Student Loans, Employment Readiness, and Labor Market Outcomes

Tyler Hull
University of Massachusetts Boston

Karthik Krishnan
Northeastern University

Jean Rhodes
University of Massachusetts Boston

We study whether student debt impacts individuals' ability to adequately prepare for the labor market. Using no-loans financial aid policies as an exogenous shock to student loans, we find that student loans negatively impact students' ability to have an internship that is related to the students chosen major. Internships are also shown to be positively associated with the likelihood of finding a job, the likelihood of finding employment in a related field of study, and job satisfaction. Student debt similarly dampens the positive effects of mentoring, professor support, and the school's effort to prepare students for the labor market.

Keywords: student loan, labor market outcomes, early career, human capital, household wealth

INTRODUCTION

Student debt in the U.S. has reached over $1.7 trillion, and a growing fraction of borrowers are defaulting on their federal student loans, which account for over 90% of all outstanding student loans.[1] In addition, student debt has increased by 266% since 2006, with an average annual growth rate of more than 10%, making it the fastest growing class of consumer debt.[2] Although these concerns are being discussed and acted upon at the highest levels of policy making, we have a limited understanding of how student debt impacts career outcomes. Studies in this area have shown mixed evidence that student debt can affect labor market outcomes (see, e.g., Daniels and Smythe, 2019).

Other than the scale and growth of borrowing, student loans differ from other types of consumer loans because of two unique characteristics. First, student loans are unique among consumer loans as they are nearly impossible to discharge through personal bankruptcy.[3] Such non-discharge ability effectively makes non-payment impossible, forcing individuals to prioritize paying student loans above other considerations. Second, most student loans (about 90%) are provided by the federal government and are not underwritten with an eye toward payment ability or program outcomes. As a result, like the mortgage crisis of 2008, many individuals take loan obligations they may not be able to pay in a reasonable period, given their area of study. Moreover, the increasing cost of education implies that individuals must take an ever-increasing level of loans each year to complete their education or to obtain graduate degrees. This forces many

individuals concerned about their ability to support additional loans to drop out, often with substantial student debt and without the benefit of a complete education, creating a double negative impact on career outcomes. These issues do not exist for other types of personal loans, such as mortgage loans, credit card loans, and auto loans, for which underwriting standards are set based on ability to make payments, and which, in some cases, are backed by collateral.

In this study, we analyze how student debt impacts employment outcomes, and, as importantly, the specific channels through which it impacts employment outcomes. We explore two possible channels. The first is the "lack of job preparation" channel. This is the notion that excessive debt can hinder or impede students from receiving the full benefits of their educational experience. In particular, students taking on excessive student debt may prefer higher paying non-major-relevant jobs over major-relevant internships while they are in school. Callanan and Benzing (2004) document a strong positive correlation between internships and finding degree relevant employment after graduation. In a similar vein, Boudreau and Marx (2019) find that early exposure notably increased academic and professional outcomes of lower-income students. Working while in school can allow students to reduce their debt burdens and pay off interest so that it does not accrue over time. Anecdotal evidence and talking to individuals with student debt suggests that these individuals indeed prefer to work while in school to offset costs and pay back their debt. However, internships, which may pay less in the short term, are important for obtaining employment opportunities in the field of study since they provide practical experience valued by employers, as well as provide students mentorship and guidance to succeed at their jobs. Working while in school or indirect pressure of having excessive debt may also distract students from their studies, reducing their academic performance, and thus opportunities to access high quality internships related to their area of study.

The second channel we explore we call the "compromising on outcomes" channel. This is the idea that after graduation, students will feel the pressured to make repayments. As a result, students may choose to take their first job offer in order to start paying their loan repayments. Accepting their first offer instead of waiting for a suitable offer would be expected to result in a lower paying job or a job in a field less relevant to their area of study. Thus, student loans can limit individuals' ability to search for high paying jobs after graduation, and therefore will directly impact employment outcomes.

To address endogeneity concerns we control for parental education, gender, and race variables. In addition, we utilize "no-loans" financial aid policies introduced by schools over the last two decades in a staggered manner to reduce student debt burdens. To further ensure exogeneity we restrict the sample to students already enrolled in college prior to the policy change to eliminate any effect of the financial aid policy change on college choice and control for university fixed effects.

The main dataset we use is the Gallup-Purdue survey, the intent of which is, "to conduct the largest representative study of college graduates in United States history" (Bruni, 2015). This dataset, collected in 2014-2015 provides rich details of student backgrounds, family characteristics, labor market outcomes, and student loans taken for a wide variety of cohorts that graduate from various schools. In addition, the data allow us to control for family background, as well as university and major studied fixed effects. Also, we know precisely how many loans each student takes for their undergraduate education.

We find that individuals that experience no-loans policies are significantly less likely to have student debt than students that did not experience these policies, validating our identification methodology. Further, students who experience no-loans policies are more likely to find major-relevant internships than other students. Having a major-relevant internship is positively associated with the likelihood of finding employment, employment in a related field of study, and job satisfaction. Moreover, students that experience no-loans policy schools are also less likely to have worked in a non-major-relevant job while in school, are more likely to complete their education faster, and are less likely to have concerns about their income and wealth after graduation.

The positive relation between major-relevant internships and post-graduation employment is mitigated by the presence of student debt. This suggests that an individual with lower student debt sees a greater benefit of a major-relevant internship experience with respect to landing a job after graduation than one with higher student debt. Additionally, our results indicate that student debt dampens the benefits that come from in school mentoring, professor support and the schools' efforts to prepare students for the labor market.

These results further suggest that students' ability to extract value out of their education is diminished by student loans, in particular by reducing their ability to leverage school provided opportunities to be successful, such as career internships, networks, mentoring, and other forms of support.

Interestingly, no-loans financial aid policies do not directly impact the propensity to get employment. Thus, we do not find evidence consistent with the "compromising on outcomes" channel, but rather with the "lack of job preparation" channel.

The rest of the paper is organized as follows. Section 2 describes the related literature and our contribution relative to this literature. Section 3 describes the data and sample selection criteria. Section 4 describes our empirical methodology and empirical tests and results. Section 5 discusses the results and section 6 concludes.

RELATED LITERATURE

In general student loan availability has been shown to increase the likelihood that a student will continue towards degree completion (Card and Solis, 2022). However, recent literature suggests that student loans do represent a financial burden, Krishnan and Wang (2018, 2019) for example find that policies that reduce the burden of student debt promote entrepreneurship. Similarly, federal policies that reduce the burden of student debt are shown to promote homeownership (Goodman, Isen, and Yannelis, 2020) and graduate school enrollment (Ortagus and Kramer, 2022). Rothstein and Rouse (2011) find that debt causes graduates to choose substantially higher-salary jobs and reduces the probability that students choose low-paid "public interest" jobs. They interpret their evidence as arising from credit constraints. In a related vein Froidevaux, Koopmann, Wang and Bamberger (2020) show evidence that student debt may cause stress which can affect labor market outcomes. Similarly, Minicozzi (2005) finds that higher educational debt is associated with higher initial wage rate the year after finishing school and lower wage growth over the next four years. Furthermore, A stream of literature suggests that student behavior deviates from full-rational model when it comes to debt borrowing and repayment (see, e.g., Field, 2009; Cadena and Keys, 2013; Marx and Turner, 2018; and Abraham, Filiz-Ozbay, Ozbay, and Turner, 2018). No study to date, however, addresses how student loans can impact career outcomes due to its impact on student's preparation for the job market. However, various studies have documented a significant positive value of higher education. (See e.g., Goldin and Katz (2008), Huang, Tani, and Zhu (2021), Pekkarinen, Uusitalo, and Kerr (2009), Kangasharju and Pekkala (2002)). Our findings contribute to the literature on the impact of education financing on educational enrollment, attainment, and career outcomes.

Our study is also related to the literature on financial well-being (Bruggen Et al., 2017) and on the literature concerning creating educational value (Lee and Ranske, 2018). This study is also related to broader topic of household finance (see, e.g., Campbell, 2006), which has mostly explored the effects of households portfolio decisions (e.g., Carlin and Manso, 2011, and Ivkovic, Sialm, and Weisbenner, 2008) and mortgage and credit card debt (e.g., Bertaut, Haliassos, and Reiter, 2009, and Agarwal, Driscoll, and Laibson, 2013). Other papers analyze household finance issues related to ownership of certain types of securities (See e.g., Bergstresser and Cohen, 2015) and how household balance sheets can affect worker productivity (Bernstein, McQuade, and Townsend, 2021).

DATA AND SAMPLE SELECTION

The main data source is the carefully created Gallup-Purdue survey, which was intended to be "the largest representative study of college graduates in United States history" (Bruni, 2015.) Participants were recruited by randomized cellphone and landline phone calls. Surveys were later filled out via the internet and were weighted to correct for unequal selection probability and nonresponses. The data include details about the survey respondent (age, gender, race, education obtained, education of both parents, marital status, military service, and whether born in the U.S.), details about the respondent's school experience (school name, time to complete the undergraduate degree, undergraduate major, transfer status, internships, mentorship provided at school, professor support, whether the school prepared student adequately, and total

disbursed undergraduate student loans), post-education amount of time to find employment, and current job details (salary, interest level, and relatedness to undergraduate degree). It is worth noting that student loans amounts reflect the total dollar amount of all student loans disbursements taken by the student to complete their undergraduate degree and do not necessarily reflect the unpaid student loan balance at any one period in time. After dropping observations having missing values for student loan amount we are left with approximately 48,000 unique student observations, of which 18,384 involve students taking loans to complete their degree. Table 1, Panel A, provides sample summary statistics.

We control for gender, race, age, military service, U.S. born, and transfer students. Fixed effects are also included for school, graduation year, survey wave, graduation major, mother's education level, and father's education level.

The main dependent variables are dummy variables for time required to find a job after graduation (*Job waiting* (job waiting for respondent upon graduation), *Job–6 months* (respondent found a job within six months of graduation), and *Job–12 months* (found job within 12 months)), time required to complete the undergraduate degree (*Years for UG*), whether respondent feels he or she currently has enough money to meet needs (*Enough money*), and whether respondent was worried about money in the last seven days (*Worried about money*).

One of our main explanatory variables is *Policy*, which is a dummy variable, which is equal to one if a university implements no-loans financial aid policy in a given year and zero otherwise. We also create pre-trend variables *PrePolicy1*, *PrePolicy2*, and *PrePolicy3*, which are equal to one if the current year is one year, two years, and three years, respectively, before the first year of the adoption of no-loans financial aid policy by a university. To examine the post-policy effects in each year, we also create post-policy variables *Post policy: year 1*, *Post policy: year 2*, and *Post policy: year 3*, which are equal to one if the current year is the first, second, or third policy year, respectively, after the implementation of no-loans financial aid policy by a university.

EMPIRICAL METHOD AND RESULTS

We build our empirical model on the work of Krishnan and Wang (2018), where we use no loan financial aid policies as an exogenous reduction in the quantity of loans that a student needs to complete their education. The use of this exogenous shock allows us to test the true effect of student loans on student outcomes. This is important because the size and amount of loans a student may have can be directly correlated with the future income expectations the student may have.

Identification: No Loans Financial Aid Policies

Over the last few decades, various schools in the U.S. have established no-loans financial aid policies. These policies were implemented to increase college affordability, particularly for students from low-income (and middle-income) families, and to lower financial barriers to higher education. The initiatives are designed to reach students who would not apply or attend (if admitted) solely due to financial reasons. While the specifics of no-loans financial aid policies vary across schools, the effect of these policies was to decrease the reliance of students on debt to finance their education. No-loans policies were implemented in three ways: (1) direct replacement of loans with grants in financial aid packages; (2) elimination of parental contribution, which reduces the need for parents to take on Federal PLUS loans for their children; and (3) caps on annual individual student loan amounts. In all cases, eliminated loans were replaced with grant aid. Most schools make these policies available to lower income families. Therefore, no-loans financial aid policies reduce students' need for loans to attend college.

Schools did not implement these policies with any explicit intent to impact post-graduate careers. Instead, the motivation was purely to lower financial barriers to higher education. The academic ranking and tuition cost of schools implementing this policy vary widely. We obtain our sample of no-loans schools and the years of implementation through hand collection of data through Internet searches. Panel B of Table 1 provides a list of the No policy Schools used in our study.

One concern with our data is that students may choose a university because it has a no-loans financial aid policy. To avoid any contamination through such effects, our regression models restrict the sample to cohorts that entered college prior to the implementation of no-loans financial aid policy at a school. Thus, students could not choose their institution based on its choice of financial aid policy. Instead, they benefit from such a policy during the time after the policy is implemented, providing a plausibly exogenous variation in their student loans.

Another concern may be that only certain types of institutions can afford to implement such policies. We address this potential selection effect in various ways. First, we control for university fixed effects in all our regression models to account for time-invariant university characteristics. University characteristics are generally expected to move slowly through time, and thus this control should wipe out the majority of university-specific unobservable effects. Second, we control for trend variables before the implementation of no-loans financial aid policies to test the parallel trends assumptions in our regression models. As reported below, we do not have prior trends in universities that implement no-loans financial aid policies. Third, while only about 5% of all school in our sample enact a no loans policy within our sample period, we note that such policies are implemented by a wide variety of schools: from elite universities (E.g., Harvard) to small rural schools (E.g., University of Minnesota- Crookston), from early adopters (E.g., Princeton) to late adopters (E.g., Colorado State University). Additionally, the sample schools stretch across the United States and contain many public and private universities. Furthermore, several of these schools boast that more than 1/3 of their students come from low-income households.

Impact of No-Loans Financial Aid Policy on Student Debt

We start by examining the impact of no-loans financial aid policy on the propensity of students to take loans for education. Ochs Rosinger, Belasco, and Hern (2019) and Waddell and Singell (2011) document that no loans policies do encourage additional enrollment activity by certain student types, thus to ensure the exogeneity of no-loans financial aid policy, we restrict our sample to students who enrolled in college prior to the year it implemented a no-loans financial aid policy. For instance, if a university implemented no-loans financial aid policy in 1998, we only include students who enrolled before 1998. We estimate the following OLS model,

$$Borrower_i = \alpha + \beta_1 Policy_{ut} + \sum_{j=1}^{3} \beta_2^j PrePolicy_{ut} + \gamma X_{it} + \lambda_u + \kappa_t + \epsilon_{it} \quad (1)$$

where *Policy* is a dummy equal to one, if during this year the school had a no-loans policy, and is zero otherwise. X_{it} are control variables, as described above. We also include three-year pre-trends (Pre-policy variables). λ_u are university fixed effects and κ_t are year fixed effects. All regression standard errors in our analyses are clustered at the university level.

Next, we examine the impact of no-loans financial aid policy on the amount of loans the student receives. We estimate the following OLS model,

$$Student\ loans_i = \alpha + \beta_1 Policy_{ut} + \sum_{j=1}^{3} \beta_2^j PrePolicy_{ut} + \gamma X_{it} + \lambda_u + \kappa_t + \epsilon_{it} \quad (2)$$

The results for OLS estimations of the above models are reported in Table 2. Column (1) shows that no-loans financial aid policy does negatively affect the overall likelihood that a student will even use student loans to finance their education. The negative significant coefficient suggests the effect of the no-loans policy is as much as a 10% reduction in the probability that a student needs student loan in college.[4] Column (2) includes the pre-policy trend variables and finds the same documented result. We also note that the pre-policy trend variables are not statistically significant, validating our identification strategy. Columns (3) and (4) now split the Policy variable into the three possible years and show the effect is strongest in the first year of implementation. Other control variables have intuitive coefficient estimates as well. Females appear less likely to take on student loans, White and Asian students are less likely, while Black students are more likely and older individuals who likely have larger cash reserves are less likely to take on student loans.

Column (5) tests the second model which predicts the amount of student loans a student will take on. This regression is limited to the sample of students who did in fact take on student loans, comparable results are found when the full sample is used. The negative significant coefficient suggests that of the students that will use student loans those who attended a no loan policy will on average take out 19% less loans than those who did not. Other control variables show that females and older students appear to take on smaller student loans.

Impact of No-Loans Policies and Student Debt on Applicable Internships

In this section, we examine the impact of no-loans policies and student debt on the likelihood the student will find an applicable internship. We use a similar OLS model as before, where the dependent variable is the dummy variable of *Applicable job internship*, which is equal to one if the respondent said that he or she agreed or strongly agreed that he or she had an applicable job internship in connection with school experience and zero otherwise. The results of this analysis are reported in Columns (1) and (2) of Table 3. For the ease of the reader in all future regressions, instead of reporting the previously used *Policy* variable we use *No Policy* which is defined as 1- *Policy*. *No Policy* has the benefit of having the same expected sign as student loans, as a lack of a no-loans policy reflects higher levels of student loans.

In Column (1) of Panel A, we find that not having a no-loans policy in place leads to an economically meaningful 10 percentage point lower likelihood that the student will find an applicable internship. This effect is large, given that the average internship rate is 46.7% in the sample. Thus, this result reflects a 22% lower internship rate with no-loans policy schools compared to the sample mean. These results are broadly consistent with the "lack of job preparation" hypothesis.

We posit that students with higher levels of loans may take non-major-relevant jobs to pay their bills. This is revealed in our results in Column (2) of Panel A of Table 3. Students in no-policy schools take 6.3 percentage point more non-major relevant jobs compared to those in policy schools. Note that we have school and major fixed effects in our regressions, and thus all our results above are within-school and within-program estimates, suggesting that any cross-sectional differences between the type of universities that offer no-loans financial aid policies do not drive our results above.

Interestingly, in Panel B of Table 3 the coefficient estimate on student loans has a positive sign when we run an OLS regression of field of study-relevant job internships on student loan amount. As before, given that we have school and major fixed effects in our regressions, all our results are within-school and within-program estimates, suggesting that any cross-sectional differences between the type of universities that offer no-loans financial aid policies do not drive the difference between the regression model using no-loans financial aid policy and the one that uses student loans. These results also suggest that there is likely an endogeneity issue here and that there may be unobserved characteristics that affect this relationship. While understanding the nature of the unobserved characteristic is beyond the scope of this paper, there may be individual specific differences correlated with student loans that are driving the correlations between student loans and the career outcome variable (internship in this case).

Impact of Internships on Current Job Outcomes

Our claim that major-relevant internship leads to jobs has been shown in prior work and anecdotal studies. To provide supporting evidence, we test whether internships are related to the likelihood of obtaining employment related to the field of study and with job satisfaction. These results are reported in Table 4. The dependent variables are: *UG job relatedness*, *Job give Interest Opp,* and *Interest in current work*. Each of these is a rank variable (1-5) with a value of 5 if strongly agree and 1 if they strongly disagree that their job is related to their undergraduate field of study, that their job gave them an opportunity to do interesting work, and if they are interested in their current work, respectively.

In Column (1) of Table 4 we show that relevant job internships are positively associated with a higher likelihood of having employment related to the undergraduate field of study. In Columns (2) and (3) we find that internships are positively related with the likelihood that individuals are interested in their work and that their job gives them the opportunity to do interesting work. These results are consistent with our

conjecture that relevant job internships are important in finding major-relevant and fulfilling careers after graduation.

Impact of Student Debt and Internships on Finding a Job After College

In Panel A of Table 5 we test the effect of internships and student debt (as proxied by no-loans policy schools) on the likelihood of finding employment after college. It is important to note that in the survey respondents could indicate they had another opportunity and so were not looking for a job. As such for these tests, students pursuing other opportunities are dropped from the sample. What specifically is the other opportunity is not disclosed but may include graduate work, child rearing, gap year or other personal endeavors. In these tests the No-loans policy itself does not seem to have a consistent impact on employment, suggesting a limited direct impact of student loans on employment likelihood. As expected, the results show that working on relevant internships while in school has a positive relation with finding employment.

We are also interested in whether student debt can reduce the positive impact of relevant internships on finding a job. The results show a negative coefficient for the interaction term between *No-Policy* and *Applicable Job Internship*, suggesting that student loans reduce the positive effect of internship opportunities on finding a job. These results indicate that student loans can adversely impact the effect of internships at the intensive margin, possibly by reducing the ability of the individual to focus on the internship or having shorter internships. The fact that students from schools without no-loans policies are more likely to work in non-major relevant jobs while in school (see Table 3) corroborates the hypothesis that having student loans can increase incentives to work in non-major-relevant jobs to pay bills and can reduce the ability of students to benefit from internships. From talking to students we know students may work an evening job while doing an internship to help pay their costs of living as well as pay off student debt, while anecdotal these tendencies offer important clues about the underlying effects.

In Panel B of Table 5 we run regressions similar to those of Panel A, substituting *Student Loans* in place of the *No-Policy* variable. Our results show that the effects of student loans and the interaction terms in Panel B are precisely the opposite of those in Panel A. Controlling for major and university fixed effects, there is no coherent and sensible explanation of why student loans increase employment likelihood. This lack, in conjunction with the results found in Table 3, again suggests the need to be cautious in using OLS regressions to interpret the direct effect of student loans on career outcomes.

Impact of Student Debt and Internships on Undergraduate Completion Time and Concerns About Money

Next, we analyze the effect of student loans on undergraduate completion time and financial situation of graduates. In Panel A of Table 6, we find no statistical relationship between our policy variable and completion time or financial situation. Major-relevant internship is positively related to both time to completion and personal financial situation. The interaction term between *No Policy* and major-relevant internship indicates that student loans diminish the beneficial effects of internships. This result corroborates the idea that student loans can increase time to completion because of the need to take on non-major-relevant jobs (as we find in Table 3). We also find that student loans (as proxied by *No Policy*) also diminish the positive effect of major-relevant internship on personal financial situation. This is consistent with our findings in the previous tables relating the interaction term to the likelihood of finding employment within a year of graduation.

In Panel B, we utilize the student debt in place of *No Policy* variable and re-run our analysis in Panel A of Table 6. Our results show results that are inconsistent with those from the prior analysis. In particular, we find that student loans are positively related to time to completion *and* to better financial situation of graduates. These results fly in the face of the intuition that extending time to completing undergraduate education can actually hurt outcomes and increase the cost of borrowing (through additional accrued interest). These results clearly show the need for properly identifying the causal effect of student loans in our context.

Impact of Student Debt, Career Support, and In-School Mentoring on Finding a Job After College

We also try to understand whether other support structures that schools can provide, such as mentoring, professor support, and a sense that the school prepared students for the labor market, have positive relationships with employment outcomes mitigated by student debt.

We conduct tests similar to those in Table 4 with the dependent variables measuring these alternative support mechanisms. The results of Panel A, B, and C of Table 7 are nearly identical with the results of Table 4. Panel A of Table 7 uses the No Policy variable and finds limited or no causal student loan effects on job outcomes, positive school support effects, and negative effects for the interaction of No Policy and the school support variables. These results provide additional evidence that student loans inhibit the benefits received from the support provided to students during their undergraduate experience. The results also suggest that alternative support mechanisms that schools provide do not address the harmful effects of student loans on career outcomes.

Robustness Checks

To ensure that results are not driven by a few extreme or unrepresentative observations, all tests have been performed again with certain key sample exclusions or limitations. We conduct our analysis with students who graduated only after the year of 1997 and find our results are qualitatively similar to those reported here. Another potential concern is that the time to graduate for many students may reflect the type of program they are enrolled in and those who take longer to graduate may be very different types of students (e.g., those seeking an associate degree vs those aiming for a bachelor's). To minimize this potential bias all tests are preformed limiting the sample to individuals who took three to five years to graduate, and results remain the same. To ensure that university level cluster of standard errors are not impacting our results, we repeat our analysis clustering at the U.S. state level and results remain consistent.

DISCUSSION

In this study, we analyzed how student debt impacts employment outcomes. More specifically, we tested if excessive student debt hindered or impeded students from receiving the full benefits of their educational experience. We additionally tested if student loans placed greater pressure on students to find employment quickly, perhaps at the expense of finding better paying job or jobs that more closely aligned with a student's major. As this setting has potential endogeneity concerns, we utilized a carefully implemented exogenous change in student debt burdens caused by "no-loans" financial aid policies. This correction allowed us to clearly distinguish between correlation and causality.

The findings of the present study clearly indicate the sizable effect of student loans on employment outcomes. Namely, we see that students who graduate from no-loans policy schools are more likely to find major-relevant internships and that the occurrence of these internships is positively associated with the likelihood of finding employment, finding major-relevant-employment, and job satisfaction. Moreover, students who graduate from a no-loans policy school are also less likely to have worked in a non-major-relevant job while in school, complete their education faster, and are less likely to have concerns about their income and wealth after graduation.

These findings suggest that an individual with lower student debt sees a greater benefit from a major-relevant internship experience with respect to landing a job after graduation than one with higher student debt. Additional results indicate that student debt dampens the benefits that come from in school mentoring, professor support and the schools' efforts to prepare students for the labor market.

Our results also provide evidence of the channel by which no-loan financial aid policies help students, that is by limiting excessive student debt which impeded students from receiving the full benefits of their educational experience and not due to a compromised or rushed job search. This research makes important contributions to our understanding of the impact of education financing on educational enrollment, attainment, and career outcomes. Likewise, this study supports the literature which documents the many positive effects of higher education. See for example: Goldin and Katz (2008), Pekkarinen, Uusitalo, and Kerr (2009), Kangasharju and Pekkala (2002).

These results also provide insight for financial aid practitioners. The finding that student loans prohibit students from making the most of their educational experience clearly promotes policy implications that upfront educational grants are vastly more helpful than after-the-fact loan forgiveness. This research also arms financial aid practitioners with the knowledge that students with loans are significantly more vulnerable to not getting the most from their educational experience. With this knowledge educational and governmental organizations can work to overcome this barrier by targeted outreach and program interventions which encourage and foster better and deeper mentoring and internship opportunities for students with student loans.

Lastly, we contribute to this literature by showcasing that some documented student loan effects disappear when a valid instrument is used, which highlights the importance of endogeneity correction when using student loan data.

Limitations and Future Directions

Our study relied on the use of self-reported measures in terms of self-identifying characteristics and student loan amounts. Accordingly, there is the possible concern of recall bias, although there is no way correct for this, we attempt to partially address this by repeated all tests while limiting the sample to those who graduated after the year 1997 thus limiting the potential problem of recall bias. An additional limitation of the data is that we only receive information from the respondent at one moment in time. Future studies could potentially improve upon these data limitations, by perhaps survey the same individuals at different periods of time, ideally before graduation, at the time of graduation, and in 5-10 year increments after graduation.

A final limitation of our study is related to the generalizability of our results. Survey respondents were limited to college graduates. Entailing that these results might not be generalizable to those who began but did not finish college and those who never attempted college in the first place. In many ways this limitation could suggest that the actual negative effect of student loans could be much greater as we are unable to see the sample of students who may have never completed their intended degree or perhaps never began to pursue a degree due to the expected pressure of student loans.

CONCLUSION

Our results contribute to the debate about the impact of student debt on career outcomes as well as other unintended effects of the rapidly increasing student loan balances of individuals. Our results shed light on an important but hitherto unexplored aspect of student debt – that it can reduce students' ability to prepare for the labor market and diminish their effectiveness in securing a fruitful job after graduation. We are not yet aware of any study that analyzes how student debt can reduce the effectiveness of internships. In addition, our results shed light on the idea that student debt can reduce the effectiveness of support structures provided by schools to ensure better career outcomes for students, including mentorship and professorial support, and can blunt the efforts of schools to prepare students for the labor market.

ACKNOWLEDGEMENTS

We would like to acknowledge the expert data work by Zach Hrynowski, Jessica Harlan, Diana Liu and Zac Auter. This work was supported with funding from the William T. Grant Foundation and MENTOR: The National Mentoring Partnership.

Part of this research was conducted when Karthik Krishnan was the Chief Executive Officer and majority owner at MentorWorks Education Capital, Inc (www.mentorworks.com). This research is not funded in any part by MentorWorks or its affiliates. The research results and conclusions expressed are those of the authors and do not necessarily indicate concurrence of MentorWorks or its affiliates.

ENDNOTES

1. See, e.g., https://fred.stlouisfed.org/series/SLOAS (Board of Governors of the federal Reserve system)
2. Data from https://www.credible.com/blog/statistics/average-student-loan-debt-statistics/
3. In order for student loans to be discharged the loans have to be proven to be an undue hardship, which is an extremely high threshold (Parsons, 2019).
4. Given that Policy is a dummy variable and the dependent variable is the log of student loans, the Policy coefficient of -1.204 can converted into a percentage change (100*(1- exp(-1.204)) = -70.008%).

REFERENCES

Abraham, K.G., Filiz-Ozbay, E., Ozbay, E.Y., & Turner, L.J. (2018). *Behavioral effects of student loan repayment plan options on borrowers career decisions: Theory and experimental evidence* [Working Paper].

Agarwal, S., Driscoll, J.C., & Laibson, D.I. (2013). Optimal mortgage refinancing: A closed-form solution. *Journal of Money, Credit and Banking, 45*(4), 591–622.

Bergstresser, D., & Cohen, R.B. (2015). *Changing Patterns in Household Ownership of Municipal Debt: Evidence from the 1989-2013 Surveys of Consumer Finances* [Working Paper. Brandeis University and MIT].

Bernstein, S., McQuade, T., & Townsend, R. (2021). Do Household Wealth Shocks Affect Productivity? Evidence from Innovative Workers During the Great Recession. *Journal of Finance*, *76*(1), 57–111.

Bertaut, C.C., Haliassos, M., & Reiter, M. (2009). Credit Card Debt Puzzles and Debt Revolvers for Self-Control. *Review of Finance, 13*(4), 657–692.

Board of Governors of the Federal Reserve System (US). (2021). *Student Loans Owned and Securitized [SLOAS]*. Retrieved from https://fred.stlouisfed.org/series/SLOAS

Boudreau, K., & Marx, M. (2019). *From Theory to Practice: Field Experimental Evidence on Early Exposure of Engineering Majors to Professional Work* [Working paper, Northeastern University and Cornell University].

Brüggen, E., Hogreve, J., Holmlund, M., Kabadayi, S., & Löfgren, M. (2017). Financial well-being: A conceptualization and research agenda. *Journal of Business Research, 79*, 228–237.

Bruni, F. (2015, September 13). Measuring a college's value. *New York Times, SR*, p.3.

Cadena, B.C., & Keys, B.J. (2013). Can self-control explain avoiding free money? Evidence from interest-free student loans. *Review of Economics and Statistics*, *95*(4), 1117–1129.

Callanan, G.A., & Benzing, C. (2004). Assessing the role of internships in the career-oriented employment of graduating college students. *Journal of Education and Training*, *46*(2), 82–89.

Campbell, J.Y. (2006). Household Finance. *The Journal of Finance*, *61*(4), 1553–1604.

Card, D., & Solis, A. (2022). Measuring the Effect of Student Loans on College Persistence. *Education Finance and Policy*, *17*(2), 335–366.

Carlin, B., & Manso, G. (2011). Obfuscation, Learning, and the Evolution of Investor Sophistication. *Review of Financial Studies*, *24*(3), 754–785.

Daniels, G.E., Jr., & Smythe, A. (2019). Student debt and labor market outcomes. *AEA Papers and Proceedings*, *109*, 171–175.

Field, E. (2009). Educational debt burden and career choice: Evidence from a financial aid experiment at NYU Law School. *American Economic Journal: Applied Economics*, *1*(1), 1–21.

Froidevaux, A., Koopmann, J., Wang, M., & Bamberger, P. (2020). Is student loan debt good or bad for full-time employment upon graduation from college? *Journal of Applied Psychology, 105*(11), 1246.

Goldin, C., & Katz, L. (2010). *The Race between Education and Technology*. Cambridge, MA: Harvard University Press.

Goodman, S., Isen, A., & Yannelis, C. (2021). A day late and a dollar short: Liquidity and household formation among student borrowers. *Journal of Financial Economics*, *142*(3), 1301–1323.
Huang, B., Tani, M., & Zhu, Y. (2021). Does higher education make you more entrepreneurial? Causal evidence from China. *Journal of Business Research, 135*, 543–558.
Ivkovic, Z., Sialm, C., & Weisbenner, S. (2008). Portfolio Concentration and the Performance of Individual Investors. *Journal of Financial and Quantitative Analysis*, *43*(3), 613–655.
Kangasharju, A., & Pekkala, S. (2002). The Role of Education in Self–Employment Success in Finland. *Growth and Change*, *33*, 216–237.
Krishnan, K., & Wang, P. (2018). *The Impact of Student Debt on High Value Entrepreneurship and Venture Success* [Working Paper, Northeastern University].
Krishnan, K., & Wang, P. (2019). The cost of financing education: Can student debt hinder entrepreneurship? *Management Science*, *65*(10), 4522–4554.
Lee, M., & Raschke, R. (2018). Freeing "workplace prisoners" in higher education: Configurations for collective knowledge building and educational value decisions. *Journal of Business Research, 88,* 443–448.
Marx, B.M., & Turner, L.J. (2018). Borrowing trouble? Human capital investment with opt-in costs and implications for the effectiveness of grant aid. *American Economic Journal: Applied Economics*, *10*(2), 163–201.
Minicozzi, A. (2005). The short term effect of educational debt on job decisions. *Economics of Education Review*, *24*(4), 417–430.
Ortagus, J., & Kramer, D. (2022). The Impact of No-Loan Program Participation on the Likelihood of Graduate School Enrollment Among Low-Income, First-Generation Students. *Education Finance and Policy*, *17*(1), 81–104.
Parsons, S. (2019). The ABCs of debt. *Wolters Kluwer Law & Business*, pp. 353–357.
Pekkarinen, T., Uusitalo, R., & Kerr, S. (2009). School Tracking and Intergenerational Income Mobility: Evidence from the Finnish Comprehensive School Reform. *Journal of Public Economics*, *93*, 965–973.
Rosinger, K.O., Belasco, A.S., & Hearn, J.C. (2019). A Boost for the Middle Class: An Evaluation of No-Loan Policies and Elite Private College Enrollment. *The Journal of Higher Education*, *90*(1), 27–55.
Rothstein, J., & Rouse, C.E. (2011). Constrained after college: Student loans and early-career occupational choices. *Journal of Public Economics*, *95*(1), 149–163.
Waddell, G.R., & Singell, L.D., Jr. (2011). Do no-loan policies change the matriculation patterns of low-income students? *Economics of Education Review*, *30*, 203–214.

APPENDIX 1

TABLE A1
THE RELATION BETWEEN NO-LOANS POLICY AND STUDENT LOANS

	(1) Student loans	(2) Student loans	(3) Student loans	(4) Student loans
Pre policy year 3		-0.189		-0.190
		[0.473]		[0.473]
Pre policy year 2		-0.496		-0.500
		[0.561]		[0.562]
Pre policy year 1		-0.707		-0.712
		[0.451]		[0.451]
Policy year 0		-0.166		-0.170
		[0.579]		[0.579]
Policy	-1.201***	-1.247***		
	[0.325]	[0.324]		
Post Policy: year 1			-1.613***	-1.667***
			[0.435]	[0.439]
Post Policy: year 2			-0.828	-0.872
			[0.610]	[0.610]
Post Policy: year 3			-1.069*	-1.109*
			[0.578]	[0.573]
Female	-0.171***	-0.170***	-0.170***	-0.170***
	[0.052]	[0.052]	[0.052]	[0.052]
Race: White	-0.632*	-0.635*	-0.637*	-0.640*
	[0.333]	[0.333]	[0.333]	[0.332]
Race: Black	1.503***	1.500***	1.498***	1.494***
	[0.353]	[0.354]	[0.353]	[0.353]
Race: Asian	-1.000***	-0.998***	-1.008***	-1.006***
	[0.381]	[0.382]	[0.380]	[0.381]
Race: Hispanic	0.265	0.267	0.261	0.262
	[0.356]	[0.356]	[0.356]	[0.356]
Age	-0.059***	-0.059***	-0.059***	-0.059***
	[0.005]	[0.005]	[0.005]	[0.005]
Born in the U.S.	0.055	0.059	0.055	0.059
	[0.127]	[0.127]	[0.127]	[0.127]
Other controls	Yes	Yes	Yes	Yes
Observations	42,894	42,894	42,894	42,894
Adjusted R-squared	0.187	0.187	0.187	0.187

This table OLS regressions predicting the size of student loans using *Policy* as the main independent variable. The dependent variable is *Student Loans*, which is the natural log of 1 plus the former student's reported total number of student loans from his or her undergraduate degree. The independent variables are: *Policy*, which is a dummy variable that equals one if the former student's school had a no student loan policy during the time that the student attended the school and zero otherwise; *Post policy: year 1–3*, these are dummy variables for the respective number of years since the no-loans policy has been in place at the school; *Pre policy year 1–3*, these are dummy variables for the 1–3 number of years before a school enacted a no-loans policy; *Policy year 0*, this is a dummy variable for the year a school enacted a no-loans policy; *Female*, this is a dummy variable equal to one if the former student is female and zero otherwise; *Race: White/Black/Asian/Hispanic*, these are mutually exclusive dummy variables for if the former student

indicated he or she is a particular race; *Age*, this is the current age of the former student; *Born in the U.S.*, this is a dummy variable equal to one if the student was born inside the United States and zero otherwise. Unreported controls: dummy for military service, dummies for education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering). All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

APPENDIX 2

TABLE 1
SUMMARY STATISTICS AND NO-LOANS POLICY SCHOOLS

Panel A	Mean	25th Percentile	Median	75th Percentile	Observations
Student loans	30246.37	11408.66	22032.71	37336.45	18,384
Female	45.7%				48,220
Race: White	90.4%				47,894
Race: Black	3.95%				47,894
Race: Asian	1.56%				47,894
Race: Hispanic	3.65%				47,894
Race: Other	0.44%				47,894
Born in the U.S.	96.21%				47,813
Served in military	17.13%				48,215
Transferred from 2 year	18.43%				48,305
Transferred from 4 year	16.89%				48,305
Arts and Hum. Major	18.26%				46,853
Business Major	11.61%				46,853
Engineering Major	17.69%				46,853
Sciences Major	28.36%				46,853
Social Sciences Major	18.91%				46,853
Other Major	5.18%				46,853
Job waiting	19.84%				43,214
Job in 6 months	34.97%				43,214
Job in 12 months	37.80%				43,214
Applicable Job Internship	46.74%				47,702
Professors cared	3.722	3	4	5	47,441
Had Mentor	3.120	2	3	4	47,849
School prepared me	3.868	3	4	5	48,135
Job gives opportunity to do interesting work	4.185	4	4	5	31,597
Deeply interested in my work	4.173	4	4	5	33,248
Current job is related to Undergrad	72.66%				16,201
Current job is very related to Undergrad	35.76%				16,201
Age at graduation	24.409	21	22	24	48179
Age (time of survey)	54.905	43	57	66	48,179
Years for Undergrad	4.0032	3.5	4	4.5	47,422

	Panel B						
#	College/U.	Start year	Grad class of 2010	#	College/U.	Start year	Grad class of 2010
1	Amherst College	2007	428	41	Stanford U.	2008	1671
2	Appalachian State U.	2007	3000	42	Swarthmore College	2006	358
3	Arizona State U.	2007	11810	43	Texas A&M U.	2009	8451
4	Boston U.	2009	4159	44	Texas State U.- San Marcos	2009	5293
5	Bowdoin College	2008	456	45	Tufts U.	2007	1381
6	Brown U.	1999	1483	46	U. of Arizona	2008	5827
7	Bryan College	2007	303	47	U. of California-Berkeley	2009	7092
8	Carleton College*	2008	497	48	U. of California-Davis	2009	6369
9	Claremont McKenna	2008	296	49	U. of California-Irvine	2009	5962
10	Colby College	2008	481	50	U. of California-Los Angeles	2009	7543
11	College of William and Mary	2007	1450	51	U. of California-Merced	2009	350
13	Columbia U.	2007	1950	52	U. of California-Riverside	2009	3190
12	Colorado State U.	2011	761	53	U. of California-San Diego	2009	5857
14	Connecticut College	2006	445	54	U. of California-Santa Barbara	2009	5005
15	Cornell U.	2008	3696	55	U. of California-Santa Cruz	2009	3488
16	Dartmouth College	2008	1067	56	U. of Chicago	2008	1209
17	Davidson College	2007	434	57	U. of Florida	2006	9301
18	Duke U.	2008	1623	58	U. of Louisville	2007	2550
19	Emory U.	2007	1684	59	U. of Maryland	2007	6569
20	Fairfield U.	2008	922	60	U. of Michigan at Ann Arbor	2006	6457
21	Georgia Institute of Tech.	2007	2842	61	U. of Minnesota-Crookston	2005	191
22	Grinnell College	2008	379	62	U. of Minnesota- Duluth	2005	1817
23	Harvard U.	2004	1801	63	U. of Minnesota- Morris	2005	286
24	Haverford College	2008	291	64	U. of Minnesota- Twin Cities	2005	6942
25	Indiana U.	2007	6752	65	U. of N.C. at Chapel Hill	2003	4396
26	Kenyon College	2008	432	67	U. of Pennsylvania	2006	2274
27	Lafayette College	2008	640	66	U. of Tennessee	2005	6520
28	Lamar U.	2009	1189	68	U. of Toledo	2009	2314
29	Lehigh U.	2008	1220	69	U. of Vermont	2008	2341
30	Miami U.	2007	3709	70	U. of Virginia	2004	3561
31	Michigan State U.	2006	8223	71	U. of Washington	2007	9280
32	MIT	2006	1116	72	Vanderbilt U.	2009	1583
33	North Carolina State	2007	4790	73	Vassar College	2008	602
34	Northern Illinois U.	2009	4243	74	Washington and Lee	2008	440
35	Northwestern U.	2008	2219	75	Washington U. in St. Louis	2008	1666
36	Oberlin College	2008	644	76	Wellesley College	2008	555

37	Pomona	2008	375	77	Wesleyan U.	2008	715
38	Princeton	1998	1181	78	Williams College	2008	525
39	Rice U.	2005	791	79	Yale U.	2008	1312
40	Sacred Heart U.	2008	858				

*Carleton College ended their no loan policy in 2012.

Panel A reports summary statistics for the main variables of interest. Panel B reports details concerning schools which enacted no loans policies. No loans policies can vary in many ways but we focus on the program start years for programs which replaced loans required for tuition payments with grants. To give an idea of the size of a school's student population the number of graduating undergraduate students in 2010 is reported.

TABLE 2
EFFECT OF NO-LOANS POLICIES ON REPORTED STUDENT LOANS

	(1)	(2)	(3)	(4)	(5)
	Borrower	Borrower	Borrower	Borrower	Student Loans
Pre policy year 3		-0.015		-0.015	
		[0.046]		[0.046]	
Pre policy year 2		-0.038		-0.039	
		[0.054]		[0.054]	
Pre policy year 1		-0.067		-0.068	
		[0.043]		[0.043]	
Policy year 0		0.002		0.001	
		[0.057]		[0.058]	
Policy	-0.108***	-0.112***			-0.193**
	[0.032]	[0.031]			[0.098]
Post Policy: year 1			-0.154***	-0.158***	
			[0.043]	[0.044]	
Post Policy: year 2			-0.065	-0.069	
			[0.060]	[0.060]	
Post Policy: year 3			-0.095*	-0.098*	
			[0.057]	[0.056]	
Female	-0.016***	-0.016***	-0.016***	-0.016***	-0.054***
	[0.005]	[0.005]	[0.005]	[0.005]	[0.020]
Race: White	-0.054*	-0.054*	-0.055*	-0.055*	-0.207
	[0.032]	[0.032]	[0.032]	[0.032]	[0.163]
Race: Black	0.154***	0.153***	0.153***	0.153***	-0.060
	[0.034]	[0.034]	[0.034]	[0.034]	[0.167]
Race: Asian	-0.093**	-0.093**	-0.093**	-0.093**	-0.213
	[0.038]	[0.038]	[0.037]	[0.038]	[0.172]
Race: Hispanic	0.036	0.036	0.035	0.035	-0.171
	[0.035]	[0.035]	[0.035]	[0.035]	[0.166]
Age	-0.006***	-0.006***	-0.006***	-0.006***	-0.007***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.002]
Born in the U.S.	0.004	0.004	0.004	0.004	0.017
	[0.013]	[0.013]	[0.013]	[0.013]	[0.048]
Other controls	Yes	Yes	Yes	Yes	Yes
Observations	42,894	42,894	42,894	42,894	42,894
Adjusted R-squared	0.173	0.173	0.173	0.173	0.188

This table reports the results of OLS regressions. Columns 1-5 predict if a student will have student loans after college using the whole sample. Column 6 is limited to the sample of student who do have student loans after college and the amount of student loans is the dependent variable. In Columns 1-5 the dependent variable is *Borrower*, which is a dummy variable which is equal to one if the former student's reported having student loans from his or her undergraduate degree. In Column 6 the dependent variable is *Student Loans*, which is the natural log of 1 plus the former student's reported total number of student loans from his or her undergraduate degree. The independent variables are: *Policy*, which is a dummy variable that equals one if the former student's school had a no student loan policy during the time that the student attended the school and zero otherwise; *Post policy: year 1–3*, these are dummy variables for the respective number of years since the no-loans policy has been in place at the school; *Pre policy year 1–3*, these are dummy variables for the 1–3 number of years before a school enacted a no-loans policy; *Policy year 0*, this is a dummy variable for the year a school enacted a no-loans policy; *Female*, this is a dummy variable equal to one if the former student is female and zero otherwise; *Race: White/Black/Asian/Hispanic*, these are mutually exclusive dummy variables for if the former student indicated he or she is a particular race; *Age*, this is the current age of the former student; *Born in the U.S.*, this is a dummy variable equal to one if the student was born inside the United States and zero otherwise. Unreported controls: dummy for military service, dummies for education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering). All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

TABLE 3
STUDENT LOANS AND PREPARATION FOR LABOR MARKET

Panel A	(1) Applicable Job Internship	(2) Non-applicable Job
No Policy	-0.103***	0.063**
	[0.031]	[0.029]
Female	0.054***	-0.045***
	[0.005]	[0.005]
Age	-0.001**	-0.003***
	[0.000]	[0.000]
Born in the U.S.	0.025*	-0.007
	[0.015]	[0.013]
Other controls	Yes	Yes
Observations	42,188	41,952
Adjusted R-squared	0.0466	0.0167

Panel B	(1) Applicable Job Internship	(2) Non-applicable Job
Student loans	0.002***	0.006***
	[0.001]	[0.001]
Female	0.055***	-0.044***
	[0.005]	[0.005]
Age	-0.001*	-0.003***
	[0.000]	[0.000]
Born in the U.S.	0.024*	-0.008
	[0.014]	[0.013]
Other controls	Yes	Yes
Observations	42,479	42,242
Adjusted R-squared	0.0467	0.0194

This table reports the results of OLS regressions. The dependent variable is *Applicable Job Internship*, a dummy variable equal to 1 if the student agreed or strongly agreed that he or she had an applicable internship. In Column 1 the main independent variable is *No Policy*, which is a dummy variable equal to 1 if the school does not have a no-loans policy in place, and zero otherwise.; in Column 2 the main independent variable is *Student Loans*, which is the natural log of 1 plus the former student's reported total number of student loans from his or her undergraduate years. The other independent variables are: *Female*, this is a dummy variable equal to one if the former student is female and zero otherwise; *Age*, this is the current age of the former student; *Born in the U.S.*, this is a dummy variable equal to one if the student was born inside the United States and zero otherwise. Unreported controls: dummy for military service, dummies for race (White/Black/Asian/Hispanic), dummies for education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering). All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

TABLE 4
RELEVANT JOB INTERNSHIP IN SCHOOL AND EMPLOYMENT RELATEDNESS

	(1) UG job relatedness	(2) Job give Interest Opp	(3) Interest in current work
Applicable Job Internship	0.130***	0.249***	0.248***
	[0.008]	[0.013]	[0.012]
Female	0.014	0.073***	0.059***
	[0.009]	[0.014]	[0.014]
Age	0.000	0.007***	0.006***
	[0.001]	[0.001]	[0.001]
Born in the U.S.	0.020	-0.019	-0.022
	[0.022]	[0.033]	[0.033]
Other Controls	Yes	Yes	Yes
Observations	13,611	29,353	29,191
Adjusted R-squared	0.0503	0.0636	0.0644

This table reports the results of OLS regressions. The dependent variables are three different dummy variables: *UG job relatedness*, this is a rank variable (1-5) with a value of 5 if the respondent strongly felt his or her current job is related to his or her undergraduate field of study and a value of 1 if he or she strongly felt it is not; *Job give Interest Opp.*, this is a rank variable (1-5) with a value of 5 if the respondent strongly agreed that his or her job provides the opportunity to do something of interest and a value of 1 if the respondent strongly disagreed; *Interest in current work*, this is a rank variable (1-5) with a value of 5 if the former student is strongly interested in the work involved in his or her current job and a value of 1 if not strongly interested. The main independent variable is *Applicable Job Internship*, a dummy variable equal to 1 if the student agreed or strongly agreed that he or she had an applicable internship. The other independent variables are: *Female*, this is a dummy variable equal to one if the former student is female and zero otherwise; *Age*, this is the current age of the former student; *Born in the U.S.*, this is a dummy variable equal to one if the student was born inside the United States and zero otherwise. Unreported controls: dummy for military service, dummies for race (White/Black/Asian/Hispanic), dummies for education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering) and marital status. All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

TABLE 5
THE EFFECT OF APPLICABLE INTERNSHIPS AND STUDENT LOANS ON FINDING A JOB AFTER COLLEGE

Panel A: No Policy effect	(1)	(2)	(3)
	Job waiting	Job-6 months	Job-12 months
No Policy	0.034	0.063*	0.025
	[0.025]	[0.033]	[0.033]
Applicable Job Internship	0.128***	0.135***	0.086**
	[0.028]	[0.035]	[0.037]
No Policy * Applicable Job Internship	-0.059**	-0.086**	-0.047
	[0.028]	[0.035]	[0.036]
Female	-0.035***	0.002	0.003
	[0.004]	[0.003]	[0.003]
Age	0.003***	0.001***	0.001**
	[0.000]	[0.000]	[0.000]
Born in the U.S.	0.002	-0.002	0.004
	[0.010]	[0.008]	[0.007]
Other Controls	Yes	Yes	Yes
Observations	37,782	37,782	37,782
Adjusted R-squared	0.363	0.702	0.785

Panel B: Student loan effect	(1)	(2)	(3)
	Job waiting	Job-6 months	Job-12 months
Student loans	-0.002***	-0.004***	-0.003***
	[0.000]	[0.000]	[0.000]
Applicable Job Internship	0.072***	0.038***	0.031***
	[0.004]	[0.003]	[0.003]
Student loans * Applicable Job Internship	-0.000	0.003***	0.002***
	[0.001]	[0.001]	[0.001]
Female	-0.035***	0.002	0.003
	[0.004]	[0.003]	[0.003]
Age	0.003***	0.001***	0.000*
	[0.000]	[0.000]	[0.000]
Born in the U.S.	0.000	-0.001	0.003
	[0.010]	[0.008]	[0.007]
Other Controls	Yes	Yes	Yes
Observations	38,037	38,037	38,037
Adjusted R-squared	0.364	0.702	0.785

This table reports the results of OLS regressions. The dependent variables are three different dummy variables: Job Waiting, this is equal to one if the former student had a job waiting at graduation; Job-6 months, this is equal to one if the former student had a job within 6 months of graduation; Job-12 months, this is equal to one if the former student had a job within 12 months of graduation, and zero otherwise. The main independent variables in Panel A are: Student Loans, which is the natural log of 1 plus the former student's reported total number of student loans from his or her undergraduate years; Applicable Job Internship, a dummy variable equal to 1 if the student agreed or strongly agreed that he or she had an applicable internship; and Student Loans* Applicable Job Internship, the interaction of Student Loans and Applicable Job Internship. The main independent variables in Panel B are: No Policy, which is a dummy variable equal to 1 if the school does not have a no-loans policy in place, and zero otherwise; Applicable Job Internship; and No Policy * Applicable Job Internship, the interaction of No Policy and Applicable Job Internship. The other independent variables are: Female, this is a dummy variable equal to one if the former student is female and zero otherwise; Age, this is the current age of the former student; Born in the U.S., this is a dummy variable equal to one if the student was born inside the United States and zero otherwise. Unreported controls: dummy for military service, dummies for race (White/Black/Asian/Hispanic), dummies for education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, Graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering). All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.

TABLE 6
THE EFFECT OF APPLICABLE INTERNSHIPS AND STUDENT LOANS ON GRADUATION TIME AND CURRENT JOB OUTCOMES

Panel A: No Policy effect	(1) Years for UG	(2) Enough Money	(3) Worried about money
No Policy	-0.106	-0.018	0.071
	[0.123]	[0.043]	[0.046]
Applicable Job Internship	-0.403***	0.142***	-0.109**
	[0.147]	[0.052]	[0.047]
No Policy * Applicable Job Internship	0.387***	-0.095*	0.095**
	[0.148]	[0.053]	[0.047]
Female	-0.196***	0.027***	0.011**
	[0.015]	[0.005]	[0.005]
Age	0.031***	0.002***	-0.004***
	[0.002]	[0.000]	[0.000]
Born in the U.S.	0.119***	-0.048***	0.036***
	[0.036]	[0.014]	[0.013]
Military Service	-0.089***	0.020***	-0.022***
	[0.022]	[0.007]	[0.007]
Other Controls	Yes	Yes	Yes
Observations	42,086	41,963	41,857
Adjusted R-squared	0.162	0.0973	0.0814

Panel B: Student loan effect	(1) Years for UG	(2) Enough Money	(3) Worried about money
Student loans	0.007***	-0.009***	0.006***
	[0.002]	[0.001]	[0.001]
Applicable Job Internship	-0.002	0.047***	-0.017***
	[0.016]	[0.006]	[0.006]
Student loans *Applicable Job Internship	-0.005*	0.001	-0.000
	[0.003]	[0.001]	[0.001]
Female	-0.195***	0.024***	0.015***
	[0.015]	[0.005]	[0.005]
Age	0.032***	0.002***	-0.004***
	[0.002]	[0.000]	[0.000]
Born in the U.S.	-0.086***	0.017**	-0.020***
	[0.022]	[0.007]	[0.007]
Military Service	0.120***	-0.045***	0.035***
	[0.036]	[0.013]	[0.013]
Other Controls	Yes	Yes	Yes
Observations	42,376	42,349	42,242
Adjusted R-squared	0.162	0.0893	0.0786

TABLE 7
THE EFFECT OF ANCILLARY SUPPORT/MENTORING AND STUDENT LOANS ON FINDING A JOB AFTER COLLEGE

Panel A	(1)	(2)	(3)
	Job waiting	Job-6 months	Job-12 months
No Policy	0.033	0.099	0.077
	[0.051]	[0.065]	[0.055]
Professors cared	0.026**	0.040***	0.036***
	[0.012]	[0.015]	[0.013]
No Policy * Professors cared	-0.012	-0.027*	-0.024*
	[0.013]	[0.016]	[0.013]
Observations	37,589	37,589	37,589
Adjusted R-squared	0.357	0.699	0.784
Panel B			
No Policy	0.049	0.075*	0.045
	[0.033]	[0.043]	[0.039]
Had Mentor	0.033***	0.036***	0.028***
	[0.009]	[0.011]	[0.009]
No Policy * Had Mentor	-0.019**	-0.022**	-0.017*
	[0.010]	[0.011]	[0.009]
Observations	37,895	37,895	37,895
Adjusted R-squared	0.359	0.701	0.784
Panel C			
No Policy	0.023	0.104	0.127**
	[0.050]	[0.066]	[0.063]
School prepared me	0.038***	0.061***	0.067***
	[0.012]	[0.016]	[0.014]
No Policy * School prepared me	-0.010	-0.028*	-0.037**
	[0.012]	[0.016]	[0.014]
Observations	38,136	38,136	38,136
Adjusted R-squared	0.362	0.704	0.788

This table reports the results of OLS regressions. The dependent variables are three different dummy variables: *Job Waitin*g, this is equal to one if the former student had a job waiting at graduation; *Job-6 months*, this is equal to one if the former student had a job within 6 months of graduation; *Job-12 months*, this is equal to one if the former student had a job within 12 months of graduation, and zero otherwise. The main independent variables are: *Student Loans*, which is the natural log of 1 plus the former student's reported total number of student loans from his or her undergraduate years; *Professors cared*, this is a rank variable (1-5) with a value of 5 if the former student strongly felt he or she had caring professors during undergraduate years and a value of 1 if he or she strongly felt there were no such professors; *Had mentor*, this is a rank variable (1-5) with a value of 5 if the former student strongly felt he or she had a mentor during undergraduate years and a value of 1 if the respondent strongly felt he or she did not have a mentor; *School prepared me*, this is a rank variable (1-5) with a value of 5 if the former student strongly felt that the school prepared him or her during undergraduate years and a value of 1 if he or she strongly felt it did not; additionally there are interactions between *Student Loans* and the above defined variables of *Professors cared, Had mentor,* and *School prepared me*. Unreported independent variables and controls are: Female, *Age*, *Born in the U.S.*, *Military service*, dummies for race (White/Black/Asian/Hispanic*)*, dummies for

education level of the former student's father and mother (high school degree, some college, associate degree, bachelor's degree, graduate degree), as well as dummies for the student's study major (science, social science, business, art/humanities, or engineering). All regressions are estimated with a constant term, and former student's school fixed effects, graduation year fixed effects, survey wave fixed effects, and transfer status fixed effects. Heteroskedasticity corrected robust standard errors, which are clustered at the school level, are in brackets. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10% levels, respectively.