The Impact of Youth Debt on College Graduation

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This study examines the associations between educational loans and credit card debt with the possibility of college graduation among a group of youth who enrolled in college. It further investigates whether the associations differ by levels of parental assets. Results indicate that, after parental assets and other variables are considered, educational loans are positively related to college graduation; however, there is evidence that educational loans above $10,000 reduce the probability of college graduation. Parental assets are positively linked to youth's college graduation, and the relationship between educational loans and college graduation is stronger among youth whose families have lower levels of financial assets. Credit card debt is positively related to college graduation only among families with modest financial assets. Policy implications are discussed.

Key words: *Educational loans, college graduation, credit card debt, household assets, net worth*

With college cost being one of the most recognized barriers to college access and success, especially for low-income and minority families (Long & Riley, 2007), families have increasingly relied on debt to finance their children's higher education. For example, about two-thirds of college graduates in 2008 completed their degrees by taking out some type of loan (Lewin, 2009). As of 2010, the average amount of debt for a Bachelor degree graduate from a four-year public college is $12,300 (College Board, 2011). Several factors have contributed to the increasing use of loans as a way for financing college education. College costs have risen sharply over the last decade (College Board, 2008), and increases in college tuition continue to outpace that of family income (The National Center for Public Policy and Higher Education, 2008); as a result, many

families' income and savings are insufficient to cover this escalating cost. In the meantime, financial aid policy has shifted from need-based aid toward merit-based aid and educational tax credits (Long & Riley, 2007), and federal loans and private loans are becoming more accessible to youth and their families (College Board, 2009). As a result, taking loans has become the "norm" for many families to cover college costs.

Another trend since the 1990s is the deregulation of financial markets, which has resulted in the accessibility of credit cards to populations who have not had access before, including young adults (Kamenetz, 2006). For example, findings from a recent national survey by Sallie Mae (2009) indicate that both credit card ownership and credit card balances have risen sharply during recent years among college students. Furthermore, a larger proportion of college students also rely on credit cards for paying direct educational expenses, including textbooks, school supplies, and tuition (Sallie Mae, 2009).

While a growing body of research has examined the relationships between household financial assets and youth savings with children's college education (see Elliott, Destin, & Friedline, 2011), little attention has been paid to how negative assets (i.e., debt) are associated with college education. Given the rise in household indebtedness (Dynan & Kohn, 2007) and its increasing role in financing college education, it is important to examine the impact of debt as an independent indicator on college education.

This research examines the associations between youth debt (educational loans and credit card debt) and attainment of bachelor's degrees (referred to as "college completion or graduation" in this study), in the context of parental financial assets. It expands on emerging studies in this area in two important ways. First, while studies have examined the relationships between educational loans and college graduation (e.g., Dwyer, McCloud, & Hodson, 2012; Kim, 2007) in the context of the college student's family income, family assets have not been considered. Scholars suggest that concepts of income and assets are related but distinct (Oliver & Shapiro, 1995; Sherraden, 1991), with asset inequality being more skewed than income inequality (Wolff, 2006). In addition, financial assets may play a more important role in children's

college education than income (Elliott et al., 2011). Given these considerations, it is necessary to examine the relationship between youth debt and college graduation in the context of family financial assets.

Second, this study extends previous analyses by examining the impact of both educational loans and youth credit card debt. Including credit card debt is necessary given its increasing use to meet financial needs of college education. Furthermore, these two types of debt may have different impacts because they are taken on through different processes and also have different requirements regarding repayment. For example, educational loans may produce less stress for college students during their college years because monthly payments are not demanded for educational loans. Also, while educational loans are viewed as an investment in human capital, the influence of credit card debt could be more complicated (Dwyer, McCloud, & Hodson, 2011) due to the fact that it could also be used for other forms of "investment" (e.g., buying clothes for social activities). In order to better understand the relationships between debts and college education, it is worthwhile to explore to their different forms and functions.

Previous Scholarship

Theoretical Assumptions

There are two primary theoretical assumptions that underlie this study: (1) the effects of debt are nonlinear, i.e., a point is reached where positive effects turn negative; and (2) debt may have differential effects on college graduation based on different family economic circumstances.

Nonlinear relationships of debt and college graduation. Educational loans and credit card debt are two types of unsecured debt. Unsecured debt, which is usually incurred when the current consumption of a family exceeds current available income and assets, could have dual effects on financing youth's education (Gruber, 2001; Nam & Huang, 2009). Families and youth with debt have access to credit markets, which can provide necessary resources for youth's education in times of economic difficulties (Mayer & Jencks, 1989; Sullivan, 2005). More specifically, access to credit could increase the

opportunity for a child to enroll in and graduate from college, compared to those without access to such resources. In addition, the ability to borrow might reduce the need for youth to work long hours to support their college education, thus increasing their chances of remaining in school.

Debt may also have positive attitudinal and psychological effects. Studies have found that access to loans may help reduce anxiety and stress during economically challenging times (Drentea, 2000). Dwyer, McCloud, and Hodson (2011) found that both education and credit-card debt are positively linked to mastery and self-esteem of youth, especially among youth from low- and middle-income families. It may be that debt as an investment in status attainment helps foster the sense of capacity to control one's circumstances, as well as feelings of self-worth (Mirowsky & Ross, 2007). This attitudinal and emotional impact may, in turn, affect youth's college graduation. In sum, educational loans and other debt may help increase the chance of college degree attainment, if it is a rational investment that will pay off in the future (Bowen, Chingos, & McPherson, 2009; Frank, 1999).

Despite the potential positive impact of debt on college education, researchers also indicate that heavier debt could have diminishing or even negative effects on college education. Families and youth with large amounts of debt might find it difficult to save as well as to secure additional loans and/or invest in the future, thus limiting potential resources for continuing education. Large debt burdens could also harm physical and mental health (Drentea & Lavrakas, 2000; Jenkins et al., 2008). Heavy debt is often associated with financial stress, which may lead to the feeling of being out of control, and reduced capacities for future planning and orientation. Drentea (2000) further suggests that young people experience more debt stress and anxiety than older groups. For college students, the stress could be stronger due to their limited resources and their inexperience in managing finances (Christie & Munro, 2003). More specifically, a heavy debt load may decrease the likelihood of graduation for college students, because of anxiety about repayment and reluctance or inability to secure additional loans (Dwyer et al., 2011).

Differential impact of debt. The aforementioned effects of youth debt on college graduation may vary by levels of

economic capacities (e.g., income and assets) of their parents. Knowing whether or not additional resources are available to help them pay back debt impacts youth's perception of the debt. For example, the study by Christie & Munro (2003) indicates that parents play a critical role in their children's decisions on how to finance their education. For low-income youth, debt might be the only resource available; but for others, it is possibly one of a set of resources available because they hopefully will have more income and wealth from their parents to shelter the effects of debt. Students from higher income families are more likely to have confidence that investments in college are worthwhile, while low-income students are more likely to perceive risks, recognizing the financial challenges that their parents faced in supporting them. Also, during economic crisis, the vulnerability of low-income families will increase (Sullivan, 2005). Youth debt could have a stronger impact on the college graduation of low-income youth because they are the primary resources to finance their education; on the other hand, heavy debt might have more negative impact on their education by increasing stress.

Research

Household liabilities and children's education. While emerging studies have examined how household assets and youth savings impact college education (Elliott et al., 2011), the relationships between household and youth debt with college success has received little attention. Limited research on debt and youth academic achievement finds that unsecured debt (including credit cards, student loans, medical or legal bills, and personal loans) is negatively related to reading and math scores for preschool-aged children and to math scores of school-aged children (Williams, 2007; Yeung & Conley, 2008). Nam and Huang (2009) indicate a more complicated relationship between negative liquid assets (i.e., unsecured debt) and children's educational attainment. They report that children from families where debt exceeds savings (i.e., negative liquid assets) are more likely to graduate from high school compared to those from families with no liquid assets. But children from families with negative liquid assets are no different in terms of college attendance and are less likely to graduate from college. These results indicate that unsecured debt may have

short-term positive implications but negative long-term impli-
cations for children's education. Two recent studies by Zhan
and Sherraden (2011a, 2011b) indicate that household un-
secured debt is negatively related to college attendance and
graduation among African American and Latino children,
partly due to the high debt-to-income ratio in these families.

Educational loans and college education. Studies consistently
indicate that educational loans have positive effects on college
enrollment (Espenshade & Radford, 2009), especially for those
from lower-income families (Baum & McPherson, 2008; Heller,
2008), by providing these students with necessary financial re-
sources to attend college. However, the relationship between
educational loans and college persistence and completion are
mixed (Hossler, Ziskin, Kim, Cekic, & Gross, 2008), perhaps
partly because these studies include different study samples,
e.g., college students from different family backgrounds or
attending different types of institutions. While some studies
find that debt increases the likelihood of college graduation
(e.g., Bowen et al., 2009; Choy, 1998; Cofer & Somers, 2000;
Eyermann, 1999; Lam, 1999; St. John, Starkey, Paulsen, &
Mbaduagha, 1995), other researchers indicate that educational
loans are not related or even negatively related to the chance of
college graduation, especially among disadvantaged students
(Education Resources Institute and the Institute for Higher
Education Policy, 1995; Institute for Higher Education Policy,
1999; Ishitani, 2006; Kim, 2007; Knight & Arnold, 2000; St. John,
Andrieu, Oescher, & Starkey, 1994; U.S. General Accounting
Office, 1994, 1995).

Despite these inconsistent findings, the studies overall
suggest that loans are more likely to have negative impact
among disadvantaged families. For example, Kim's (2007)
study finds that higher student loan debt in the first year
of college is negatively related to degree completion only
among low-income and African American students. Similarly,
Paulsen and St. John (2002) indicate that loans only have nega-
tive effects on within-year persistence for low-income and
lower-middle-income families. These findings seem to suggest
that parental resources may help reduce the risks associated
with debt, such as stress of feeling unable to pay off the loans.
Students from lower-income families without much parental

resources to buffer against the risks thus tend to worry more about the burden of repayment. Studies also indicate that loans have a stronger impact for students at public universities. For example, St. John, Oescher, and Andrieu (1992) report that having loans had negative associations with returning for spring semester for students attending public colleges, but no relations with those attending private colleges. Alon (2007) similarly finds that debt has little effect on college completion among a group of students at elite private colleges. This might be partly due to the fact that students from lower-income families, who are more likely to be affected by loans as mentioned above, are more likely to enroll in public universities.

Some studies suggest that the impact of educational loans is not linear. For example, a recent study by Dwyer, McCloud, and Hodson (2012) indicates that educational loans, as a special resource for making investments in education, have a positive impact in college completion, but only to some extent. Heavy debt (beyond $10,000) reduces the chances of college attainment for college students from the bottom 75% of the income quartile in their study sample of youth who attended public universities. This finding is consistent with the aforementioned theoretical assumption that students from lower-income families are more vulnerable to heavy debt due to the lack of backup parental resources.

As the previously presented scholarship suggests, this study is motivated by two hypotheses: first, having educational loans and credit card debt increases graduation rates, but the positive impact will diminish at high levels of loans and debt; and second, the impact of educational loans and credit card debt differs by levels of financial family assets.

Data and Methods

Data and Sample

Data for this study are drawn from the National Longitudinal Survey of Youth, Young Adult sample (NLSY79-YA). In 1979, 12,686 individuals between 14 and 22 years of age, including an oversample of minority and economically disadvantaged White youth, comprised the original NLSY. From 1979 through 1994, respondents were interviewed

annually, then biennially thereafter (Center for Human Resources Research, 2006). Beginning in 1994, the 15- through 20-year-old adolescent children (referred to by the NLSY as "young adults") of the female respondents have been assessed biennially with a survey that includes questions related to their schooling, labor market experience, education, physical and mental health, relationships, and fertility.

The study sample includes the young adults whose first-year college enrollment was between 2000 and 2004. Their college graduation status is measured in survey year 2008, which allows at least 4 years for these students to finish college. The young adults who were still enrolled in college in 2008 were deleted from the sample. Data related to parental education, income, and assets are taken from the NLSY main file, and all other variables in the study are from NLSY-YA data. After excluding cases that have a missing value for any of the variables in the analysis, the final sample includes 1,047 young adults.

Measures

Youth debt. Youth debt is measured with the amount of cumulative debt, i.e., the total amount of debt over the course of a youth's college enrollment. This focal variable includes two measures: the total dollar amount of educational loans and the total dollar amount of credit card debt during the period a youth is enrolled in college. Two questions in the data are asked on educational loans: (1) Did you receive a loan to cover any of the costs for this year's college expenses?; and (2) What is the amount owed on the loan(s)? A similar two-question sequence is asked on credit card debt: (1) Do you owe over $500 to any stores, doctors, hospitals, banks, or anyone else?; and (2) Rounding to the nearest dollar, how much do you owe altogether on your credit cards?

According to the distribution of the variable, educational loans are recoded into four categories: no educational loans; educational loans less than $5,000; educational loans between $5,000 and $10,000; and educational loans $10,000 or over. Credit card debt is recoded into three categories: no credit card balances; credit card balance less than $5,000; and credit card balances of $5,000 or above.

College graduation. The dependent variable, whether or not a youth completed a bachelor's degree (i.e., 16 or more years of schooling) as of 2008, is measured with a dummy variable (yes = 1, no = 0).

Parental assets. A youth's parental financial assets are measured with his/her parent's household net worth in the year when he or she first enrolled in college. This variable is recoded into three categories according to distribution: negative or zero net worth; positive net worth less than $50,000; and net worth $50,000 or above. These three categories are referred as "no net worth," "low net worth," and "high net worth" in analyses.

Control variables. Because of their potential influence on college graduation, several demographic, social, and economic variables of parents and youth are included as control variables in the analysis. Inclusion of these variables helps rule out omitted variable bias and possible alternative explanations of variance in the dependent variable.

The demographic controls of youth include age, gender, race/ethnicity, marital status, and parental status during college enrollment. Race is dummy coded (White, African American, and Hispanic), where White is the reference group in the regression analyses. Marital status is dummy-coded into two groups: ever married during enrollment (coded 1) and unmarried during enrollment (coded as 0). Similarly, parental status is measured with whether a youth had any child(ren) during the enrollment period (1 = yes, 0 = no). A youth's academic performance in high school is measured with his/her GPA in the last year of high school, i.e., whether a youth was an A/A- student or not with 1 = yes and 0 = no. Whether a youth enrolled as a full-time or part-time college student is also controlled (1 = full-time enrollment and 0 = part-time enrollment). Since only a small proportion of youth in the sample attended private college (about 3%), this variable is not included in regression analysis.

Parental controls include mother's educational status as of the year that the youth first enrolled in college, and poverty status of the youth's family. Mothers' education is measured with whether a mother ever attended or completed a college degree (i.e., at least 13 years of school completed), with 1 = yes and 0 = no. Family poverty status is measured with whether a family ever lived in poverty while the youth was enrolled in college (1 = yes, 0 = no).

Analysis

A logistic regression was conducted on college gradua-tion to examine associations between educational loans and credit card debt with a student's probability of graduating from college. To investigate whether the associations between loans/debt and youth's college graduation differ by the three levels of their family assets (no net worth, low net worth, and high net worth), separate logistic regression analyses were conducted with the sub-samples of each of these three groups.

Results

Sample Characteristics

Table 1 details weighted descriptive statistics of the study sample, as well as those by different levels of parental net worth. Of the 1,047 youth in the sample, about 18% were African American, 8% were Hispanic, and 74% were White. Their average age as of 2008 was 26. About 12% were married, and 14% had at least one child during college enrollment. About 31% of youth had a GPA of A or A- in their last year of high school. As expected, most of them (84%) enrolled full-time in public universities (95%). As of 2008, only about 37% of youth in the study sample had completed a Bachelor's degree. Regarding their parental/family characteristics, 18% of youth were from families who lived in poverty at some point during their first year of college enrollment (i.e., between 2000 and 2004), and about 27% of them were from families with negative or zero net worth; the median value of net worth was about $5,000 among the families with positive net worth. About 47% of youth's mothers attended at least some college, but only 15% had a Bachelor's degree or higher.

About 43% of the sample had educational loans, and 56% had credit card balances during college enrollment. Among those who had educational loans, the median loan value was $5,000 (mean value of $7,756); and among those who had credit card debt, the median debt value was $1,700 (mean value of $3,764).

Table 1: Sample Characteristics (Weighted)

Variables	Full Sample (N = 1047)	Negative/ Zero Net Worth (N = 288)	Net Worth < $50,000 (N = 384)	Net Worth ≥$50,000 (N = 375)
Youth Characteristics				
Age (2008)	26	26	26	25
Gender Female	56%	53%	61%	54%
Race/ethnicity				
White	74%	65%	64%	87%
African-American	18%	25%	28%	7%
Hispanic	8%	10%	8%	6%
Marital status during enrollment				
Married	12%	13%	15%	10%
Parental status during enrollment				
Having kids	14%	16%	21%	8%
High School GPA				
A/A	31%	23%	28%	37%
Institutional Characteristics				
Public university	95%	98%	97%	93%
Enrollment Status				
Full-time students	84%	77%	78%	90%
Educational status (2008)				
Having Bachelor's Degree	37%	22%	29%	51%
*Educational loans				
Having educational loans	43%	39%	46%	44%
Amount of educational loans	7756 (5000)	8304 (5000)	6384 (4400)	8839 (6000)
*Credit card debt				
Having credit card debt	56%	55%	59%	56%
Amount of credit card debt	3764 (1700)	4270 (2000)	3692 (1900)	3456 (1324)
Family Characteristics				
Mother's education				
Attended college or above	47%	43%	43%	51%
Poverty status				
Living in poverty	18%	35%	27%	5%
Household Net Worth				
Negative or zero	27%	100%	0	0
Low net worth	37%	0	100%	0
High net worth	36%	0	0	100%

*For the amount of educational loans and credit card debt, medians are reported in parentheses

Table 1 also shows differences in sample characteristics by parental financial assets: negative or zero net worth (27%); positive net worth lower than $50,000 ("low net worth"; 37%); and net worth equal to or above $50,000 ("high net worth"; 36%). Compared to youth whose families had net worth of $50,000 or above, those from families with negative/zero or positive net worth lower than $5,000 were more likely to be African American and also were more likely to be married and to have children while they were enrolled in college. Youth from families with no or low financial assets were less likely to be A/A- students in high school, and they were also less likely to graduate from college. It is not surprising that youth from families with no or low asset accumulation were more likely to live in poverty, and their mothers were less likely to have attended college themselves.

Regarding the prevalence and amounts of educational loans, youth from families with positive net worth below $50,000 were most likely to owe educational loans (46%), followed by those from families with net worth of $50,000 or above (44%), and those from families with negative or zero assets (39%). The pattern of the prevalence of credit card debt follows the pattern of educational loans, with the students from families with positive net worth of less than $50,000 being most likely to hold credit card debt (59%), followed by those from families with net worth of $50,000 or above (56%) and those from negative/zero asset families (55%). The finding of students from families with low to modest amount of assets being mostly likely to take out loans/debt probably indicates that this group of students is less likely to qualify for student financial aid compared to those with zero/negative family assets. However, among the borrowers, the median amount of loans and credit card balances of youth from families with negative/zero assets was higher than those with positive family assets of less than $5,000.

Educational Loans, Credit Card Debt, and Children's College Graduation

Table 2 presents the results from logistic regressions on college graduation. After controlling for other variables in the model, students with educational loans of $10,000 or above

Table 2. Unstandardized Coefficients and Odds Ratio from Logistic Regression: Models of Children's College Graduation

Independent & Control Variables	Coefficients (Odds Ratio)
Youth Characteristics	
Age	0.21*** (1.23)
Gender	
Female	0.27 (1.31)
Race/Ethnicity	
(White)	
African American	-0.49* (0.61)
Hispanics	-0.63** (0.53)
Marital Status	
Married	-0.99 (0.82)
Parent Status	
Having children	-1.43*** (0.24)
High School GPA	
A/A- Student	1.12*** (3.05)
Enrollment Status	
Full-Time Students	1.78*** (5.91)
Family Characteristics	
Mother's Education	
Mother Attended College	0.35* (1.42)
Poverty Status	
Living in Poverty	-0.09 (0.91)
Household Assets	
(Negative or Zero Net Worth)	
Low Net Worth (< $50,000)	0.20 (1.22)
High Net Worth (≥ $50,000)	0.81*** (2.24)
Educational Loans and Credit Card Debt	
Educational Loans	
(High Loans ≥ $10,000)	
No Loans	-1.62*** (0.20)
Low Loans (< $5,000)	-0.28 (0.76)
Middle Loans (Between $5,000 and $10,000)	0.45 (1.57)
Credit Card Debt	
(High Debt ≥ $5,000)	
No Debt	-0.45 (0.64)
Low Debt (< $5,000)	-0.24 (0.79)
X^2	301.97***
df	17
N	1047

Note: Categories in parentheses are reference groups.
* $p<.05$** $p<.01$*** $p<.001$

were more likely to graduate from college than those without such loans, but the possibility of their college graduation was not statistically different from that of students with loans of less than $10,000. Interestingly, the students who received loans of $10,000 or above were less likely to graduate compared to those who received loans of between $5,000 and $10,000 (although the relationship was not statistically significant). Therefore, it appears that having educational loans helped increase the probability of college graduation, but heavier loans might not help or may even undercut the chance of graduation.

Regarding the impact of credit card debt, the graduation rate of students with higher amounts of debt ($5,000 or more) was not statistically different from the graduation rate of those without credit card debt or those with credit card debt of less than $5,000. Further analysis indicates that before educational loans were entered into the model, the students with credit card debt of $5000 or above were more likely to graduate than those without such debt. Thus, it appears that the impact of credit card debt was "overshadowed" by that of educational loans. As mentioned earlier in the paper, the fact that credit cards could be used to pay for other expenses such as clothes and social activities may help explain their weaker impact on graduation than that of educational loans.

The findings among the control variables are as expected. Minority students and those with children in the household during enrollment were less likely to graduate. On the other hand, the students with high school GPA of A/A-, those who enrolled full-time in college, as well as those whose mothers attended/graduated from college and with higher family assets were more likely to graduate.

Separate Analyses by Levels of Parental Net Worth

To further examine whether the associations of educational loans and credit card debt with college graduation varied by parental assets, these relationships were examined separately by three different levels of family net worth: negative or zero net worth; positive net worth of less than $50,000; and net worth of more than $50,000 (Table 3).

Results indicate that, across all three groups, students with loans above $10,000 were more likely to graduate from college compared to those without loans, but the impact of

Table 3. Logistic Regression Models of College Graduation by Family Assets

	Model 1 (Negative or No Net Worth)	Model 2 (Net Worth below or at $50,000)	Model 3 (Net Worth Above $50,000)
Youth Characteristics			
Age	0.41*** (1.51)	0.14* (1.15)	0.23** (1.27)
Gender			
Female	0.50 (1.65)	0.99** (2.68)	-0.06 (0.94)
Race/Ethnicity (White)			
African American	-0.36 (0.70)	-1.06** (0.35)	-0.39 (0.67)
Hispanics	-0.56 (0.57)	-0.57 (0.57)	-0.73* (0.48)
Marital Status			
Married	-0.76 (0.47)	-0.62 (0.54)	0.37 (1.45)
Parent Status			
Having kid(s)	-1.87* (0.15)	-0.87* (0.42)	-2.42*** (0.09)
High School GPA			
A/A- Student	0.83 (2.30)	0.76* (2.13)	1.31*** (3.71)
Enrollment Status			
Full-Time Students	0.72 (2.04)	2.47*** (11.8)	1.91*** (6.76)
Family Characteristics			
Mother's Education			
Attended College	0.42 (1.52)	0.27 (1.31)	0.12 (1.12)
Poverty Status			
Living in Poverty	0.17 (1.19)	-0.09 (0.91)	-1.19 (0.30)
Educational Loans and Credit Card Debt			
Educational Loans (High Loans > = 10,000)			
No Loans	-2.45*** (0.08)	-2.03*** (0.13)	-0.83* (0.44)
Low Loans (< $5,000)	-0.61 (0.54)	-0.39 (0.67)	-0.19 (0.83)
Middle Loans ($5,000-$10,000)	-0.20 (0.82)	0.06 (1.06)	1.07* (2.91)
Credit Card Debt (High Debt ≥ $5,000)			
No Debt	0.19 (1.22)	-1.08* (0.34)	-0.25 (0.78)
Low Debt < $5,000	-0.05 (0.95)	-0.09 (0.91)	-0.48 (0.62)
X^2	96.38***	112.67***	120.16***
df	15	15	15
N	288	384	375

Note: Categories in parentheses are reference groups.* $p<.05$** $p<.01$***$p<.001$

educational loans was stronger among students from families with negative/zero assets or a lower amount of positive assets.

More specifically, among students from families with negative or zero net worth, those having loans of $10,000 or above were about 12 times more likely to graduate from college than those without loans; among students from families with net worth of less than $50,000, those having loans of $10,000 or above were 8 times more likely to graduate from college than those without loans; and among those with net worth of more than $50,000 those having loans of $10,000 or above were 2 times more likely to graduate from college than those without loans. The stronger impact of educational loans among lower-income students is consistent with previous findings, possibly due to the fact that loans are primary resources for their college education. However, compared to those with loans of $5,000 and $10,000, the positive impact of educational loans $10,000 or above diminished (among the low and middle asset groups) or became negative (among the high asset group), supporting the nonlinear assumption of loans.

After controlling for educational loans and other variables in the model, amount of credit card debt was only related to the probability of students from families with positive net worth below $50,000. This was possibly because this group of students had more credit card debt than other two groups.

Among the control variables, having children during enrollment was negatively related to college graduation for all three groups, which indicates that students who were parents may have faced unique challenges. Race/ethnicity was not related to college graduation among college students whose parents had negative or zero net worth, suggesting that racial disparities in youth's college graduation in the full sample may be explained by differences in parental assets.

Discussions and Conclusions

This study examines the extent to which educational loans and credit card debt are related to college graduation among a sample of youth who enrolled in college between 2000 and 2004 and who are from relatively disadvantaged backgrounds. Findings indicate that only about 37% of the students graduated from college, and the graduation rate was even lower among those from families with negative/zero net worth or lower levels of family assets (i.e., family net worth was lower

than $50,000). Among students whose parental net worth was above $50,000, the graduation rate was 51%. Results also indicate that a large proportion of youth had educational loans (43%) and credit card balances (56%) during their college enrollment, which supports the notion that these two types of loans were prevalent among college students from less advantaged families.

Regression analyses investigated two major research questions. First, the relationships of educational loans and credit card debt with college graduation rates were explored. Results support the hypothesis that the association between educational loans and college graduation is nonlinear, i.e., educational loans were positively related to college graduation, but only up to a point (in this analysis, around $10,000). The graduation rate among students who received educational loans of $10,000 or above was not different from the graduation rate among those who received loans of between $5,000 and $10,000. In other words, while lower levels of loans help college graduation by providing necessary resources, this positive impact is diminishing as loan amounts increase, possibly due to the stress associated with larger amounts of debt (e.g., Drentea & Lavrakas, 2000; Dwyer et al., 2012).

However, the impact of credit card debt on possibility of graduation is not statistically significant in the regression analysis of the full sample (Table 2). The weaker influence of credit card debt on college graduation could be due to differences in loan repayment and utilization. Different from educational loans, monthly repayment is required for credit card debt, and it may also be associated with high interest rates; therefore, credit card debt can produce more stress for borrowers than educational loans. Furthermore, while educational loans can only be used for educational expenses, credit cards can be used for other purposes, such as clothing and recreational activities.

Second, regression analyses also investigated whether the impact of educational loans and credit card debt on college graduation differs by levels of family financial assets. Results from subsample analysis (Table 3) indicate that while the nonlinear association holds for all three asset groups, educational loans seem to have a stronger positive impact for students from families with negative/zero or lower levels of financial assets (less than $50,000), compared to those from families

with assets above $50,000. This is consistent with previous literature indicating that educational loans might matter more for students from more disadvantaged backgrounds, because loans might be the primary financial resource on which they rely to complete college (e.g., Christie & Munro, 2003; Dwyer et al., 2012).

It appears that credit card debt helps college graduation only among the students whose families with positive net worth of below $50,000, after controlling for educational loans and other variables in the model. What could help explain this finding? Among the three asset groups, this group of students may have the most need to rely on debt to finance their college expenses because their family assets are less than the higher assets group; but in the meantime, they might be less likely to qualify for certain types of need-based financial aid than those with negative/zero family assets. This is reflected in the highest amount of educational loans and credit card debt of this group (see Table 1).

Several findings among the control variables are worth mentioning. Parental net worth was a strong positive predictor of college graduation. More specifically, students whose family net worth was $50,000 or above were more than two times more likely to graduate from college compared to the students whose families had negative or zero net worth. But the graduation rate of students whose parental net worth was positive but below $50,000 was not different from the graduation rate of students whose families had negative/zero net worth. This result indicates the "threshold effects" of family assets on college education, i.e., assets need to reach a "threshold" amount to have a positive impact. Among other control groups, high school GPA was positively related to college graduation; thus, academic readiness matters. Presence of children in the household during college enrollment and being a minority student were negatively related to college graduation, indicating that these students might need additional help to finish college.

Limitations

A few limitations of this study should be noted, and these, in turn, point to useful directions for future research. First, longer-term impacts of educational loans, such as graduate

school attendance and post-collegiate career choices, need to be examined. Previous studies (e.g., Nam & Huang, 2009) indicate that unsecured debt might have different short-term vs. long-term impacts on college education. This differential impact needs to be evaluated for educational loans and credit card debt, especially since college students are often burdened with educational loans and other types of debt upon graduation (Lewin, 2009; Steele & Baum, 2009), and such debt burden might have an impact on many other important decisions after college (e.g., purchase of a home) (Long & Riley, 2007). While limited research has examined the effect of educational debt on post-graduation plans (Monks, 2001) or job decisions (Minicozzi, 2005), such impact has not been examined in the context of family economic circumstances of college students/graduates.

Second, further analyses need to investigate the mechanisms (both financial and attitudinal) through which educational loans and credit card debt influence college graduation. Such analyses also could help understand differential impact of loans/debt on college graduation for youth from different family backgrounds, including families with different levels of financial assets accumulation.

Implications

With the soaring cost of college education, it has become more daunting for college students and their families, especially those with limited economic resources, to pay for their college education. The current study, consistent with previous research, indicates that a large proportion of college students rely on educational loans and credit card debt to pay for college. While this study indicates that educational loans increase the probability of college graduation for college students, there is also evidence that large loans ($10,000 or above) might undermine their graduation possibilities. Thus, addressing unmet financial needs for college students through additional educational loans and other debt is counterproductive, especially also given the consideration of the long-term negative impact of educational loans on the financial health of borrowers (e.g., Elliott & Nam, 2013; Hiltonsmith, 2013).

Therefore, instead of focusing more on loans and debt as a way to finance college education, a helpful approach could

be enhancing opportunities for students and their families to prepare early on financially for their college education and to be self-reliant. One such strategy is to include financial asset accumulation as a long-term investment strategy to enhance college access and graduation and to help reduce the debt burden, especially for those from families with limited income and financial assets. Some examples in this regard include college savings plan, or 529 plans, a broadly available and promising vehicle to facilitate college savings (Lassar, Clancy, & McClure, 2011), as well as Child Development Accounts, incentivized accounts that encourage households to save for children's higher education (Beverly, Elliott, & Sherraden, 2013). Consistent with findings from emerging research that examines the effects of household assets and youth savings on college education, this study indicates that parental assets are a strong predictor of college graduation. Perhaps more importantly, since studies have suggested that the benefits of assets accumulation on education could be long-term and go beyond economic benefits (Elliott et al., 2011), an asset-based approach to financial aid has the potential to improve college graduation rates, especially for those from low-income and asset-poor families.

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