National Trends in Federal Student Loan Borrowing by Income Group and First-Generation Status

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This paper is from the 2018 NCES Data Institute. For more information, visit: https://bit.ly/2YmfHaL

The AIR Professional File, Spring 2020

Article 148

Acknowledgment of Support and Disclaimer

Authorship order was determined alphabetically. We thank Dr. Nicholas Hillman for his encouragement and guidance. We also thank seminar participants at the NCES Data Institute, current and former staff with the National Center for Education Statistics and the Association for Institutional Research, particularly Sean Simone for sharing his knowledge of National Postsecondary Student Aid Study survey changes over time, as well as Tinsley Smith and Conor Griffiths for their enthusiastic support. This material is based on work supported by the Association for Institutional Research and the National Center for Education Statistics. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the Association for Institutional Research and the National Center for Education Statistics.

Abstract

Students are increasingly likely to use student loans to finance their postsecondary education. This article examines how students' use of federal loans changed from 2000 to 2016 by students'

https://doi.org/10.34315/apf1482020

family income group and parental education level[1]. We use logistic regression analysis and nationally representative data from the National Postsecondary Student Aid Study. We find that the odds of a student taking out a loan have converged over time across family income groups and across parental education levels, even after controlling for institutional sector and student demographic characteristics. Low-to-moderate-income students are now just as likely to borrow as are low-income students; likewise, continuing-generation college students are just as likely to borrow as are first-generation college students. Converging borrowing behavior across student groups has important implications for how we measure and benchmark college affordability.

Keywords: student loan, debt, income, first-generation

INTRODUCTION

College affordability has become a defining issue for students, advocates, and policymakers (Goldrick-Rab, 2016). Evolving policies surrounding financial aid, disinvestment of states from higher education, and increasing participation of low-income students in postsecondary education have shifted the ways students pay for college (Akers & Chingos, 2016). Whereas eligible students once received grants to offset college costs, students today often borrow federal student loans to supplement grant aid and their own financial resources. The impact of these changes has led to postsecondary students borrowing at unprecedented rates.

Within the United States, student borrowing has reached record levels, recently surpassing $1.59 trillion, with the average student loan debt per household tripling over the past 20 years (Board of Governors of the Federal Reserve, 2019). In 2017, nearly two out of three (65%) graduating undergraduate students took out student loans, with an average debt per student of $28,650 (The Institute for College Access & Success [TICAS], 2018). Disaggregated data show that low-income students are more likely to borrow, and they subsequently graduate with higher debt burdens. In 2011–2012, 55% of bachelor's degree recipients from the highest family income quartile graduated with student loan debt, compared to 79% of those from the lower half of the income distribution (Baum, Elliott, & Ma, 2014). These statistics highlight the growing imbalance among students who need to borrow and those who do not. Furthermore, the average amount borrowed among 2016 college graduates receiving a Pell Grant, a frequently used proxy for low-income status (Soria, 2018), was $31,200, while first-generation college students borrowed approximately $26,700 (TICAS, 2019). This $4,500 difference illustrates that borrowing patterns among these seemingly monolithic groups are more heterogeneous than the extant literature often treats them.

In this article, we examine how borrowing patterns have changed for students from different family income groups and by parental education level across almost two decades. More specifically, we use nationally representative data from the National Postsecondary Student Aid Study (NPSAS) to understand how the odds of borrowing have changed and the extent to which average loan amounts changed among undergraduate students from 2000 to 2016. The following two research questions guided our study:

1. The term "parental education level" refers either to students whose parents have completed at least a bachelor's degree (i.e., continuing-generation college students) or to students whose parents have no college (i.e., first-generation college students). We use the terms "parental education level," "parents' highest education level," and "generational status" interchangeably within this article.

Framing Questions

1| How have the odds of a student taking out a loan changed from 2000 to 2016 among undergraduates across family income groups, and by first-generation college student status?

2| How has the average amount of student loans among undergraduate borrowers changed from 2000 to 2016 across family income groups and first-generation status among undergraduate borrowers?

We find that, between 2000 and 2012, and irrespective of family income group and parental education level, students were increasingly more likely to take out student loans over time. And, although the share of students borrowing fell between 2012 and 2016, students are still borrowing at higher rates than in the past. Results highlight that by 2016, the borrowing rates of low-to-moderate-income students were indistinguishable from the borrowing rates of low-income students. Similarly, continuing-generation college students are just as likely to take out student loans as first-generation college students. The convergence in borrowing patterns across these student groups illustrates a fundamental shift in student financing of higher education: Students across all family income groups increasingly borrow to cover the costs of college, with lower-income students taking on greater loan burdens relative to their higher-income peers.

Before presenting our results in detail, we first situate our work within the broader empirical literature on student borrowing and describe our data and methods. We then discuss the implications of our work and propose questions for institutional researchers, academic leaders, and policymakers to consider in their decision-making.

LITERATURE REVIEW

Escalating college costs have widespread implications, especially for students from low-income backgrounds and/or those from first-generation households that already face a myriad of barriers on the pathway to college (Ardoin, 2017; Goldrick-Rab, 2016; Hillman, Gast, & George-Jackson, 2013; Roderick, Nagaoka, Coca, & Moeller, 2009). High college costs, both perceived and actual, can have important effects on students' decisions whether to attend college and, if so, which college to attend (Dynarski, Libassi, Michelmore, & Owen, 2018). The prospect of needing to borrow can even deter some students' participation in higher education altogether (Boatman, Evans, & Soliz, 2017). Identifying why and how borrowing has increased over time is paramount to understanding how students participate and succeed in higher education. In this section we summarize why student borrowing has increased; how borrowing affects students before, during, and after college; and who is most affected by student debt.

Why Student Borrowing Has Increased

The growth in student borrowing over time has been attributed to a number of political, economic, and social conditions. These changes include evolving policies surrounding financial aid, divestment of states from higher education, and increasing participation in postsecondary education, especially among low-income students and racially minoritized students, both of whom tend to have greater financial need (Akers & Chingos, 2016; Baum, 2016; Gordon & Hedlund, 2019; McMillan Cottom, 2017).

EVOLVING POLICIES SURROUNDING FINANCIAL AID

Financial aid programs have a long history in the U.S. postsecondary system; the Higher Education Act of 1965 developed student grant aid and low-interest loan programs, such as the Educational Opportunity Grant program and the Federal Family Education Loan program. As a result of these programs, college attendance became a viable option for low-income students. Although these early financial aid policies concerned need-based grant aid, as the cost of college began to rise in the mid- to late-1970s policies shifted to expand access to loans. For example, the Middle Income Student Assistance Act of 1978 removed income restrictions for unsubsidized loans, thereby expanding the federal student loan program to moderate-income students.

Amendments to the Higher Education Act in 1992 led to the expansion of non-need-based loan programs, particularly through the creation of the Free Application for Federal Student Aid (FAFSA), the Direct Loan pilot program, unsubsidized Stafford loans, and elevated borrowing limits (Gladieux, 1995). Policy changes in the early 2000s decreased loan fees, increased loan limits, amended interest rates, shifted the disbursement of federal loans from the Federal Family Education Loan program to the Direct Loan program, and increased the maximum federal Pell Grant award. By 2012, total education loan debt exceeded total auto loan debt for the first time, surpassing the $1 trillion mark (FinAid, 2010). In 2016, 83% of students participated in federal financial aid programs, and 46% of full-time, first-time degree- or certificate-seeking undergraduate students were awarded student loans as part of their aid (National Center for Education Statistics [NCES], 2017).

DIVESTMENT OF STATES FROM HIGHER EDUCATION

Increased rates of borrowing can also be attributed to growing college costs, especially as a result of the relative decline of public investment in higher education over time (Akers & Chingos, 2016). Between 2007 and 2017 state funding for higher education decreased 8% per full-time enrolled student, with an 11% decrease since 1987 (adjusted for inflation; College Board, 2019). Shrinking state appropriations have led to institutions' growing reliance on private money, which accounts for increases in tuition and fees (Curs & Singell, 2010; Kelchen, 2016).

INCREASING PARTICIPATION IN POSTSECONDARY EDUCATION, ESPECIALLY AMONG LOW-INCOME AND RACIALLY MINORITIZED STUDENTS

In addition to shifts in policy and fiscal support, the large debt total can also be attributed to increased participation in higher education over time, both in terms of total enrollment and in terms of recent growing student diversity (Snyder, de Brey, & Dillow, 2019). Although high-income students and white students have historically participated in college at higher rates than low-income students and racially minoritized students, these enrollment gaps have been closing over time, with economically and racially diverse students all relying more heavily on loans to meet high college costs (Chan et al., 2019; Goldrick-Rab, 2016).

How Borrowing Affects Students Before, During, and After College

As more students incur educational debt, it is

important for policymakers to understand the effects of loans on students during and after college. Although identifying these effects can be methodologically challenging due to inherent differences between borrowers and non-borrowers, the evidence associates borrowing with adverse long-term economic outcomes for students (Akers & Chingos, 2016; Baum, 2016).

In 2015, more than a million students defaulted on federal direct loans (Perna, Kvaal, & Ruiz, 2017). Students who do not complete a college credential and those who attend for-profit institutions are more likely than their peers to default on student loans (Looney & Yannelis, 2015; Perna et al., 2017). Financially independent, first-generation, and racially minoritized students are also more likely to have difficulty repaying loans, as measured by default rates, negative amortization rates, and repayment rates (Looney & Yannelis, 2015). Additionally, while research demonstrates mixed results for each of these outcomes, at least some quasi-experimental work has found that debt negatively affects graduate school attendance for students who attended public institutions (Zhang, 2013); deters graduates from lower-paying, public-interest careers in nonprofit, government, and education sectors (Field, 2009; Rothstein & Rouse, 2011); and is negatively associated both with being married and having children (Velez, Cominole, & Bentz, 2019), and with home ownership (Bleemer, Brown, Lee, Strair, & van der Klaauw, 2017; Mezza, Ringo, Sherlund, & Sommer, 2016).

Who Is Most Affected by Student Debt

Given that not all students borrow equal amounts, the negative effects of borrowing are most likely to be seen among those who borrow the most. Examining how borrowing varies across student groups and how those differences change over time is one way to ascertain whether college is unaffordable, and for whom.

Generally, lower-income students are more likely than their higher-income peers to borrow (Hillman, 2015). Similarly, first-generation college students are also more likely to borrow compared to their continuing-generation peers (Furquim, Glasener, Oster, McCall, & DesJardins, 2017; Houle, 2014). Parents with undergraduate degrees may be better able to help their child navigate complicated financial aid processes and to promote college-going behavior (McDonough, 1997). Students' socioeconomic background and institutional price may also inform observed differences in college choice and resulting borrowing behaviors.

Using the National Longitudinal Study of Youth 1997 (U.S. Bureau of Labor Statistics, 1997), Houle (2014) found that institutional price moderates the likelihood and level of borrowing. Students' family income and parental education levels more strongly predict borrowing behavior at higher-cost institutions. Too, although socioeconomically advantaged and continuing-generation students are more likely to borrow in order to attend selective and elite institutions, socioeconomically disadvantaged and first-generation college students are more likely to enroll in institutions with lower completion rates, such as public 2-year colleges and costly for-profit institutions (Cataldi, Bennett, & Chen, 2018; Looney & Yannelis, 2015; McMillan Cottom, 2017).

Although there is a need for additional research on the short- and long-term effects of borrowing, better understanding the differences in borrowing behavior across student groups may be one step toward addressing the lower educational attainment rates of low-income and first-

generation college students. This article builds on the existing literature on borrowing differences across students' socioeconomic status by using a nationally representative sample to explore how the amounts borrowed and the odds of borrowing for more socioeconomically disadvantaged and first-generation college students have changed over time (i.e., from 2000 to 2016).

DATA AND METHODS

To address our research questions, we analyze trends in undergraduate borrowing using publicly available data from the NPSAS through the NCES DataLab PowerStats tool. NCES DataLab allows users to conduct research and access results on unit record NCES data sets such as NPSAS without the need to obtain a restricted-use license. The DataLab has three analytic tools—QuickStats, PowerStats, and TrendStats. For this analysis we used PowerStats, a tool that allows users to generate descriptive analysis, correlation matrices, and regression analysis. Specifically, we used the logistic regression function to identify whether students' family income group and parental education level predict a student's likelihood of borrowing.

NPSAS is a survey administered every four years by NCES to a nationally representative sample of undergraduate and graduate students to collect data on financial aid. NPSAS uses a cross-sectional complex survey design, first collecting data from a sample of institutions eligible for Title IV federal funding, then collecting data on a sample of enrolled students from these institutions. Data come from institutional records, the National Student Loan Data System, and other administrative sources. Due to its use of administrative instead of self-reported data, NPSAS is one of the most accurate and comprehensive sources of student financial aid data (Brown, Haughwout, Lee, & van der Klaauw, 2011). In 2018, NCES began conducting administrative waves of NPSAS in 2-year cycles to supplement the 4-year administrations.

To explore how the likelihood of a student taking out a federal loan has changed over time across student groups, we conducted logistic regression using a binary measure of whether a student takes out a federal Title IV loan (excluding PLUS Loans, which are student loans available to the parents of dependent students) as our outcome, using data from NPSAS surveys administered to undergraduates in 2000, 2004, 2008, 2012, and 2016. Similar to all regression analyses, logistic regression can identify an association between predictors and outcomes while controlling for all other covariates. Logistic regression is useful when an outcome variable is binary and analyzes whether predictors are associated with the binary outcome.

In our analysis we look at how demographic characteristics, such as a student's financial dependency or parental education level, change their likelihood of borrowing over time. First, we categorized students into four income categories: low-income (family income $29,999 or less in the survey year), low-to-moderate income ($30,000–$59,999), moderate-to-high income ($60,000–$99,999), and high income (family income of $100,000 or more). We categorize students as first-generation if they report that the highest parental education level was, "did not complete high school," "high school diploma or equivalent," or "vocational or technical training." We categorize students who report other parental education levels, such as, "less than 2 years of college," "associate's degree," and "higher levels", as continuing-generation students in order to maintain consistency across each survey administration.[2] Students are defined as financially independent for the purposes of federal student aid if they are 24 years of age or older, have legal dependents, are

married, are a veteran or active duty member of the armed forces, are emancipated minors, or were in foster care when 13 years of age or older, among other possible criteria. Additionally, we also control for race/ethnicity and institutional sector enrolled.

FINDINGS

Table 1 shows the average amount of Title IV loans borrowed and the percent of students who borrowed federal funds over the past five NPSAS administrations by family income, race/ethnicity, institution type, dependency status, and generational status. The number of students borrowing federal funds has increased over time, with 28% of students borrowing in 2000 and 36% of students borrowing in 2016. These changes are not isolated to students from the lowest income category. For example, in 2000, 25% of moderate-to-high-income students borrowed, compared to 37% in 2016. Borrowing increased even more dramatically among high-income students, with the share of students borrowing nearly doubling from 2000 to 2016.

Across NPSAS waves, the average amount borrowed increased from $4,211 to $6,729. The average amount among borrowers has continuously increased across income categories, with the largest increase occurring between the 2008 and 2012 NPSAS surveys. Importantly, the average amount borrowed among low-income students increased at a faster rate compared to high-income students between 2012 and 2016. First-generation college students borrowed similar amounts to continuing-generation college students from 2000 to 2012, but in 2016, first-generation college students borrowed about $250 more on average than continuing-generation college students.

In Table 2, we estimate how race/ethnicity, income, sector attended, financial dependency status, and parents' highest education level affect the likelihood of students borrowing over time. All other family income groups are less likely to borrow compared to low-income students (reference group), although borrowing rates converge over time (Figure 1). In 2000, the odds of borrowing for low-income students were 2.5 times greater than the odds of borrowing for moderate-to-high-income students; by 2016 the odds of borrowing for low-income students had fallen to 1.25 times greater. Similarly, compared to low-to-moderate-income students, the odds of borrowing for low-income students were 1.6 times higher in 2000 than in 2016. These differences in borrowing rates closed over time, such that by 2016, low-to-moderate-income students had similar odds of borrowing as their low-income peers. Similarly, whereas in 2000, the odds of borrowing for first-generation college students were 1.3 times higher compared to continuing-generation students, these two groups of students borrowed at similar rates in 2016. Although these main predictors of socioeconomic disadvantage show a converging trend, it is important to emphasize that the overall probability of borrowing for our reference group (dependent, first-generation, white, low-income students attending a public 4-year institution) fell between 2012 and 2016 (Figure 2). It is also important to note that the likelihood of borrowing appears to diverge from 2000 to 2016 across students' race/ethnicity. Compared to white students, Black students have higher, and continually increasing, odds of borrowing. Asian and Hispanic students, conversely, have lower, and continually declining, odds of borrowing relative to their white peers.

2. Parental education levels were determined through student interviews. For interview nonrespondents, students' financial aid applications were used to fill in parental education levels. The financial aid application uses fewer categories (e.g., less than high school, high school, college) for parental education level than the student interview. Because information on higher levels of parental education, such as bachelor's degree, master's degree, first professional degree, and research and professional doctoral degrees, varies across survey years and whether the information is derived from the student interview or financial aid application, we focus on the difference between first-generation college students and continuing-generation college students.

Table 1. Average Amount Borrowed via Title IV Loans (excluding PLUS Loans) and Percent of Students Borrowing Title IV Loans by Family Income, Race/Ethnicity, Institution Type, Dependency Status, and Generational Status, 2000–2016

	2000		2004		2008		2012		2016	
	$	%	$	%	$	%	$	%	$	%
Family Income										
Low-income	4,492.11	32.93	4,791.98	36.71	5,433.66	40.03	6,578.20	43.90	7,033.65	36.47
	(31.35)	(0.39)	(31.99)	(0.51)	(26.89)	(0.34)	(26.66)	(0.37)	(31.42)	(0.28)
Low-to-moderate income	4,074.08	25.85	4,464.12	32.87	5,181.75	34.25	6,489.61	39.50	6,760.92	37.65
	(34.08)	(0.41)	(33.43)	(0.47)	(37.03)	(0.38)	(48.93)	(0.48)	(55.36)	(0.47)
Moderate-to-high income	3,858.49	24.95	4,085.94	30.01	4,753.77	33.68	6,293.89	37.47	6,426.57	37.14
	(45.27)	(0.54)	(43.88)	(0.7)	(40.06)	(0.47)	(48.49)	(0.77)	(52.64)	(0.52)
High income	3,848.42	18.64	3,911.47	23.41	4,471.85	26.85	6,204.69	33.51	6,192.89	34.57
	(73.48)	(0.79)	(51.79)	(0.75)	(35.27)	(0.45)	(45.93)	(0.57)	(39.45)	(0.48)
Race/Ethnicity										
White	4,197.74	27.69	4,462.88	32.53	5,019.26	34.66	6,422.70	40.07	6,664.08	37.58
	(25.27)	(0.32)	(27.05)	(0.55)	(22.31)	(0.28)	(25.72)	(0.32)	(27.13)	(0.36)
Black or African American	4,264.18	34.82	4,648.30	40.66	5,372.53	45.45	6,691.46	50.72	6,953.85	49.21
	(76)	(1.69)	(74.91)	(1.65)	(50.01)	(0.92)	(57.27)	(0.82)	(53.21)	(0.76)
Hispanic or Latino	4,204.84	24.66	4,349.21	28.68	5,199.69	30.93	6,350.16	34.08	6,642.96	28.79
	(105.05)	(1.26)	(60.9)	(0.92)	(56.23)	(0.72)	(63.89)	(0.84)	(66.53)	(0.6)
Asian, Native Hawaiian, or other Pacific Islander	4,292.42	21.04	4,431.97	22.23	5,016.17	23.22	6,276.83	27.69	6,670.17	21.36
	(120.01)	(1.23)	(93.5)	(0.93)	(101.27)	(1.05)	(105.89)	(1.02)	(121.6)	(0.81)
American Indian or Alaska Native	3,813.00	22.69	4,667.85	29.03	4,713.70	32.29	5,998.10	40.98	6,425.67	29.49
	(287.67)	(3.1)	(237.8)	(3.74)	(392.38)	(3.63)	(248.95)	(2.95)	(409.57)	(2.64)
Other	4,230.70	21.95	4,530.46	32.96	5,010.48	31.45				
	(173.86)	(2.28)	(157.02)	(2.04)	(329.82)	(3.55)				
More than one race	4,252.78	24.79	4,498.00	32.96	5,446.41	38.54	6,618.27	44.06	6,882.75	39.75
	(155.28)	(1.53)	(141.61)	(1.37)	(139.11)	(1.4)	(118.59)	(1.4)	(130.51)	(1.55)
Institution Type										
Public 2-year institution	2,950.18	4.98	3,066.31	8.52	3,677.87	10.25	4,681.01	16.68	4,724.33	12.92
	(63.18)	(0.12)	(135.85)	(0.21)	(45.71)	(0.11)	(48.11)	(0.22)	(40.29)	(0.15)
Public 4-year institution	4,110.35	39.79	4,590.30	44.17	5,178.92	43.04	6,587.23	48.04	6,743.82	45.02
	(35.02)	(0.29)	(32.33)	(0.32)	(28.86)	(0.15)	(22.92)	(0.23)	(28.16)	(0.24)
Private not-for-profit 4-year institution	4,687.59	51.97	4,845.48	55.35	5,598.04	56.80	7,108.48	59.69	7,195.16	54.94
	(46.32)	(0.62)	(48.07)	(0.52)	(42.82)	(0.38)	(43.01)	(0.37)	(37.55)	(0.35)
Private for-profit institution	4,462.93	76.14	4,704.73	76.69	5,383.56	81.75	7,025.94	70.78	7,783.79	62.32
	(108.66)	(1.24)	(81.27)	(0.6)	(73.53)	(0.63)	(20.19)	(0.19)	(41.74)	(0.63)
Attended more than one or other institution types	4,094.98	33.23	4,370.18	33.39	5,030.34	40.69	6,473.00	45.96	6,715.38	45.75
	(55.11)	(0.92)	(137.42)	(0.86)	(50.33)	(0.59)	(53.96)	(0.97)	(52.51)	(1.07)
Dependency Status										
Dependent student	3,763.01	34.52	3,920.22	36.72	4,539.16	36.90	5,832.40	41.40	5,966.16	40.35
	(25.35)	(0.37)	(22.32)	(0.44)	(22.01)	(0.27)	(23.94)	(0.29)	(24.44)	(0.24)
Independent student	4,933.17	21.00	5,230.30	28.37	5,794.67	33.07	7,099.49	39.04	7,699.81	32.46
	(44.45)	(0.31)	(33.72)	(0.33)	(25.53)	(0.26)	(30.45)	(0.3)	(33.83)	(0.24)
Generational Status										
No college	4,185.87	33.09	4,498.74	33.53	5,179.76	36.94	6,483.26	42.92	6,905.81	33.50
	(29.58)	(0.41)	(30.06)	(0.34)	(26.53)	(0.33)	(30.83)	(0.34)	(48.78)	(0.4)
College	4,197.97	31.75	4,477.78	31.87	5,076.82	33.68	6,474.40	38.47	6,659.69	37.76
	(24.6)	(0.34)	(32.11)	(0.3)	(19.3)	(0.23)	(25.39)	(0.25)	(23.49)	(0.21)
Overall										
	4,211.21	27.69	4,485.64	32.58	5,115.96	35.04	6,463.71	40.19	6,728.59	36.46
	(14.36)	(0.1)	(22.35)	(0.14)	(11.09)	(0.08)	(15.48)	(0.1)	(14.43)	(0.09)

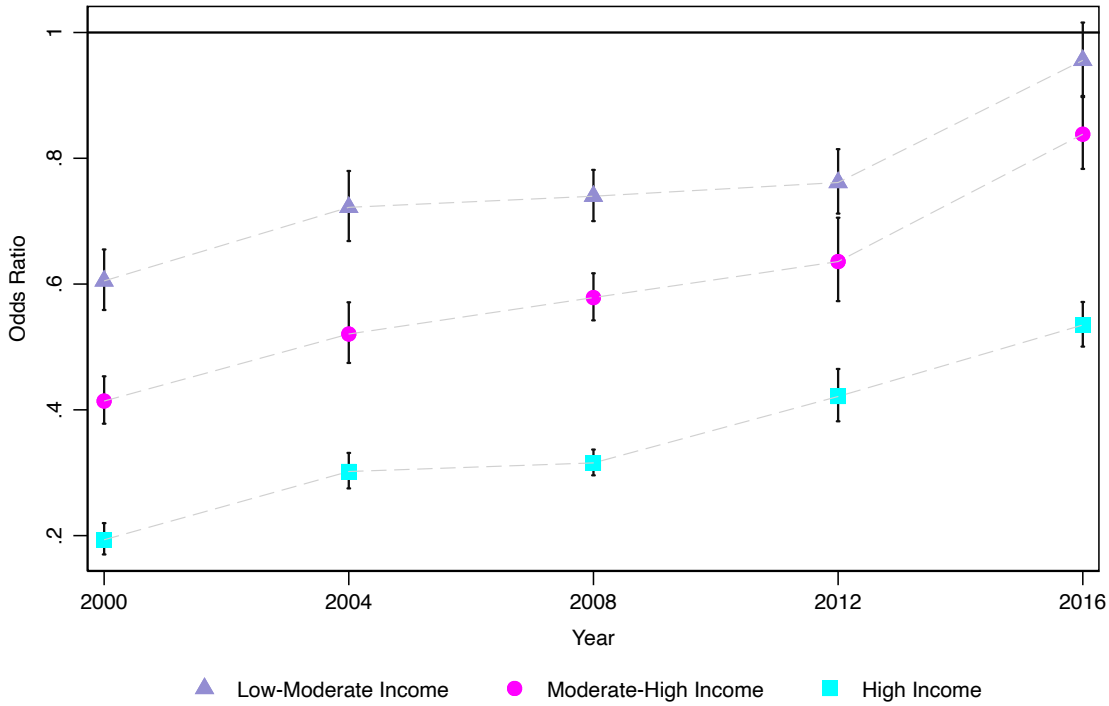
Notes: Estimates were generated using the U.S. Department of Education, National Center for Education Statistics, PowerStats Tool. Standard errors using balanced repeated replicate (BRR) weights are reported in parentheses. Average amount borrowed excludes non-borrowers. The sample includes students enrolled at a Title IV–eligible institution, but not located in Puerto Rico. The sample was created using the COMPTO87 and T4ELIG variables. Sample sizes were unavailable for the selected subsample. Race/ethnicity is based on the NPSAS variable RACE (RACE2 used in 2000 data). RACE categories have changed across NPSAS administrations. Estimates are reported for "Asian, Native Hawaiian or Pacific Islander" across all years for consistency across administrations. The "other" race category was removed from the survey in NPSAS:12 and NPSAS:16. Furthermore, students were able to self-identify as Hispanic or Latino in addition to another race (e.g., white or black) in all survey years. Institutional sector is based on variable SECTOR4 in all years. Two- and four-year for-profit institutions are categorized together. Other covariates are based on variables DEPEND and CINCOME. Income levels are defined as low: $29,999 or less; low to moderate: $30,000 to $59,999; moderate to high: $60,000 to $99,999; and high: $100,000 and above.

Table 2. Logistic Regression on Student Borrowing from NPSAS, by Wave

	2000 Odds-Ratio	2004 Odds-Ratio	2008 Odds-Ratio	2012 Odds-Ratio	2016 Odds-Ratio
Race/Ethnicity (Reference Group: White)					
Black	1.32***	1.36***	1.38***	1.41***	1.59***
	[1.13, 1.55]	[1.17, 1.58]	[1.28, 1.48]	[1.31, 1.53]	[1.47, 1.72]
Hispanic	0.77***	0.76***	0.68***	0.70***	0.68***
	[0.69, 0.86]	[0.69, 0.85]	[0.64, 0.73]	[0.63, 0.77]	[0.63, 0.73]
Asian/Pacific Islander	0.57***	0.51***	0.47***	0.46***	0.38***
	[0.49, 0.67]	[0.46, 0.56]	[0.42, 0.52]	[0.42, 0.51]	[0.34, 0.43]
American Indian/Alaskan Native	0.83	0.99	0.92	0.81~	0.80
	[0.54, 1.26]	[0.73, 1.35]	[0.68, 1.24]	[0.63, 1.02]	[0.59, 1.08]
Other	0.50***	0.89	0.71~	—	—
	[0.38, 0.66]	[0.73, 1.08]	[0.48, 1.06]	0	0
More than one race	0.77***	1.00	1.07	1.15*	1.10
	[0.63, 0.94]	[0.87, 1.14]	[0.92, 1.25]	[1.00, 1.32]	[0.96, 1.27]
Income (Reference Group: Low-Income)					
Low-to-moderate income	0.61***	0.72***	0.74***	0.76***	0.96
	[0.56, 0.66]	[0.67, 0.78]	[0.70, 0.78]	[0.71, 0.81]	[0.90, 1.02]
Moderate-to-high income	0.41***	0.52***	0.58***	0.64***	0.84***
	[0.38, 0.45]	[0.47, 0.57]	[0.54, 0.62]	[0.57, 0.71]	[0.78, 0.90]
High income	0.19***	0.30***	0.32***	0.42***	0.53***
	[0.17, 0.22]	[0.28, 0.33]	[0.30, 0.34]	[0.38, 0.47]	[0.50, 0.57]
Sector Attended (Reference Group: Public, 4-Year)					
Private nonprofit 4-year institution	0.08***	0.11***	0.14***	0.19***	0.18***
	[0.08, 0.09]	[0.11, 0.12]	[0.13, 0.14]	[0.19, 0.20]	[0.17, 0.18]
Public 2-year institution	1.96***	1.67***	1.90***	1.69***	1.55***
	[1.81, 2.12]	[1.57, 1.77]	[1.83, 1.98]	[1.62, 1.77]	[1.49, 1.61]
Private for-profit institution	5.14***	4.05***	5.81***	2.32***	2.06***
	[4.31, 6.14]	[3.68, 4.45]	[5.29, 6.37]	[2.22, 2.43]	[1.93, 2.21]
Attended more than one or other types	0.67***	0.66***	0.93***	0.91~	1.05
	[0.61, 0.74]	[0.61, 0.71]	[0.88, 0.98]	[0.83, 1.00]	[0.96, 1.15]
Financial Dependency Status (Reference Group: Dependent)					
Independent	0.45***	0.54***	0.58***	0.67***	0.62***
	[0.42, 0.48]	[0.51, 0.57]	[0.55, 0.61]	[0.62, 0.72]	[0.59, 0.65]
Parents' Highest Education Level (Reference Group: No College)					
College	0.75***	0.79***	0.81***	0.78***	1.04
	[0.70, 0.80]	[0.76, 0.84]	[0.78, 0.85]	[0.74, 0.82]	[0.98, 1.09]
N	39,300	75,300	107,300	90,200	87,400
Pseudo R^2	0.2462	0.2187	0.2249	0.1516	0.1456

*Notes: ~ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001.* Estimates were generated using the U.S. Department of Education, National Center for Education Statistics, PowerStats Tool. The 95% confidence intervals are reported in brackets. The sample includes students enrolled at a Title IV–eligible institution, but not located in Puerto Rico. The sample was created using the COMPTO87 and T4ELIG variables. Sample sizes represent a coarsened number of cases. Race/ethnicity is based on the NPSAS variable RACE (RACE2 used in 2000 data). RACE categories have changed across NPSAS administrations. Estimates are reported for "Asian, Native Hawaiian or Pacific Islander" across all years for consistency across administrations. The "other" race category was removed from the survey in NPSAS:12 and NPSAS:16. Furthermore, students were able to self-identify as Hispanic or Latino in addition to another race (e.g., white or black) in all survey years. Institutional sector is based on variable SECTOR4 in all years. Two- and four-year for-profit institutions are categorized together. Other covariates are based on variables DEPEND and CINCOME. Income levels are defined as low: $29,999 or less; low to moderate: $30,000 to $59,999; moderate to high: $60,000 to $99,999; and high: $100,000 and above.

Figure 1. Odds of Borrowing Over Time Relative to Low-Income Students, 2000–2016



Notes: This figure plots the estimated odds of borrowing for dependent, first-generation, white undergraduates attending a public 4-year institution by family income group, relative to the odds of borrowing for low-income students (set to 1 across all years). The 95% confidence intervals are represented by the vertical lines.

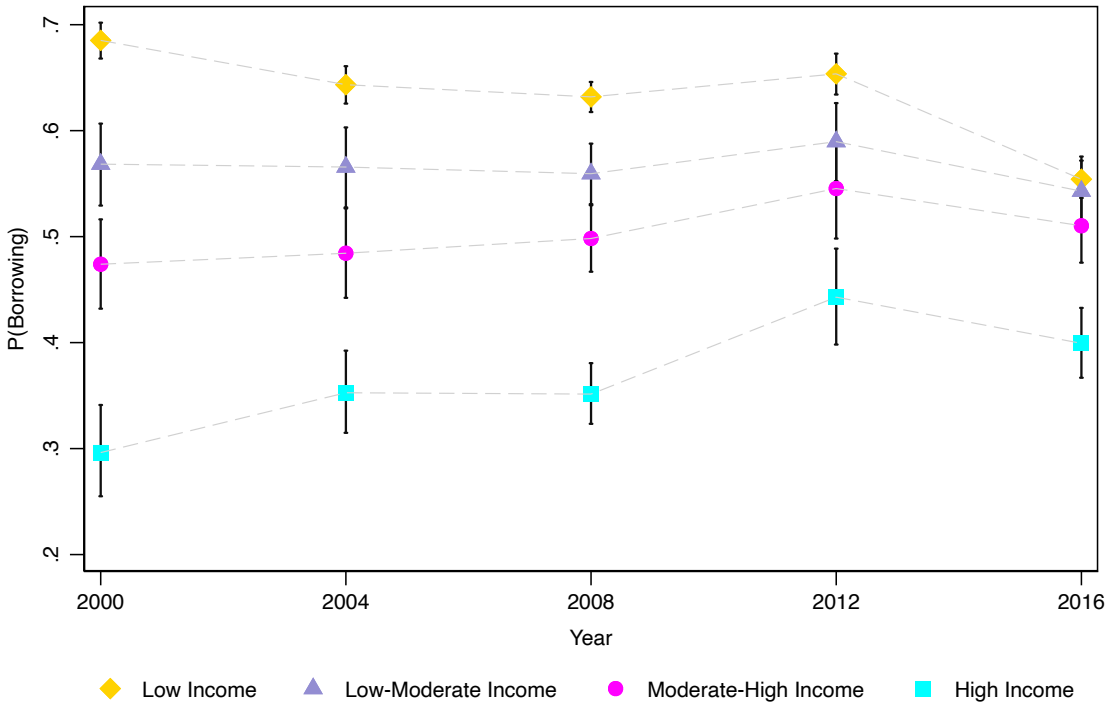
Taken together, these results suggest that students are not only borrowing more but that, historically, socioeconomically advantaged students are now borrowing at rates similar to their less-advantaged peers.

DISCUSSION AND IMPLICATIONS

The purpose of this study was to explore student loan debt burdens across family income groups and by parental education level. Our results indicate that undergraduates were more likely to borrow, and to borrow more, over time (from 2000 to 2016). Our analyses show a convergence in borrowing patterns between low-income and low-to-moderate-income students, even after controlling for sector enrolled, financial dependency status, and race/ethnicity.

This finding is supported by the borrowing rates we observe across income categories: In 2000, one in three low-income students borrowed, compared to one in five high-income students. By 2016, however, one in three students borrowed across all income categories. We find a similar convergence in borrowing behavior across students with different parental education levels. By 2016, first-generation college students and continuing-generation college students borrowed at similar rates. Although low-income and first-generation college students are often categorized as less socioeconomically advantaged compared to high-income and continuing-generation peers, our findings contribute to the ongoing dialogue about college affordability by suggesting that college is becoming unaffordable, even for the country's more affluent students.

Figure 2. Likelihood of Borrowing for Dependent, First-Generation, White Students Attending a Public 4-Year Institution, by Family Income Group, Over Time



Notes: This figure plots the probability of borrowing for dependent, first-generation, white students attending a public 4-year institution across time for all four income categories in our analysis. Probabilities were calculated from the estimated odds ratios presented in Table 2.

While these findings are alarming, this study provides a framework for understanding larger trends in borrowing against which institutional researchers and administrators may contextualize student loan debt burdens of students on their campus. Researchers can use the NCES DataLab PowerStats tool to further refine our analysis for a particular campus by selecting and filtering specific institutional characteristics (e.g., public master's degree–granting institutions). In addition, DataLab tools allow researchers to select other markers of college affordability, such as PLUS Loan participation. Although institutional-level identifiers for NPSAS are unavailable via public NCES DataLab tools such as PowerStats, researchers can take advantage of public Integrated Postsecondary Education Data System (IPEDS) data, or seek restricted-use access to NPSAS data files for further analysis.

In addition to institutional benchmarking, future research should consider what students are borrowing to pay for. For example, traditional costs (e.g., tuition and fees) or extracurricular and nontuition costs of college (e.g., housing, clothing, and course materials) may offer nuanced perspectives on why students continue to borrow beyond tuition and fee expenses. More understanding of why students assume so much debt, how those decisions may vary across students' economic backgrounds, and the short- and long-term implications of these behaviors is needed to better understand the current context of student borrowing for higher education.

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