step-family	.125	.125	.126	
Single-parent	.282	.285	.272	
Other family	.0485	.0509	.0406	*
Parents' highest education:				
≤ High school degree	.375	.386	.340	***
Some college	.285	.278	.308	**
4-year degree	.311	.306	.327	*
Parents' net worth in 1997 ($10,000)	11.18	11.50	10.12	***
Young adult social characteristics:				
Respondent resides with parents	.409	.458	.249	***
Respondent is married	.203	.183	.269	***
Respondent is employed full-time	.480	.433	.633	***
Respondent has children	.281	.274	.302	**
Consumer debt ($)	5,809.6	5,451.7	6,980.7	***
	(11,682.9)	(11,660.1)	(11,683.0)	
Wages ($)	18,742.9	16,834.6	24,987.7	***
	(20,457.8)	(19,668.5)	(21,711.7)	
Risk scale (0 = lowest, 10 = highest risk preference)	5.101	5.069	5.208	**
	(2.023)	(2.058)	(1.901)	
Financial literacy (1 = answered questions correctly)	.462	.445	.518	***

TABLE 1 (*continued*)

| | Full Sample | Student Loan Debtor Status | | Significance |
		Nondebtor	Debtor	
Postsecondary schooling characteristics:				
Institution attended and degree granted:				
2-year, no degree	.276	.333	.0878	***
2-year, degree	.065	.051	.111	***
4-year, no degree	.332	.340	.309	**
4-year, degree	.205	.118	.490	***
Currently enrolled	.461	.485	.382	***
Dropped/stopped out	.237	.244	.212	***
Years enrolled	3.404	2.740	5.575	***
	(2.481)	(2.161)	(2.205)	
% years enrolled full-time	.682	.625	.866	***
	(.419)	(.447)	(.224)	
% years in private institution	.156	.125	.257	***
	(.330)	(.309)	(.376)	
Attended for-profit institution	.105	.101	.117	*
Financial aid–to–sticker price ratio	.780	.838	.583	***
	(1.139)	(1.237)	(.680)	
Person-wave observations	12,112	9,277	2,835	

Note.—Means (with standard deviations in parentheses) or proportion are presented. Significance indicates that the difference between debtors and nondebtors is statistically significant.

  * $p < .05$.
  ** $p < .01$.
  *** $p < .001$.

is significantly associated with a 0.8 percentage point reduction in the probability of homeownership, an association that we consider to be modest in size. In fact, in models that include student loan debt and no additional covariates, student loan debt is nonsignificant and explains only .8 percent of the variance in homeownership. This implies that student loan debt is not a strong predictor of homeownership among this sample of young adults.[2]

For the most part, the covariates in table 2 function in expected directions. For example, being black, living in an urban area (not shown in table but included in all models), and having lived in a household at age 12 that did not include both biological parents are all inversely associated with homeownership. By contrast, variables that signal the transition into adulthood—having graduated from school, being married, being employed full-time, being a parent, and no longer residing with parents—are all positively

2. Models controlling for the local unemployment rate, foreclosure rate, respondent self-reported high school grades, and average sticker price of the institutions attended reveal similar results.

TABLE 2. OLS Estimates of Associations of Student Loan Debt with Homeownership (Linear Probability Models)

	Model 1	Model 2	Model 3	Model 4
Student debt ($10,000)	−.005	−.004	−.004$^+$	−.008**
	(.003)	(.003)	(.002)	(.003)
Survey year (reference = pre-recession, 1999–2006):				
Recessionary period (2007–10)	−.024*	−.026*	−.019$^+$	−.021*
	(.011)	(.011)	(.010)	(.010)
Post-recession (2011)	−.004	−.008	.038*	.036$^+$
	(.021)	(.021)	(.019)	(.019)
Respondent's age	.035***	.036***	.011***	.008***
	(.002)	(.002)	(.002)	(.002)
Sociodemographic background:				
Race (reference = white):				
Black		−.075***	−.027**	−.027**
		(.009)	(.008)	(.008)
Other		−.018$^+$	−.000	.001
		(.010)	(.010)	(.010)
Female (reference = male)		.026***	.018**	.013*
		(.007)	(.006)	(.006)
Family structure of origin (reference = two-parent, parent biological):				
Step-family		−.019$^+$	−.024*	−.019$^+$
		(.011)	(.010)	(.010)
Single-parent family		−.035***	−.026***	−.022**
		(.009)	(.008)	(.008)
Other family structure		−.066***	−.061***	−.056***
		(.019)	(.014)	(.014)
Parent's education (reference = ≤ high school degree):				
Some college		−.004	−.005	−.007
		(.009)	(.008)	(.008)
4-year degree or more		−.019*	−.009	−.017*
		(.009)	(.008)	(.008)
Parents' net worth ($10,000)		.0005*	.0004*	.0003$^+$
		(.0002)	(.0002)	(.0002)
Young adult characteristics:				
Respondent lives with parents			−.068***	−.068***
			(.006)	(.006)
Respondent is married			.240***	.238***
			(.012)	(.012)
Respondent is employed full-time			.024***	.022***
			(.007)	(.007)
Respondent is a parent			.026**	.037***
			(.009)	(.009)
Wages ($10,000)			.028***	.027***
			(.002)	(.002)
Consumer debt ($10,000)			.011***	.011***
			(.003)	(.003)
Risk propensity			−.001	−.001
			(.002)	(.002)
Financial literacy			.010	.007
			(.006)	(.007)
Postsecondary education characteristics:				
Degree attained (reference = 4-year, degree):				
2-year, no degree				.026$^+$
				(.015)
2-year, degree				.015
				(.016)
4-year, no degree				.010
				(.014)

TABLE 2 (*continued*)

	Model 1	Model 2	Model 3	Model 4
Respondent dropped/stopped out				−.058*** (.016)
Respondent currently enrolled				−.039** (.014)
Years enrolled in postsecondary education:				.008** (.002)
% years enrolled full-time				.017+ (.009)
% years enrolled in private school				−.003 (.009)
Attended for-profit school				−.024** (.009)
Constant	−.604*** (.048)	−.534*** (.051)	−.080+ (.047)	−.028 (.052)
Adjusted R^2	.148	.274	.277	

Note.—$N = 12,112$. Coefficients and robust standard errors from OLS regressions are presented. Standard errors (in parentheses) were adjusted for intracluster correlation due to multiple observations of each individual. All models also include controls for region of origin, urban locale, and state fixed effects.
+ $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

associated with homeownership, as are higher wages. This suggests that transitioning into adult roles is a stronger predictor of homeownership than not having student loan debt, all else being equal, which is also evidenced by the increase in the variance explained (R^2) when young adults' social and economic characteristics are added in model 3. Furthermore, the coefficients for age at survey and survey year are in line with recent research on homeownership. Age is positively associated with homeownership, and homeownership among young adults significantly decreased in the recessionary (2006–10) and post-recessionary (2011) periods, which is consistent with research showing that young adult homeownership fell during the recessionary period (Grusky, Western, and Wimer 2011; Brown and Caldwell 2013).[3] It is important to note that these variables do not appear to confound the association between debt and homeownership but instead are independent predictors of homeownership among young adults.

Considering associations of educational debt with mortgage amounts (panel A, table 3) and with home equity among homeowners (panel B), we find some evidence of a positive association between debt and mortgage

3. These patterns are similar when controlling for the unemployment rate in the local labor market of residence and the state foreclosure rate.

TABLE 3. OLS Estimates of Associations of Student Loan Debt with Mortgage Debt and Home Equity

	Model 1	Model 2	Model 3	Model 4
A. Mortgage amount:				
Student debt ($10,000)	2,985.583[+]	2,793.21[+]	2,254.368	744.12
	(1,524.02)	(1,597.25)	(1,545.83)	(1,599.48)
Adjusted R^2	.294	.320	.372	.376
N (person-wave observations; owners only)	1,465			
B. Home equity:				
Student debt ($10,000)	−1,154.40	−1,186.24[+]	921.50	−1,091.14
	(704.48)	(718.17)	(705.20)	(878.04)
Adjusted R^2	.115	.117	.146	.149
N (person-wave observations; owners only)	1,710			
C. Model covariates:				
Age, year, state fixed effects	Yes	Yes	Yes	Yes
Sociodemographic and family background	No	Yes	Yes	Yes
Young adult characteristics	No	No	Yes	Yes
Postsecondary educational characteristics	No	No	No	Yes

Note.—$N = 12,112$. Coefficients and robust standard errors from OLS regressions are presented. Standard errors (in parentheses) were adjusted for intracluster correlation due to multiple observations of each individual. The model progression (and model covariates) in each model are identical to the models shown in table 1. All models also include controls for region of origin and urban locale.

[+] $p < .10$.

amount in models 1 and 2. However, this association is only marginally significant and is reduced considerably in magnitude and is nonsignificant in model 4. We find no evidence that student loan debt is associated with home equity (panel B). On the whole, these results provide little support for the perspective that student loan debt may be leading young adults to buy less expensive homes or is limiting their ability to build home equity.

SPLINE ESTIMATES: IS THERE AN ASSOCIATION BETWEEN DEBT AND HOMEOWNERSHIP AMONG DEBTORS?

To shed further light on the association between student loan debt and homeownership outcomes, we estimate OLS models with spline functions that are otherwise identical to the models presented above. The results from these models (shown in table 4) reveal an important trend. In all instances where student loan debt is a significant predictor of homeownership in the previously described OLS models, we find in the spline estimates that those observed differences are entirely due to differences between debtors and nondebtors. Across all models where debt is a significant predictor, debtor status, not amount of debt among debtors, is associated with homeownership outcomes. This suggests that the observed association between debt and homeownership outcomes is likely driven by selection and that

TABLE 4. OLS Spline Estimates of Associations of Student Loan Debt (Debtor Status and Debt among Debtors) with Homeownership

	Model 1	Model 2	Model 3	Model 4
Student debt ($10,000) among debtors	−.000	−.001	−.001	−.003
	(.003)	(.003)	(.003)	(.003)
Debtor status (1=yes)	−.026*	−.022*	−.023*	−.038***
	(.012)	(.011)	(.010)	(.011)
Adjusted R^2	.294	.320	.372	.376
Model covariates:				
Age, year, state fixed effects	Yes	Yes	Yes	Yes
Sociodemographic and family background	No	Yes	Yes	Yes
Young adult characteristics	No	No	Yes	Yes
Postsecondary educational characteristics	No	No	No	Yes

Note.—$N = 12{,}112$. Coefficients and robust standard errors from OLS regressions presented. Standard errors (in parentheses) were adjusted for intracluster correlation due to multiple observations of each individual. The model progression (and model covariates) in each model are identical to the models shown in table 1. All models also include controls for region of origin and urban locale.

* $p < .05$.
*** $p < .001$.

unobserved compositional group differences between debtors and nondebtors drive the association between debt and homeownership. We find no support for a dose-response association between debt amount and ownership, which we would expect to see if student loan debt had a true causal effect on homeownership.

INSTRUMENTAL VARIABLES ESTIMATES

Our instrumental variables results are shown in table 5. The first-stage coefficients, presented in panel A, indicate that the financial aid–to–sticker

TABLE 5. IV Estimates of Associations of Educational Debt with Homeownership, Mortgage Debt, and Home Equity

	Homeownership	Mortgage Amount (among Owners)	Home Equity (among Owners)
A. First stage:			
Financial aid–to–sticker price ratio	−.036***	−.079***	−.087***
	(.006)	(.016)	(.006)
R^2	.264	.273	.308
F-statistic	36.17	22.76	26.48
B. Second stage:			
Educational debt ($10,000)	−.026	26,258.5	10,229.7
	(.071)	(16,399.7)	(9,861.6)
Person-wave observations	9,712	1,031	1,066

Note.—Coefficients and robust standard errors from IV regressions are presented. Standard errors (in parentheses) were adjusted for intracluster correlation due to multiple observations of each individual. All models control for age, state, and year, as well as the full set of covariates.
*** $p < .001$.

price ratio is highly predictive of educational debt. In all cases, the instruments performed well, passing both weak instrument and underidentification tests and having F-statistics of well above 10 (the conventional test for a valid instrument). The second-stage estimates (panel B), however, suggest that student loan debt is not significantly associated with homeownership, mortgage amount, or home equity.

ADDITIONAL ANALYSES

We conducted additional analyses to test for heterogeneity in student loan debt across groups and to test whether student loan debt mediates observed group differences in homeownership. Specifically, we speculated that student loan debt may be more detrimental to the homeownership prospects of black youth, college dropouts, women, and youth from disadvantaged backgrounds than for their more advantaged counterparts, or that debt may explain why these groups have lower rates of homeownership than their more advantaged counterparts. However, in interactive and stratified models, we find no consistent evidence for heterogeneity in the association between debt and homeownership. Moreover, we find no evidence that student loan debt mediates the link between socioeconomic disadvantage and homeownership, which is not surprising given that student loan debt explains almost no variance in homeownership among this sample. We also find no consistent evidence for heterogeneity in the association between debt and homeownership outcomes by wages, survey year, age, enrollment status, or postsecondary institutional characteristics. Given recent reports that for-profit college–goers and community college–goers face the brunt of the student loan debt crisis (Looney and Yannelis 2015), we limited our analyses to these groups, but again we find little evidence for a link between debt and homeownership. Given that these are the groups who struggle with loans the most, this sheds further doubt on a causal link between debt and home buying among young adults.

We also conduct several additional analyses to ensure that our models are robust to alternative specifications. First, we consider alternative debt measures that are available in the NLYS97. While respondents are in college, the NLSY97 includes annual questions about the amount of loans that respondents took out in a given term and year. Results are similar when using the annual measure of student loan debt as opposed to the debt measures from the YAST modules. Second, we consider several operationalizations

of student loan debt, including logged student loan debt, two measures of debt burden (the debt-to-income ratio and debt-to-financial assets ratio), and a categorical measure of debt. All of the results are substantively and statistically similar to the results presented here. Results are also similar when using logistic regression models to predict homeownership and logged values of home equity and home mortgage debt. We also find substantively consistent results when estimating fixed and random effects models and when we limited our analysis to only the YAST–25 and YAST–30 survey waves (given that homeownership is uncommon among those in the YAST–20 wave). We also find no evidence for an association between debt and homeownership when limiting the sample to students who had similar postsecondary educational experiences and attended in-state public colleges.

Furthermore, we consider additional homeownership outcomes. In particular, we examine whether young adults who owned homes by age 25 were more likely to exit homeownership if they had student loan debt. Although student loan debt has been framed as a potential deterrent for homeownership, it may be especially problematic for homeowners who fall on hard times. Unlike home debt, student loan debt cannot be discharged in bankruptcy (Atkinson 2010), repossessed, or discharged in a foreclosure. Thus, one way that student loan debt may inhibit homeownership is by hastening homeownership exit among young adults. However, we find no support for this hypothesis and, in fact, we find in most models that student loan debt is negatively (and not positively) associated with homeownership exit.

DISCUSSION

Recently policy makers, financial experts, scholars, and journalists have argued that student loan debt is a major reason why young adults delay or eschew home buying. Despite all of the handwringing on this issue, however, little empirical evidence of a relationship between student debt and homeownership among young adults exists. Is student loan debt causing young adults to retreat from the housing market en masse? Or are those with small amounts of debt buying homes at similar rates as those with large amounts of debt, which would imply that young adults' retreat from the housing market has little to do with rising debt? In this article, we provide a rigorous test of this question and examine the association between student loan debt and homeownership by the age of 30 among a recent cohort of young adults.

Across all of our analyses, we find little evidence of a substantive association between student loan debt and homeownership, mortgage acquisition, and the amount of mortgage debt among homeowners, and student loan debt explains a negligible portion of the variance in these outcomes. We do find a significant association between educational debt and homeownership status in our OLS models, but the magnitude of this association is relatively small and provides, at best, only limited evidence that rising student loan debt is a major culprit in the decline in homeownership among young adults in the overall population. Moreover, subsequent analyses reveal that this difference is entirely due to differences in debtor status, not the amount of debt among debtors. We speculate that this is likely due to unobserved compositional differences between debtors and nondebtors, such that selection into debtor status drives the association between debt and home ownership. That we would expect but do not observe a dose-response association between debt and homeownership (or that those with higher student loan debt would be less likely to own homes) sheds doubt on the hypothesis that high levels of student loan debt are driving down homeownership rates. We also find no evidence that debt disproportionately limits homeownership among disadvantaged groups. Educational debt has a similar association with homeownership across a variety of socioeconomically defined population groups, which suggests that it is not likely to be responsible for social disparities in homeownership among twenty-first-century young adults. That said, future research should continue to explore the intersection between social disadvantage, student loan debt, and the timing and ordering of transitioning into adult social roles.

If student loan debt is not to blame for the reduction in homeownership among young adults, then what is? Our models reveal other covariates that are more strongly predictive of homeownership than debt. For example, across all models, we find that the recessionary and postrecessionary periods are negatively associated with homeownership, compared to the prerecessionary period. As expected, full-time employment is also strongly associated with homeownership. This implies that the recession and associated declines in full-time employment may be more responsible for the reduction in homeownership among young adults than student loan debt, per se. In addition, transitioning into adult roles, such as marriage and parenthood, is also a key predictor of homeownership. Indeed, adding young adult role variables to the models increases the R^2 considerably, by 25 percent (from .117 to .146 comparing model 2 and model 3 in table 3 with respect to home equity amount) to 85 percent (from .148 to .274 in table 2 with

respect to homeownership). Although we speculated that the timing of young adults' transitions into adult roles may have confounded the association between student loan debt and homeownership, we find that transitioning into adult roles independently contributes to homeownership, regardless of student loan debt. However, we caution that these results show only that the recession, unemployment, and delayed transitions into adult roles are correlated with, and may not be a cause of, declining homeownership among young adults.

Our study has several strengths. First, we use longitudinal data to examine how accruing student loan debt is associated with later homeownership among a sample of college-goers. Second, we account for several potential confounders that may render the debt-ownership association spurious, including a wide range of sociodemographic characteristics and postsecondary educational characteristics. Third, we use several strategies to reduce selection bias.

There are also several limitations of our analyses. We observe respondents only up to age 30, and we measure homeownership at only three points in time (at the YAST–20, YAST–25, and YAST–30). This limits our analyses in several ways. First, it potentially ignores the timing of homeownership between these ages. Second, it substantially reduces our sample size because only a small proportion of NLSY97 sample members have reached the age of 30 and are thus eligible for the YAST–30. Although it is possible that we could see a student loan effect emerge once respondents are older, nearly 40 percent of our sample owned a home by the time of the YAST–30 (see the appendix) and most young adults are still repaying their student loans at this stage, which suggests that we would expect to see an association by that age, if it were real. Future work should replicate our analyses using new interview waves as respondents age. Finally, we caution that we can only observe correlation and not causation in this study, as student debt is not randomly assigned.

CONCLUSION

We scrutinize the recent claim that student loan debt is leading to declining homeownership among young adults and find little evidence that student loan debt is a major cause of declining homeownership among young adults. Instead, it is likely that declining homeownership among young adults, which predates the recent rise in student loan debt, is more responsive to structural changes in the economy and changes in the transition to

adulthood (Furstenberg 2003, 2010; Houle 2014*b*). Our findings suggest that policies intended to alleviate debt, such as debt forgiveness, debt refinance plans, or debt-free college, which have been derided as regressive (Chingos and Akers 2014), may not increase homeownership among young adults or accelerate the housing market recovery. Instead, policies that promote economic security among young adults may do more to promote home-ownership among the next generation of young adults.

APPENDIX

TABLE A1. Selected Descriptive Statistics by YAST Survey Wave

	YAST Survey		
	Age 20	Age 25	Age 30
Homeownership status:			
Homeowner	.0362	.177	.373
Mortgage amount ($, among owners)	62,287.53	124,992.1	92,840.62
	(76,771.1)	(95,597.7)	(93,765.5)
Home equity ($, among owners)	50,384.7	46,911.4	15,046.3
	(100,024.5)	(872,66.1)	(545,77.9)
Educational debt:			
Any educational debt	.0411	.362	.409
Student debt ($, among debtors)	13,596.7	21,736.9	24,896.8
	(16,096.2)	(23,119.9)	(28,330.5)
Sociodemographic background:			
Survey year	2,002.1	2,007.1	2,010.5
	(1.502)	(1.417)	(.499)
Age	20.16	25.04	29.88
	(.543)	(.614)	(.384)
Young adult social characteristics:			
Respondent resides with parents	.635	.274	.160
Respondent is married	.0648	.253	.445
Respondent is employed full-time	.296	.604	.641
Respondent has children	.133	.327	.560
Consumer debt ($)	3,931.1	8,164.8	4,446.5
	(7,785.9)	(13,947.0)	(12,549.3)
Wages ($)	8,241.6	23,976.1	33,115.4
	(9,025.2)	(19,265.8)	(29,857.7)
Postsecondary schooling characteristics:			
Institution attended and degree granted:			
2-year, no degree	.286	.266	.275
2-year, degree	.0196	.0929	.111
4-year, no degree	.479	.234	.204
4-year, degree	.005	.334	.399
Currently enrolled	.690	.321	.216
Dropped/stopped out	.0995	.325	.368
Years enrolled	1.856	4.253	5.306
	(1.201)	(2.361)	(2.918)
Proportion years enrolled full-time	.656	.700	.700
	(.460)	(.394)	(.359)
Proportion years in private institution	.147	.162	.165
	(.340)	(.327)	(.313)
Person-wave observations	5,107	5,148	1,857

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