

Nothing to Show for It: Non-Degreed Debt and the Financial Circumstances Associated with It[†]

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Abstract: The number of individuals with student loan debt who do not earn their degrees is on the rise; nevertheless, there is little research that demonstrates the financial conditions and circumstances of these individuals. We address this knowledge gap by comparing the financial outcomes of student debt-holders who started college but did not earn a degree—those with non-degreed debt (NDD)—with similar individuals who did not attend college and did not take on student debt. We find that individuals with NDD had greater odds of experiencing material and healthcare hardships, as well as financial difficulties. Individuals with NDD also had greater financial anxiety and lower levels of financial well-being. Despite these challenges, individuals with NDD were more optimistic than high school graduates concerning future college enrollment and earnings. We discuss the implications of these findings with regards to financial aid policies, debt repayment policies, and college retention and re-enrollment efforts.

Keywords: Student Debt, College Completion, Hardships, and Financial Well-Being

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1. Introduction

Substantial evidence from the U.S. has consistently identified a positive association between educational attainment and earnings (Angrist & Krueger, 1991; Card, 1999; Heckman, Humphries, & Veramendi, 2018; Hout, 2012). Earnings differentials tend to be larger when comparing workers with at least a Bachelor's degree to workers with some college or an associate's degree, as well as when comparing workers with some college to workers with only a high school diploma (or equivalent) (Bureau of Labor Statistics [BLS], 2020b; Day & Newburger, 2002; Oreopoulos, & Petronijevic, 2013; Ost, Pan, & Webber, 2018). Specifically, the latest estimates for full-time workers aged 25 or above suggest that the median weekly income was \$747 for workers with only a high school diploma (or equivalent), \$870 for workers with some college or an associate degree, and \$1,259 for those who earned only a Bachelor's degree (BLS, 2020a). Additionally, the unemployment rate was 3.8% for workers with a high school diploma or its equivalent, 2.8% for workers with some college or an associate degree, and 2.0% for those who earned a Bachelor's degree or higher (BLS, 2020a). These numbers suggest that enrolling in and graduating from a four-year institution is associated with a substantial premium on employment and earnings. Furthermore, greater educational attainment is associated with an array of non-pecuniary outcomes, including lower fertility (Brand & Davis, 2011), better health behaviors (Lawrence, 2017), lower body mass index (von Hippel & Lynch, 2014), and improved political involvement (Milligan, Moretti, & Oreopoulos, 2004). When considering that levels of educational attainment are disproportionately distributed across different segments of the U.S. population (e.g. fewer Black individuals than White individuals aged 25 and older earned a Bachelor's degree in 2016) (National Center for Education Statistics [NCES], 2017), educational attainment can also be a source on economic and social inequality.

While the benefits of a college degree are considerable, so are the costs of completing college. Currently, both the costs of higher education and the proportion of students and who depend on student loans to finance their educations are on the rise (Bricker & Thompson, 2016; Snyder, de Brey, & Dillow, 2019). Accordingly, as most young adults who attended college in recent years have taken on debt to finance their educations (Board of Governors of the Federal Reserve System, 2018), it is unsurprising that the national student debt level reached an all-time high of 1.6 trillion dollars in 2019 (Board of Governors of the Federal Reserve System, 2020), while becoming the second largest source of household debt (Federal Reserve Bank of New York, 2019).

While student loans are generally a productive form of debt with respect to earnings potential, student debt has been associated with lower homeownership rates (e.g., Mezza, Ringo, Sherlund, & Sommer, 2019), lower levels of financial assets (e.g., Zhan, Xiang, & Elliott, 2016), reduced consumption rates (e.g., Bahadir & Gicheva, 2019), greater incidences of hardship (e.g., Despard et al., 2016), and delays in family formation (e.g., Gicheva, 2016). Similar to levels of education attainment, student debt is disproportionately distributed across different segments of the U.S. population. Several studies document the racial disparities in student debt and debt burden even after adjusting for socio-economic and financial factors (Addo, Houle, & Simon, 2016; Grinstein-Weiss, Perantie, Taylor, Guo, & Raghavan, 2016; Houle & Addo, 2019). Overall, children from households with higher incomes and higher levels of wealth are not only more likely to enroll in and graduate from college (Hotz, Wiemers, Rasmussen, & Koegel, 2018), but they are also better equipped to eschew student loans entirely (Houle, 2014).

Furthermore, rising college costs and the subsequent amount of student loans may also be associated with the recent increase in payment delinquencies. Over 20% of borrowers were

behind on their student debt payments in 2018 (Board of Governors of the Federal Reserve System, 2018). Loan defaults are greater among borrowers who attended for-profit, two-year, and non-selective four-year institutions, as well as borrowers who are more likely to come from lower-income backgrounds and have lower earnings than borrowers who attended selective four-year institutions (Looney & Yannelis, 2015). Moreover, borrowers who have not completed their degrees, attended for-profit institutions, and identified as Black or Hispanic reported higher rates of loan delinquency (Board of Governors of the Federal Reserve System, 2018).

Given the trends associated with degree attainment and student debt, it is unsurprising that the proportion of borrowers who do not earn their degrees is on the rise. Nevertheless, despite the prevalence and uneven distribution of degree non-completion and student debt, there is little research at the convergence of these two phenomena (see Gladieux & Perna, 2005). Rather, as justifications can often be made for these phenomena in isolation (i.e. increased earning potential makes student debt “worth it” for those that complete college; non-completers tend to leave college for paid employment), the plight of those with non-degreed debt (NDD) has been largely overlooked until now. While previous research has demonstrated that borrowers who do not earn their degrees are more likely to be unemployed, default on their loans, and have lower earnings compared to borrowers who finished their degrees (Nguyen, 2012), there is a considerable lack of evidence concerning the financial conditions and circumstances of these borrowers. We address this large gap in the knowledge base by comparing financial outcomes of student debt-holders who started college but did not earn a degree—individuals with NDD—with those of similar individuals who did not attend college and did not take on student debt.

Among a sample of low- and moderate-income (LMI) tax filers, we find that individuals with NDD had greater odds of experiencing material and healthcare hardships, as well as

financial difficulties when compared to high school graduates with no student debt. Individuals with NDD also had greater financial anxiety and lower levels of financial well-being. Despite these challenges, individuals with NDD were more optimistic than high school graduates concerning future college enrollment and earnings. We discuss the implications of these findings concerning financial aid policies, student debt repayment policies, and colleges' and universities' retention and re-enrollment efforts. In doing so, we deepen the policy discourse concerning student debt by addressing the circumstances of borrowers who must repay debt for an experience that fails to engender an earnings premium—those that having nothing to show for it.

2. Background

Despite the continued presence of an earnings premium associated with a college degree, student debt burden can contribute to a host of adverse financial and non-financial outcomes that may diminish the return on investment of student loans. For example, due to high debt-to-income ratios, student debt payments may delay homeownership as borrowers struggle to save for a down payment and qualify for mortgages. High debt-to-income ratios from student debt may also limit access to short-term credit, making it more difficult for borrowers to manage cash flow, cope with financial shocks, purchase assets, and make home improvements. While on-time payments on student loans can improve credit scores, delinquencies can harm credit standing, further limiting credit access. Student debt payments may also crowd out consumption and saving habits (Elliott, Grinstein-Weiss, & Nam, 2013; Gicheva & Thompson, 2015), especially among recent graduates with low early career earnings (Hershbein et al., 2014). Borrowers who miss debt payments can be subject to late fees, collection costs, garnished wages, seized tax refunds, and lowered credit scores, further exacerbating financial distress and hardships. Having a large outstanding student debt balance may also increase financial anxiety and promote a lost

sense of control over personal finances. All of these adverse outcomes may be especially true for borrowers who did not complete their degrees and failed to realize a premium on their earnings.

In line with these theoretical expectations, the empirical explorations on student debt tend to corroborate many of these relationships, although the ability to establish causality varies across studies. Using longitudinal data, Houle and Berger (2015) reported a modest negative association between holding any student debt and homeownership, yet no such association was found using an instrumental variable analysis. Another study by Mezza et al. (2019) employed an instrumental variable approach finding that an increase in the amount of student debt can cause a reduction in homeownership rates early in life. Considering financial outcomes, young adults with outstanding student debt at the time of graduation reported lower overall net worth and financial assets relative to those without outstanding student loans (Zhan et al., 2016).

Student debt has also been studied with respect to consumption and financial difficulties. Zhang, Wilcox, & Cheema (2019) found that households with low and high student debt levels were significantly more likely to spend beyond their incomes than those with moderate debt levels. Based on a hypothesis that large amounts of student debt are perceived as unmanageable and make it more difficult to control spending, experimental evidence showed that presenting debt in terms of a monthly payment structure (rather than a lump-sum payment structure) reduced the rate of spending among large student debt holders. This evidence is aligned with findings from Zhan and Sinha (2016) who reported that among young adults with outstanding student loan debt, participation in income-based repayment (IBR) plans was associated with a greater likelihood to own financial assets. Finally, at the macro level, Bahadir and Gicheva (2019) found that higher levels of student debt-to-income ratios caused a reduction in the growth rate of aggregate, state-level consumption in the medium term.

Using an instrumental variable approach to analyze multiple waves of data from the Survey of Consumer Finances, Gicheva and Thompson (2015) found that higher amounts of student loan debt were linked to credit constraints and increased likelihood of filing for bankruptcy, with stronger effects observed for households with at least one college non-completer. In addition, indebted households with college non-completers were more likely to report being late on bill payments. Using the same data source, Bricker and Thompson (2016) concluded that education debt was associated with several indicators of financial distress, such as making late bill payments, being denied credit, and having a high payment-to-income ratio. Here, it is important to note that these results generally did not hold for other forms of debt. An analysis by Akers (2014) using data from the same survey showed that financial hardship was more acute among households at lower student debt levels but did not increase for higher student debt levels. Despard et al. (2016) found that LMI tax filers households with student debt tended to fare worse on various measures of hardship than households without student debt. When limiting the sample only to debt holders, however, a greater amount of student loan debt was associated with increased risk of healthcare hardship but not material hardship or financial difficulty.

Student debt may also adversely affect family formation. Beyond better educated individuals preferring to focus on their careers rather than start a family, student debt payments may crowd out lifecycle expenses, such as having a wedding and raising children. Hence, borrowers with outstanding student debt balances may delay marriage and childbearing. Indeed, research generally points to a negative relationship between student loan debt and the likelihood of marriage (Bozick & Estacion, 2014; Gicheva, 2016; Sieg & Wang, 2018) and parenthood (Nau, Dwyer, & Hodson, 2015; Sieg & Wang, 2018).

Additional research indicates a negative relationship between student debt and subjective measures of financial well-being and general life satisfaction. Based on a systematic review, Pisaniello et al. (2019) found a significant association between student debt and self-reported stress, worry, and financial stress among medical students in several countries. Additionally, Archuleta, Dale, and Spann (2013) found that student loan debt was positively correlated with financial anxiety when controlling for other types of debt. Kim and Chatterjee (2019) also reported a negative association between student debt and life satisfaction after controlling for other forms of debt.

The evidence reviewed above points to a range of adverse outcomes associated with holding student debt—delayed homeownership and family formation, credit constraints, diminished saving and asset building, and material hardship. Despite these findings, other evidence indicates that borrowing to attend college continues to be a wise choice with respect to future earnings. However, student debt studies have largely overlooked LMI borrowers, particularly those who attended college, but did not earn a degree—those with non-degreed debt.

3. Current Study

Our study extends the literature on student debt and financial outcomes in three ways. First, we focus on the population of LMI borrowers. Existing research has paid relatively little attention to the issues of student debt in the context of LMI households, even though these households experience greater student debt burden and loan repayment difficulties (Baum & O'Malley, 2003; Hillman, 2014; Looney & Yannelis, 2015), face greater liquidity constraints (Board of Governors of the Federal Reserve System, 2016), and may be more susceptible to over-borrowing and high-cost borrowing (Mullainathan & Shafir, 2013). Additionally, a shift from need-based to merit-based financial aid (Elliott & Friedline, 2013) and the declining purchasing

power of Pell Grants (Protopsaltis & Parrott, 2017) disproportionately affect lower-income and minority students.

Second, building on Despard et al. (2016), we use multiple measures of material and healthcare hardships and financial difficulties, as well as incorporate indicators of subjective financial well-being, including financial anxiety and the Consumer Financial Protection Bureau's (CFPB) Financial Well-Being Scale. While several studies have previously used this scale (e.g., Collins & Urban, 2018; Sun, Kondratjeva, Roll, Despard, & Grinstein-Weiss, 2018), to our knowledge, ours is the first study to use the scale in the context of student debt.

Finally, we concentrate on individuals with NDD—a group most studies on student debt overlook. This is a particularly vulnerable segment of student debt holders, as these individuals face the costs of student debt without the ability to fully capitalize on the benefits of higher education. For studies that do consider students with NDD population, comparisons are typically “upward”—with borrowers who completed their degrees (e.g., Nguyen, 2012). We make “downward” comparisons to those who never attended college and have no student debt, which allows us to explore a fundamental counterfactual framework: is it better to attend college, incur debt, and not graduate *or* to forgo college and student debt altogether?

4. Data and Methods

In this study, we are interested in examining how material and healthcare hardships, financial difficulties, financial anxiety and well-being, as well as future expectations related to work and education, might be different for LMI individuals with NDD if they had not gone to college, taken on student debt, and dropped out. Thus, we compare individuals who have NDD to individuals who have a HS Diploma/Equivalency (HSDs) without any student debt. While we cannot completely control for the decisions to pursue post-secondary education, take on student debt, and leave school before graduating, given our current sample and available measures, we

are able to balance individuals with NDD and individuals with HSDs on a variety of demographic and economic measures that are related to educational attainment, student debt, and the outcomes under study. We do so by utilizing propensity score methods based on machine learning.

4.1. Data

Data for this study come primarily from the 2017 Household Financial Survey (HFS), which gathered detailed information on a variety of measures related to household finances, such as educational attainment, student debt, hardships, difficulties, financial well-being and anxiety, and future expectations of earnings and education. The HFS was administered to individuals who consented to participate in the survey following completion of their tax preparation and tax filing in Intuit's TurboTax Freedom Edition (TTFE) in 2017.¹ As part of the Internal Revenue Service's (IRS) Free File Alliance Program,² the TTFE tax-preparation and tax-filing software is free for LMI tax filers who meet certain income and/or military service criteria. In 2017, the qualifying criteria for using TTFE were: (a) claiming the Earned Income Tax Credit, (b) having an adjusted gross income (AGI) less than or equal to \$32,000, or (c) being an active duty military serviceperson with an adjusted gross income less than or equal to \$64,000. For the analysis, HFS data were merged with administrative tax records. By using administrative data, we were able to observe the precise values of household AGI, federal tax refunds, tax filing status, and the number of dependents in a household.

4.2. Sample

¹ The data were obtained through the Refund to Savings (R2S) initiative, which is a continuing partnership between Washington University in St. Louis and Intuit, Inc.

² <https://freefilealliance.org/>

In total, 23,834 individuals completed the HFS after they filed their tax returns. We removed individuals who were currently enrolled in school ($n = 7,451$) and individuals who had student loans that were not theirs ($n = 712$). After removing individuals with less than a high school diploma or general equivalency ($n = 456$), as well as individuals with a college degree or higher ($n = 8,158$), we were left with 2,094 individuals who had a high school diploma or general equivalency diploma (GED) as their highest level of education and 4,085 individuals who completed some college, but did not graduate. Next, we removed 100 individuals who had a high school diploma as their highest level of education *and* who had incurred student debt (these students likely paid for courses but did not earn credits for them), as well as 2,620 individuals who had completed some college (but did not graduate) *and* who had not incurred student debt. This left 1,994 LMI individuals who had high school diplomas or equivalent *without* student debt (individuals with HSDs) and 1,465 LMI individuals who completed some college (but did not graduate) *with* student debt (individuals with NDD). Finally, there was some listwise deletion in the final models that resulted in an additional 55 individuals being removed from the sample (HSD = 1,967; NDD = 1,437).

4.3. Measures

Dependent Variables. We examined the association among NDD and outcomes related to material and healthcare hardships, financial difficulties, financial anxiety and well-being, and future expectations of earnings and college enrollment. Construction of the hardship variables was informed by similar items used in large panel studies, such as the Survey of Income and Program Participation, as well as the Fragile Families and Child Well-Being Study (see Despard et al., 2016). A dummy variable for experiencing a material hardship in the six months prior to tax filing was created for individuals that indicated their household could not afford to make a

full rent or mortgage payment, skipped or made a late payment on a bill, or experienced food insecurity (1 = yes; 0 = no). A dummy variable for experiencing a healthcare hardship in the six months prior to tax filing was created for individuals that indicated their household could not afford to see a doctor or dentist for medical care, or could not afford to fill a prescription (1 = yes; 0 = no). For financial difficulties, we created a dummy variable for whether individuals or someone in their household experienced a bank overdraft or had a credit card payment declined in the six months prior to tax filing (1 = yes; 0 = no).

While hardship and financial difficulty measures focused on objective circumstances, financial anxiety and well-being measures focused on individuals' subjective financial experiences. The Financial Anxiety Scale (FAS) was adapted to the seven-item Generalized Anxiety Disorder (GAD-7) scale (see Shapiro & Burchell, 2012; Archuleta, Dale, & Spann, 2013). Based on a Likert scale—ranging from 1 (never) to 6 (always)—the FAS asks participants how often: “They feel anxious about their financial situations”; “They experience difficulty sleeping due to their financial situations”; “They experience difficulty concentrating at work due to their financial situations”; “They feel irritable due to their financial situations”; “They experience difficulty controlling their worry about their financial situations”; “Their muscles feel tense due to worrying about their financial situation”; and “They feel fatigued due to worrying about their financial situations.”

The Financial Well-Being (FWB) scale considers financial security and freedom of choice both presently and in the future. We used an abbreviated scale that consists of the following five items (CFPB, 2015): “I am just getting by financially”; “I am concerned that the money I have or will save won't last”; “Because of my money situation, I feel like I will never have things I want in life”; “My finances control my life”; and “I have money left over at the end

of the month.” These statements are measured on a Likert scale ranging from 1 to 5: responses for the first three questions include “Completely, Very well, Somewhat, Very little, Not at all,” and response categories for the last two questions are “Always, Often, Sometimes, Rarely, Never.” The FWB scale takes into account whether individuals are above or below age 61, as FWB can be impacted by both age and the ability to draw on retirement benefits. This age standardization scoring technique is informed by item response theory (IRT) and recommended by the CFPB.

Finally, in order to understand how NDD relates to future expectations, we considered whether or not an individual expected to earn more in the near future (1 = yes; 0 = no), as well as whether or not an individual planned to enroll in college in the near future (1 = yes; 0 = no).

Variables in the Propensity Score Estimation Model. The key predictor in our study was NDD (1 = NDD; 0 = HSD). In order to make these two groups of individuals more comparable we employed a theory-driven approach in our propensity score model, and balanced NDD and HSD on variables that are theoretically related to educational attainment and student debt, as well as the outcomes under study. These variables included the following: age; gender (1 = male; 0 = female/other); race/ethnicity—whether individuals identified as White (1 = yes; 0 = no), Black (1 = yes; 0 = no), Asian (1 = yes; 0 = no), Other (1 = yes; 0 = no), or Hispanic (1 = yes; 0 = no); filing status: single (1 = yes; 0 = no), married filing jointly (1 = yes; 0 = no), and head of household/other (1 = yes; 0 = no); number of dependents; employment status: full-time employment (1 = yes; 0 = no), part-time employment (1 = yes; 0 = no), and not currently working (1 = yes; 0 = no); household’s AGI; and federal taxes received or owed. Variables measuring dependents, tax filing status, household AGI, and the amount of federal taxes received or owed were observed and in the administrative tax data, whereas remaining measures came

from the survey data. Finally, in order to achieve an appropriate balance across the two groups, the age variable was winsorized at the upper-bound 90th percentile.

Covariates in Multivariate Response Models. Additional covariates were utilized in our multivariate response models in order to account for other factors that might explain the outcomes. While there was some overlap between these covariates and the variables used in the propensity score estimation model, which can provide an added layer of robustness (Bang & Robins, 2005), the set of covariates used in the multivariate response models were substantially different, which is also necessary when using propensity score methods (see Freedman & Berk, 2008). In addition to demographic and financial variables included in the propensity score model, multivariate response models included the following covariates: being married or living with a partner (1 = yes; 0 = no); liquid assets—including amounts reported in checking accounts, savings accounts, and cash; unsecured debt—including amounts reported on credit cards, payday loans, and negative balances in checking accounts; owning a home (1 = yes; 0 = no); owning a car (1 = yes; 0 = no); having health insurance (1 = yes; 0 = no); believing that they could come up with \$2,000 if a financial emergency arose within the next month (1 = yes; 0 = no), having careful budgeting habits—ranging from 1 (not at all like me) to 5 (very much like me); and experiencing any of the following financial shocks in the previous six months (1 = yes; 0 = no): unexpected job loss, unexpected income reduction, unexpected major house or appliance repair, unexpected major vehicle repair, unexpected legal fees, unexpected medical expenses, unexpected natural disaster, unexpected criminal victimization, and unexpected major life change that affected individuals financially (e.g., birth, death, divorce, separation).

In order to censor extreme outliers, age, liquid assets, and unsecured debt variables were winsorized at the upper-bound 99th percentile in the multivariate response models. Finally, while

liquid assets were transformed into quartiles, due a disproportional amount of the sample that had no unsecured debt, this variable was transformed into a categorical variable consisting of four categories: (1) no unsecured debt: \$0; (2) low unsecured debt: \$1-682 ; (3) moderate unsecured debt: \$683-3,000; and (4) high unsecured debt: \$3,001-25,000. Notably, individuals with unsecured debt were equally distributed into the latter three categories.

4.4. Analytic Strategy

Propensity scores define the conditional probability of being assigned to a treatment or comparison group based on a set of observed characteristics (Rosenbaum & Rubin, 1983), but cannot account for unobserved characteristics. As a result, propensity scores can be seen as balancing property: “conditional on the propensity score, the distribution of observed baseline covariates will be similar between treated and untreated subjects” (Austin, 2011). Specifically, propensity score weighting was used in this study, which uses the inverse probability for receiving the treatment (that the subject actually received) to weight these observations from a given sample (Austin, 2011). Stemming from a counterfactual framework, in which treatment (those with NDD) and comparison (those with HSDs) participants have potential outcomes in the state in which they are observed *and* in the state in which they are not observed (see Rubin, 2005), this allows for average treatment effects (ATE) to be estimated, which in this study is the difference in the potential outcomes associated with NDD for all students. In following Guo’s (2014) notation, the ATE weights for cases in the treatment group (individuals with NDD) are calculated as $w_i = \frac{1}{p(x_i)}$, while the ATE weights for cases in the comparison group (individuals with HSDs) are calculated as $w_i = \frac{1}{1-p(x_i)}$. These weights are then applied in multivariate regression models. We utilized logistic regression for binary outcomes and linear regression for continuous outcomes.

Since model misspecification errors have been shown to bias estimates of treatment effects, especially in analyses with binary outcomes (see Drake, 1993; Freedman & Berk, 2008), we utilized generalized boosted modeling (GBM) to estimate propensity scores. Nonparametric modeling approaches, such as GBM, have been shown to reduce the chance of these errors (McCaffrey, Ridgeway, & Morral, 2005). Specifically, GBM utilizes automated, data adaptive modeling algorithms and machine learning techniques to “predict treatment assignment from a large number of pretreatment covariates while also allowing for flexible, non-linear relationships between the covariates and the propensity score” (McCaffrey et al., 2005, p. 3). In estimating the propensity score weights, this study utilized the TWANG—Toolkit for Weighting and Analysis of Non-equivalent Groups—package (Ridgeway, McCaffrey, Morral, Burgette, & Griffin, 2014) in STATA. As seen in Figure 1, there was an adequate range of common support.

4.5. Limitations

It is important to note that many of the observable characteristics that we account for in our propensity score estimation model occur *after* individuals make the decision to pursue post-secondary education, to take on student debt, and to leave school without graduating. Thus, as our propensity score method only allows us to balance the groups on observable characteristics, participants may not be balanced on unobservable characteristics related to some of these key decisions. Of particular importance, we are not able to observe reasons why borrowers with NDD group did not earn their degrees. As a result, we are unable to make causal inferences. Rather, we use propensity score weighting to balance groups on observables characteristics that are related to our treatment, as well as the outcomes under study. By doing so, we are able to remove some of the bias in our associational estimates. This is in line with Despard et al.’s (2016) work, which employed a similar method in their analyses of student debt and hardships.

5. Results

5.1. Sample Description

Sample description is provided in Table 1. The average age of participants in the sample was 38, and there was a nearly equal proportion of male and female/other participants (47% male; 53% female/other). The majority of participants were Non-Hispanic White (71%), employed (77%), owned a car (71%), had health insurance (84%), experienced a shock in the six months prior to tax filing, and made roughly \$16,693 a year in an AGI. A smaller proportion of participants were married or lived with a partner (34%), had dependents (29%), owned a house (27%), and would be able to come up with \$2,000 in case of an emergency (38%). Additionally, the average amount of liquid assets for individuals in the sample (\$2,353) was larger than the average amount of unsecured debt (\$2,078). Finally, when considering the outcomes under study, both material hardship (65%) and healthcare hardship (54%) were common in this sample; experiencing financial difficulties (37%), expecting to earn more in the future (47%), and planning to attend college in the future (30%) were less common.

5.2. Characteristics of Individuals with Non-Degreed Debt

Prior to balancing on observable characteristics through propensity score weighting, there were notable differences between individuals with NDD and individuals with HSDs. Prior to weighting on propensity scores, individuals with NDD were younger, were more likely to be female, were less likely to be Non-Hispanic White, were more likely to be Non-Hispanic Black, were less likely to file their taxes jointly with their spouse, were more likely to file their taxes as the head of household (or other filing status), had a higher number of dependents, were more likely to be employed full-time, were less likely to be not working, had larger AGIs, and received larger tax refunds (Table 2a). These differences disappeared after we weighted the

sample on propensity scores, resulting in balanced groups of individuals with NDD and individuals with HSDs (Table 2b).

5.3. Non-Degreed Debt, Material and Healthcare Hardships, and Financial Difficulties

Table 3 displays propensity score weighted results examining the association between student debt and hardships and difficulties. Relative to individuals with HSDs, participants with NDD had 108% greater odds of experiencing material hardships (Model 1), 51% greater odds of experiencing healthcare hardships (Model 2), and 101% greater odds of experiencing financial difficulties (Model 3). As expected, both demographic and household financial characteristics were also associated with financial hardships and difficulties. Starting with material hardships, having dependents, having unsecured debt, and experiencing shocks were associated with increased odds of material hardships; on the other hand, being male, having health insurance, increased liquid assets, and being able to come up with \$2,000 in an emergency decreased the odds of material hardship (Model 1). Moving on to healthcare hardships, being married/living with a partner and experiencing shocks increased the odds of healthcare hardships; conversely, identifying as Non-Hispanic Black or Non-Hispanic Asian, having health insurance, increased liquid assets, and being able to come up with \$2,000 in an emergency decreased the odds of healthcare hardships (Model 2). Finally, when considering financial difficulties, having a dependent, having unsecured debt, and experiencing shocks increased the odds of financial difficulty, while age, increased liquid assets, being able to come up with \$2,000 in an emergency, and having good budgeting habits decreased the odds of financial difficulty (Model 3). While finding that adjusted gross income was not associated with hardships and difficulties may initially seem surprising, when considering that the individuals in our sample are LMI, it makes sense that liquid assets and unsecured debt rather than household income were more salient

among these individuals. From a policy perspective, these findings also suggest the importance of health insurance in avoiding hardships for LMI individuals. The significance of good budgeting habits may also demonstrate the importance of financial coaching and budget counseling in avoiding financial difficulties (see Roll, & Moulton, 2019).

5.4. Non-Degreed Debt and Financial Anxiety and Well-Being

Table 4 displays weighted results examining the association between student debt and financial anxiety (Model 4) and financial well-being (Model 5). Compared with individuals with HSDs, participants with NDD experienced a significant increase in financial anxiety ($\beta = 1.710$) and a significant decrease in financial well-being ($\beta = -1.575$). Both demographic and household financial characteristics were also associated with financial anxiety and well-being. For financial anxiety, being married/living with a partner, having dependents, having unsecured debt, and experiencing shocks were associated with an increase in financial anxiety; on the other hand, being male, identifying as Non-Hispanic Black, being employed part-time, having health insurance, increased liquid assets, and being able to come up with \$2,000 in an emergency were all associated with a decrease in financial anxiety (Model 4). For financial well-being, having unsecured debt, and experiencing shocks were all associated with a decrease in financial well-being; conversely, being male, identifying as Non-Hispanic Black or Hispanic, owning a home, having health insurance, increased liquid assets, and being able to come up with \$2,000 in an emergency were associated with an increase in financial well-being (Model 5). Again, while adjusted gross income was not associated with financial anxiety and well-being, the fact that liquid assets, unsecured debt, and access to \$2,000, were associated with these outcomes suggests their salience among LMI individuals. These findings also suggest the importance of health insurance in influencing financial anxiety and well-being for LMI individuals.

Additionally, similar to other studies that explore the racial and cultural differences among LMI individuals in relation to well-being (see Graham & Pinto, 2019), we found that individuals who identified as Non-Hispanic Black were associated with lower levels of financial anxiety and higher levels of financial well-being.

5.5. Non-Degreed Debt and Future Expectations

Table 5 displays weighted results examining the association between student debt and future expectations of increased earnings and college enrollment. Here, we found that relative to those with HSDs, individuals with NDD had 84% greater odds of expecting to earn more in the near future (Model 6) and 186% greater odds of expecting to enroll in college in the near future (Model 7). Moreover, when we added whether or not an individual plans to enroll in college to the model predicting increased earnings (Model 8), the odds associated with non-degreed debt substantially decreased (to a 53% increase)—suggesting that part of the relationship between NDD and earnings is explained by individuals who plan to re-enroll in college.

In the first model predicting increased earnings, being male, identifying as Non-Hispanic Black, having unsecured debt, being able to come up with \$2,000 in an emergency, and experiencing shocks were associated with increased odds of expecting to earn more in the future; on the other hand, age, and adjusted gross income were associated with decreased odds of expecting to earn more in the future (Model 6). In the model predicting college enrollment, identifying as Non-Hispanic Black, Other, or Hispanic, as well as experiencing shocks, were associated with increased odds of planning to enroll in college in the future; conversely, age and adjusted gross income were associated with decreased odds of planning to enroll in college in the future (Model 7). In the second model predicting increased earnings the added covariate of whether or not an individual plans to enroll in college was positively related to the outcome

(Model 8). Unlike the first model predicting increased earnings, in this model liquid assets was now associated with increased odds of expecting to earn more in the future; at the same time, experiencing shocks was no longer associated with increased odds of expecting to earn more in the future. While a negative relationship among income and earnings expectations may initially seem surprising, it is likely that a ceiling effect may be taking place in this sample of LMI households (e.g. as individuals in LMI households make more money, they may feel that they are approaching an earnings “ceiling” and thus believe that they are less likely to earn more in the future). Similarly, a negative relationship between income and future college enrollment may be attributed higher consumption patterns, which may therefore limit individuals’ desire and/or ability to pursue future education. Additionally, a positive relationship among unsecured debt and earnings expectations may be attributed to individuals that take on higher levels of unsecured debt believing that they will eventually earn more and be able to pay off these debts. Finally, given the recent literature on racial and cultural differences in relation optimism (see Graham & Pinto, 2019), we were unsurprised to find that individuals who identified as Non-Hispanic Black were associated with increased earning expectations and college plans.

5.6. Student Debt Levels

While findings in Tables 3-5 compare how an array of financial outcomes differs between individuals with NDD and individuals with HSDs, Tables 6-8 demonstrate the relationships between the amount of debt held and each respective outcome among non-completers. In doing so, the sample was limited to individuals in LMI households with NDD (n = 1,437), and the amount of student debt was broken down into quartiles (first quartile: <\$5,200; second quartile: \$5,200-\$12,499; third quartile: \$12,500-\$28,999; fourth quartile: \$29,000+).

Overall, findings in Tables 6-8 suggest that the actual amount of student debt is often less important in predicting associations with financial circumstances and experiences among LMI non-completers. For example, when considering material hardships and financial difficulty (Models 9 and 11, respectively) there were no statistically significant differences among individuals in different debt quartiles, suggesting that the actual amount of student debt was less important in predicting material hardships and financial difficulties for LMI non-completers. However, this was not the case for all outcomes. As shown in Model 10, individuals in the second and fourth quartiles had greater odds of healthcare hardships when compared to individuals in the first quartile, suggesting that higher levels of student debt tend to be positively associated with healthcare hardships for debt-holding non-completers. Nevertheless, these trends may not be consistent across all levels of student debt, as this was not the case for individuals in the third quartile. Furthermore, individuals in the second, third, and fourth quartiles of student debt had higher levels of financial anxiety (Model 12), while individuals in the second and fourth quartiles of student debt had lower levels of financial well-being (Model 13). Again, this suggests that greater levels of student debt may have a greater association with financial anxiety and well-being for non-completers, yet these trends may not be consistent for financial well-being. Finally, there were no statistically significant differences among individuals in different student debt quartiles for earnings expectations (Models 14 and 16) and college plans (Model 15), suggesting that the actual amount of student debt was less important in predicting earning expectations and college plans for non-completers.

6. Discussion

Despite the rising costs of higher education and a concomitant increase in the average amount of student debt, college often remains a worthwhile investment for students who graduate with a

degree. Yet, less is known about the growing number of students to take on student debt, but do not graduate. In this study, we tell an important part of their story by examining the financial circumstances associated with NDD. Using a counterfactual framework, we examined whether non-completers might have been financially better off had they never enrolled. From a sample of LMI tax filers, we compared the financial circumstances and conditions of individuals who enrolled in college, incurred student debt, but did not earn a degree with those who finished high school but did not attend college. After balancing samples using propensity score weighting and controlling for a host of demographic and financial characteristics, we find that the group with NDD was worse off financially—both in objective (e.g. hardships) and subjective (e.g. well-being) measures—when compared to the group with HSDs. These findings suggest that the populations with NDD may experience a “double jeopardy” in their financial lives—these individuals miss an opportunity to cash in on an earnings premium afforded by a college degree and are saddled with unproductive debt that they must repay on their non-premium earnings. While our findings suggest that it may be better to not attend college at all rather than to take on debt and not finish, given the growing earnings premium on college degrees, neither option is ideal. Rather, when considering the optimism of students with NDD—in terms of returning to school and eventually earning more—we believe that greater efforts must be taken in order to increase college persistence and make financing college more affordable.

6.1. Persisting in College

Our findings underscore the importance of persistence among students who use student loans to help finance their education, especially LMI students who tend to attend less selective institutions where graduation rates are often lower than selective institutions. While persistence is associated with a host of factors, such first year performance (see Callahan & Belcheir, 2017;

Westrick et al., 2015; Kondratjeva, Gorbunova, & Hawley, 2017), part-time or flexible class schedules should be considered as a potential policy remedy, as they have been found to help low-income and non-traditional students balance family and work responsibilities, and by doing so, promote retention (Elliott, 2002). Efforts should also focus on re-enrollment. Of nearly four million students with some college but no degree who re-enrolled within a five period, a quarter finished their degrees and an additional 29% were still enrolled; the remaining 46% discontinued their studies a second time (Shapiro et al., 2019). In this regard, re-enrollments should also be prompt, as degree completion rates tend to decline with increased “stop out” durations; in-fact, students who re-enrolled within three years had a much greater likelihood of degree completion when compared to students who re-enrolled in four to five years (Shapiro et al., 2019). As institutional ties can be severed when students drop out, colleges and universities might consider keeping students in a provisional or “holding” enrollment status, while maintaining regular communication about re-enrollment options and supports.

Moreover, as only 38% of re-enrollees returned to the same institution (Shapiro et al., 2019), colleges’ and universities’ restrictive policies concerning credit transfers may impose a barrier to re-enrollment, resulting in greater amounts of student debt. Greater flexibility in credit transfer policies would reduce friction in credit transfers for students who are re-enrolling after an extended period away from their studies (Chase, 2010). As some of the NDD borrowers in our study likely started in a community college with the goal of transferring to and earning a degree from a four-year institution, smoothing the process of credit transfer from community colleges to four-year colleges and universities may also be critical in their success (Monaghan & Attewell, 2015).

Furthermore, policy makers may consider ways colleges and universities could be held accountable and incentivized to increase graduation rates. This is especially important regarding for-profit institutions where a disproportionate share of the NDD population stems from and whose NDD population has an unemployment rate that is 10 percentage points higher than the total NDD population (Nguyen, 2012). Currently, the only risk to colleges and universities for borrowers who leave school before completing their degree is reputational. In this regard, greater transparency might be a necessary first step. For example, policies like the “College Transparency Act,” which was introduced in the senate in 2019 to make information on college graduation and student loan debt readily available to prospective students, should be considered. Given the economic risks borrowers shoulder when they do not finish their degrees, risk-sharing proposals should also be considered (see Chou, Looney & Watson, 2017; Webber, 2017) as a way to decrease defaults. Incentives should be considered as well. For example, the Obama Administration proposed a College Opportunity and Graduation Bonus program to reward colleges that graduate Pell students.

6.2 Financing College

Unsurprisingly, persisting in college and financing college are intimately related. Recently, Britt and her colleagues (2017) found that the stress associated with taking on student loans was negatively associated with persistence, while Stinebrickner and Stinebrickner (2008) found that financial insecurity and material hardship explained why students from LMI households dropped out of college. Nevertheless, given the current costs of college, avoiding student loans altogether can make it impossible for some students to afford college and force other LMI individuals to work longer hours that can eventually lead to non-completion (see Gladieux & Perna, 2005).

Thus, when considering the role of financing education, efforts that can reduce the cost of attending college while not burdening students with additional debt should be pursued.

In this regard, Goldrick-Rab et al. (2016) produced experimental evidence to indicate that increases in state grant-based aid increased the odds of degree completion over a four year period (Anderson & Goldrick-Rab, 2018). Similarly, Castleman and Long (2016) used a regression discontinuity design and found that a state grant program was associated with an increase in degree completion over a six year period. Additionally, Gershenfeld, Zhan, and Hood (2019) found that a state-funded loan replacement grant significantly increased the odds of graduation within five years among LMI students. Causal effects on persistence have also been found in relation to Pell Grants (Alon, 2011; Denning, Marx, & Turner, 2019). Here, it is important to note that while costs of attending college have risen sharply in recent years, the proportion of attendance costs covered by Pell Grants had slipped by 13 percentage points over a 15 year period and was at a historic low of 29% in 2016 (Protopsaltis & Parrott, 2017). Thus, increasing the size of Pell Grants could both boost persistence and mitigate economic risks among students unable to finish their degrees. Overall, a meta-analysis of 43 studies concluded that grant aid accounts for a two to three percentage point increase in degree completion (Nguyen, Kramer, & Evans, 2019). Nevertheless, take-up of grant-based aid is not a foregone conclusion, particularly among students from LMI households who may be unfamiliar with the financial aid process. Thus, further efforts to increase take-up of grant-based aid should also be explored. In this regard, a recent field experiment indicated that completing the Free Application for Federal Student Aid (FAFSA) and receiving federal income tax preparation assistance (together) boosted enrollment and persistence among LMI students (Bettinger et al., 2012). Another field

experiment found that text messages encouraging college freshmen to re-file their FAFSAs resulted in a 14 percentage point increase in continued enrollment (Castleman & Page, 2015).

Additionally, given that state aid and Pell grants—even if increased—may still not cover the entire cost of college, students may also need help in making borrowing decisions to mitigate the risks associated with loan repayment. Here, Markle (2019) found that only 20% of students considered estimated expenses associated with college attendance in making informed borrowing decisions, while Grodsky and Jones (2007) found that LMI parents' estimates of attendance costs were less accurate than those of higher-income parents. However, while providing more detailed borrowing information may be considered as a point of intervention, Darolia and Harper (2018) found that letters sent to undergraduate students that summarized their borrowing history, estimated their future monthly payments, and provided information on their peers' borrowing did not affect borrowing decisions. Moreover, while Barr, Bird, and Castleman (2019) found that an interactive text message campaign designed to promote informed borrowing decisions did decrease borrowing, these messages also decreased academic performance and increased loan defaults. Thus, future research is needed to better understand whether interventions that encourage students to borrow less might help mitigate economic risks associated with student debt.

Finally, our findings convey important implications around student loan repayment. Among borrowers with NDD who plan to re-enroll, the deferment period could extend beyond six months without accrued interest if a re-enrollment plan was put in place. For borrowers with NDD who do not plan to re-enroll and fail to attend loan exit counseling, colleges and universities could still conduct outreach to help these students understand their repayment options, including income-driven repayment (IDR) plans, forbearance and loan discharge.

7. Conclusion

College is more expensive than ever, but the most expensive college experiences are the ones that do not lead to a degree. Lacking the earnings premiums afforded by a college degree, students with NDD may be unable to pay down their growing student debts. Thus, it is unsurprising that students who take out college loans but do not graduate are three times more likely to default on these loans than borrowers who complete college (United States Department of Education [DOE], 2015). When considering that the proportion of individuals taking on student debt and the proportion of individuals that do not complete college is on the rise, it is unsurprising that default rates are also on the rise. Every year a million people default on their student loan for the first time, while over 40% of students pursuing bachelor's degrees fail to graduate in six years (US DOE, 2015). As rising default rates and ballooning student debt levels can impact us all, it is not only those with NDD that may be negatively impacted by "having nothing to show for it"; soon, we may all pay the price for it.

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Table 1. Sample Characteristics

VARIABLES	Mean	Median	SD	MIN	MAX
Non-Degreed Debt (treatment group)	0.42		0.49	0.00	1.00
Age	38.40	34	16.51	18.00	88.00
Male	0.47		0.50	0.00	1.00
Race/Ethnicity					
Non-Hispanic White	0.71		0.45	0.00	1.00
Non-Hispanic Black	0.10		0.30	0.00	1.00
Non-Hispanic Asian	0.02		0.15	0.00	1.00
Other	0.06		0.24	0.00	1.00
Hispanic	0.10		0.30	0.00	1.00
Is Married/Has Partner	0.34		0.48	0.00	1.00
Has Dependents	0.29		0.45	0.00	1.00
Employment Status					
Full-time Employment	0.54		0.50	0.00	1.00
Part-time Employment	0.23		0.42	0.00	1.00
Not Currently Working	0.23		0.42	0.00	1.00
Adjusted Gross Income	\$16,693.04	\$15,796.50	\$10,249.11	\$0.00	\$61,525.00
Owens Home	0.27		0.44	0.00	1.00
Owens Car	0.71		0.46	0.00	1.00
Has Health Insurance	0.84		0.37	0.00	1.00
Liquidity	\$2,352.92	300	\$6,933.07	0.00	\$51,200.00
Unsecured Debt	\$2,078.23	300	\$4,202.87	\$0.00	\$25,000.00
Has \$2k for Emergency	0.38		0.48	0.00	1.00
Good Budgeting Habits	3.27	3	1.21	1.00	5.00
Experienced Shocks	0.64		0.48	0.00	1.00
Material Hardship	0.65		0.48	0.00	1.00
Healthcare Hardship	0.54		0.50	0.00	1.00
Financial Difficulty	0.37		0.48	0.00	1.00
Financial Anxiety	25.52	27	10.87	7.00	42.00
Financial Well-Being	43.74	44	14.24	19.00	90.00
Expect to Earn More in the Future	0.47		0.50	0.00	1.00
Plans to Enroll in College in the Future	0.30		0.46	0.00	1.00

Table 2. Propensity Score Estimation Model Variables**Table 2a: Unweighted Variables**

VARIABLES	Non-Degreed Debt Holders (SD)		HS Diploma/GED Holders (SD)		Std. Eff. Size	P-value
Age	33.30	(9.953)	40.11	(15.70)	-0.487	0.000
Gender: Male	0.417		0.506		-0.178	0.000
Race/Ethnicity						
Non-Hispanic White	0.688		0.732		-0.097	0.006
Non-Hispanic Black	0.126		0.083		0.143	0.000
Non-Hispanic Asian	0.021		0.025		-0.027	0.434
Other	0.073		0.057		0.066	0.062
Hispanic	0.092		0.103		-0.038	0.269
Filing Status						
Single	0.666		0.688		-0.048	0.168
Married Filing Jointly	0.106		0.132		-0.079	0.021
Head of Household/Other	0.228		0.179		0.12	0.001
Dependents	0.555	(0.918)	0.416	(0.801)	0.162	0.000
Employment Status						
Employed Full-time	0.604		0.488		0.233	0.000
Employed Part-time	0.226		0.235		-0.021	0.551
Not Working	0.170		0.277		-0.254	0.000
Adjusted Gross Income	\$17,810	(\$10,450)	\$15,880	(\$10,020)	0.188	0.000
Fed. Taxes Paid/Received	-\$1,967	(\$2,460)	-\$1,584	(\$2,185)	-0.166	0.000
Number of Observations	1,437		1,967			

Note: Negative values indicate Federal Taxes received; positive values indicate Federal Taxes paid

Table 2b: Weighted Variables

VARIABLES	Non-Degreed Debt Holders (SD)		HS Diploma/GED Holders (SD)		Std. Eff. Size	P-value
Age	36.63	(13.21)	37.56	(14.21)	-0.068	0.191
Gender: Male	0.471		0.481		-0.020	0.635
Race/Ethnicity						
Non-Hispanic White	0.708		0.717		-0.019	0.623
Non-Hispanic Black	0.110		0.094		0.056	0.154
Non-Hispanic Asian	0.019		0.024		-0.034	0.333
Other	0.064		0.063		0.006	0.861
Hispanic	0.098		0.103		-0.016	0.691
Filing Status						
Single	0.680		0.678		0.004	0.926
Married Filing Jointly	0.116		0.122		-0.017	0.704
Head of Household/Other	0.204		0.200		0.009	0.818
Dependents	0.481	(0.864)	0.469	(0.846)	0.014	0.714
Employment Status						
Employed Full-time	0.555		0.528		0.055	0.193
Employed Part-time	0.226		0.242		-0.039	0.328
Not Working	0.219		0.230		-0.026	0.593
Adjusted Gross Income	\$16,720	(\$10,310)	\$16,490	(\$10,130)	0.023	0.590
Fed. Taxes Received	\$1,763	(\$2,329)	\$1,728	(\$2,306)	-0.015	0.693
Number of Observations	1,437		1,967			

Note: Negative values indicate Federal Taxes received; positive values indicate Federal Taxes paid

Table 3. Weighted Regression Models Predicting Hardships and Difficulty

VARIABLES	<u>MODEL 1</u>		<u>MODEL 2</u>		<u>MODEL 3</u>	
	<u>Material Hardship</u>		<u>Healthcare Hardship</u>		<u>Financial Difficulty</u>	
	OR	SE	OR	SE	OR	SE
Non-Degreed Debt	2.108***	(0.262)	1.514***	(0.155)	2.014***	(0.198)
Age	0.998	(0.005)	1.008	(0.004)	0.990*	(0.005)
Male	0.723**	(0.090)	0.866	(0.088)	1.080	(0.116)
Race/Ethnicity (ref. = Non-Hispanic White)						
Non-Hispanic Black	0.841	(0.173)	0.621**	(0.098)	1.217	(0.197)
Non-Hispanic Asian	0.715	(0.209)	0.382***	(0.110)	0.571	(0.183)
Other	1.258	(0.246)	0.974	(0.180)	1.262	(0.218)
Hispanic	1.004	(0.166)	0.744	(0.118)	1.024	(0.159)
Is Married/Has Partner	1.060	(0.129)	1.390**	(0.139)	1.229	(0.131)
Has Dependents	1.488**	(0.217)	0.991	(0.117)	1.403**	(0.180)
Employment (ref. = Not Working)						
Full-time Employment	1.168	(0.204)	1.002	(0.146)	0.916	(0.144)
Part-time Employment	0.786	(0.142)	0.938	(0.142)	0.900	(0.147)
Adjusted Income/\$1k	1.003	(0.007)	1.007	(0.006)	1.000	(0.006)
Owens Home	0.789	(0.110)	0.868	(0.107)	0.995	(0.129)
Owens Car	0.923	(0.140)	1.043	(0.123)	0.846	(0.098)
Has Health Insurance	0.637***	(0.087)	0.358***	(0.043)	0.871	(0.116)
Liquid Assets Quartile (ref. = Q1)						
Q2 (\$41-\$300)	0.567***	(0.087)	0.869	(0.110)	0.899	(0.107)
Q3 (\$301-\$1,250)	0.259***	(0.044)	0.477***	(0.068)	0.495***	(0.069)
Q4 (\$1,251-\$51,200)	0.104***	(0.018)	0.376***	(0.056)	0.196***	(0.036)
Unsecured Debt (ref. = None)						
Low (\$1-\$682)	1.422*	(0.228)	1.028	(0.135)	2.642***	(0.349)
Moderate (\$683-\$3k)	1.595**	(0.234)	1.045	(0.135)	2.777***	(0.396)
High (\$3,001-\$25k)	1.450*	(0.236)	1.260	(0.171)	3.942***	(0.581)
Has \$2k for Emergency	0.304***	(0.037)	0.476***	(0.051)	0.599***	(0.073)
Good Budgeting Habits	0.951	(0.043)	1.036	(0.041)	0.896*	(0.039)
Experienced Shocks	2.894***	(0.339)	2.854***	(0.281)	1.813***	(0.189)
Constant	6.531***	(2.114)	1.559	(0.456)	0.620	(0.189)
Observations	3,350		3,343		3,344	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Table 4. Weighted Regression Models Predicting Financial Anxiety and Well-Being

VARIABLES	MODEL 4		MODEL 5	
	COEF	SE	COEF	SE
Non-Degreed Debt	1.710***	(0.387)	-1.575**	(0.575)
Age	-0.014	(0.013)	-0.040	(0.021)
Male	-1.682***	(0.371)	1.731**	(0.540)
Race/Ethnicity (ref. = Non-Hispanic White)				
Non-Hispanic Black	-3.302***	(0.601)	4.331***	(0.812)
Non-Hispanic Asian	-1.827	(1.026)	2.158	(1.515)
Other	-0.180	(0.725)	0.860	(0.920)
Hispanic	-1.171	(0.607)	2.663***	(0.729)
Is Married/Has Partner	0.850*	(0.404)	0.682	(0.570)
Has Dependents	1.375***	(0.413)	-0.388	(0.576)
Employment (ref. = Not Working)				
Full-time Employment	-0.561	(0.512)	-0.183	(0.747)
Part-time Employment	-1.547**	(0.560)	0.991	(0.824)
Adjusted Gross Income/\$1k	-0.009	(0.021)	-0.018	(0.030)
Owns Home	-0.684	(0.449)	2.514***	(0.652)
Owns Car	-0.549	(0.431)	0.524	(0.652)
Has Health Insurance	-1.412**	(0.453)	1.589**	(0.607)
Liquid Assets Quartile (ref. = Q1)				
Q2 (\$41-\$300)	-2.345***	(0.467)	1.862**	(0.620)
Q3 (\$301-\$1,250)	-4.723***	(0.532)	5.156***	(0.759)
Q4 (\$1,251-\$51,200)	-5.817***	(0.607)	7.230***	(0.825)
Unsecured Debt (ref. = None)				
Low (\$1-\$682)	1.030*	(0.482)	-1.035	(0.689)
Moderate (\$683-\$3,000)	1.688***	(0.473)	-1.820**	(0.646)
High (\$3,001-\$25,000)	1.698**	(0.553)	-2.354**	(0.806)
Has \$2k for Emergency	-5.038***	(0.443)	8.280***	(0.609)
Good Budgeting Habits	-0.049	(0.152)	0.310	(0.222)
Experienced Shocks	5.304***	(0.409)	-5.896***	(0.628)
Constant	29.569***	(0.981)	38.966***	(1.383)
Observations	3,280		3,326	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Table 5. Weighted Regression Models Predicting Future Expectations

VARIABLES	MODEL 6		MODEL 7		MODEL 8	
	Expects to Earn More		College Plans		Expects to Earn More	
	OR	SE	OR	SE	OR	SE
Non-Degreed Debt	1.836***	(0.169)	2.862***	(0.270)	1.529***	(0.142)
Age	0.931***	(0.004)	0.952***	(0.006)	0.937***	(0.004)
Male	1.395***	(0.134)	1.001	(0.106)	1.410***	(0.134)
Race/Ethnicity (ref. = Non-Hispanic White)						
Non-Hispanic Black	1.870***	(0.301)	1.654***	(0.250)	1.705***	(0.276)
Non-Hispanic Asian	0.954	(0.285)	1.611	(0.491)	0.848	(0.275)
Other	1.375	(0.247)	2.023***	(0.351)	1.176	(0.217)
Hispanic	1.282	(0.187)	1.865***	(0.292)	1.120	(0.159)
Is Married/Has Partner	1.143	(0.113)	0.831	(0.091)	1.190	(0.118)
Has Dependents	1.085	(0.128)	1.071	(0.146)	1.084	(0.124)
Employment (ref. = Not Working)						
Full-time Employment	0.823	(0.120)	1.073	(0.180)	0.809	(0.118)
Part-time Employment	0.800	(0.118)	0.937	(0.152)	0.805	(0.120)
Adjusted Income/\$1k	0.959***	(0.005)	0.980**	(0.006)	0.961***	(0.005)
Owens Home	0.933	(0.110)	0.825	(0.115)	0.963	(0.114)
Owens Car	1.076	(0.113)	0.982	(0.103)	1.084	(0.115)
Has Health Insurance	0.802	(0.094)	0.916	(0.112)	0.813	(0.096)
Liquid Assets Quartile (ref. = Q1)						
Q2 (\$41-\$300)	1.231	(0.153)	0.833	(0.108)	1.286*	(0.161)
Q3 (\$301-\$1,250)	1.170	(0.158)	1.084	(0.159)	1.156	(0.155)
Q4 (\$1,251-\$51,200)	1.075	(0.161)	0.949	(0.151)	1.084	(0.167)
Unsecured Debt (ref. = None)						
Low (\$1-\$682)	1.178	(0.148)	1.027	(0.133)	1.177	(0.148)
Moderate (\$683-\$3k)	1.297*	(0.159)	1.048	(0.134)	1.288*	(0.160)
High (\$3,001-\$25k)	1.361*	(0.188)	1.238	(0.188)	1.343*	(0.183)
Has \$2k for Emergency	1.687***	(0.191)	1.068	(0.136)	1.683***	(0.192)
Good Budgeting Habits	1.060	(0.042)	1.026	(0.042)	1.057	(0.042)
Experienced Shocks	1.252*	(0.121)	1.332**	(0.134)	1.203	(0.118)
Plans to Enroll in College					2.637***	(0.284)
Constant	8.504***	(2.237)	1.444	(0.461)	5.559***	(1.525)
Observations	3,331		3,340		3,321	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Table 6. Level of Debt for Non-Completers: Hardships and Difficulty

VARIABLES	MODEL 9 Material Hardship		MODEL 10 Healthcare Hardship		MODEL 11 Financial Difficulty	
	OR	SE	OR	SE	OR	SE
Student Debt Quartile (ref.=Q1)						
Q2 (\$5,200-\$12,499)	1.588	(0.466)	1.976**	(0.435)	1.048	(0.219)
Q3 (\$12,500-\$28,999)	1.495	(0.402)	1.342	(0.280)	0.852	(0.164)
Q4 (\$29,000-\$200,000)	1.364	(0.402)	1.678*	(0.367)	1.299	(0.287)
Covariates Included	Y		Y		Y	
Constant	28.549***	(17.769)	3.019*	(1.620)	0.985	(0.513)
Observations	1,413		1,411		1,411	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Table 7. Level of Debt for Non-Completers: Financial Anxiety and Well-Being

VARIABLES	MODEL 12 Financial Anxiety		MODEL 13 Financial Well-Being	
	COEF	SE	COEF	SE
Student Debt Quartile (ref.=Q1)				
Q2 (\$5,200-\$12,499)	1.699**	(0.840)	-3.214**	(1.293)
Q3 (\$12,500-\$28,999)	1.566**	(0.757)	-1.804	(1.185)
Q4 (\$29,000-\$200,000)	2.519***	(0.760)	-2.665**	(1.231)
Covariates Included	Y		Y	
Constant	38.220***	(2.202)	30.925***	(1.484)
Observations	1,389		1,402	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Table 8. Level of Debt for Non-Completers: Future Expectations

VARIABLES	MODEL 14 Expects to Earn More		MODEL 15 College Plans		MODEL 16 Expects to Earn More	
	OR	SE	OR	SE	OR	SE
Student Debt Quartile (ref.=Q1)						
Q2 (\$5,200-\$12,499)	0.931	(0.178)	0.841	(0.150)	0.961	(0.183)
Q3 (\$12,500-\$28,999)	1.134	(0.218)	1.200	(0.219)	1.116	(0.213)
Q4 (\$29,000-\$200,000)	0.960	(0.189)	0.965	(0.197)	0.990	(0.194)
Covariates Included	Y		Y		Y	
Plans to Enroll in College	N		N		Y	
Constant	18.793***	(8.211)	2.249	(1.037)	11.666***	(5.315)
Observations	1,408		1,411		1,406	

Notes: Statistical significance: *** p<0.001, ** p<0.01, * p<0.05; ref. = reference group.

Figure 1. Boxplot of Propensity Scores

