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Factors Associated with Parent and Student Debt of Bachelor's Degree Recipients

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Parent PLUS loans are a growing concern due to their limited income-driven repayment protections and their potential to maintain longstanding racial wealth gaps. Previous research has examined factors associated with student debt burdens of college graduates, but no research has examined factors related to parent borrowing for college. In this brief, I use newly-released College Scorecard data to explore student and institutional characteristics associated with federal student loans and Parent PLUS loans of two recent bachelor's degree cohorts. I find meaningful differences in how certain characteristics are associated with student and parent debt, particularly gender, family income, and institutional selectivity.

Keywords: *Parent PLUS loans, student debt, financial aid, borrowing*

Student loan debt has become a growing concern in the United States, as evidenced by recent proposals for student debt forgiveness and increasing media coverage of the issue. Between 2007 and 2020, the volume of outstanding federal student loans increased from $516 billion to $1.57 trillion while the number of borrowers increased from 28.3 million to 42.9 million (author's calculation using Federal Student Aid data). This has contributed to increasing skepticism about the value of higher education (Kelchen, 2018), even though the average returns to a college education remain substantial (Webber, 2018).

The majority of federal student loans are offered directly to students, and these loans come with relatively generous income-driven repayment options that provide protections to students who do not earn enough money to cover the standard monthly payments. Although the ability to borrow more in loans can improve student outcomes (Black et al., 2020), many students are still struggling to manage these loans even with income-driven repayment (Looney & Yannelis, 2015). Even more troubling, Black students are far more likely to borrow than other students and are also more likely to struggle to repay their loans due to the longstanding racial wealth gap in the United States (Chan et al., 2019; Scott-Clayton, 2018).

In addition to lending directly to students, the federal government also lends to the parents of dependent students through the Parent PLUS program. There were $101 billion in Parent PLUS loans outstanding as of 2020, up from $62 billion in 2014 (author's calculation using Federal Student Aid data). In order to qualify for Parent PLUS loans, parents of a student must not have an adverse credit history. However, the loan is not made based on a borrower's ability to pay, and more than 60% of Parent PLUS loans made are for more than the expected family contribution (Baum et al., 2019).

Parent PLUS loans play an important role in financing college for credit-constrained families. While undergraduate federal student loans are limited to a maximum of $7,500 per year, Parent PLUS loans can cover the full cost of attendance. They are particularly important for Black students, who often do not qualify for private loans and have much less wealth than White families (Goldrick-Rab et al., 2014). But the terms of PLUS loans are far less generous than other federal student loans. Interest rates for PLUS loans are statutorily set at 2.55 percentage points higher than federal student loans, and the only available income-driven repayment plan for PLUS loans has a longer repayment period compared to student loans (25 versus 20 years) and a higher percentage of income required to be paid (20% of discretionary income versus 10%).

The relatively unfavorable terms of Parent PLUS loans along with limited underwriting standards have led some analysts to call the program "predatory" (Cooper, 2019; Grunwald, 2015) and others to recommend limiting loan amounts based on ability to pay (Baum et al., 2019; Fishman, 2018). Yet these loans do have at least some benefits for students. Research shows that after controlling for observable characteristics, students whose families took out a Parent PLUS loan were substantially more likely to complete a bachelor's degree than those who did not access a PLUS loan (Woo & Lew, 2020).

Parent PLUS loans are also an important revenue source for some colleges, particularly historically Black colleges and universities (HBCUs). The Obama administration tightened the credit standards for Parent PLUS loans in 2011, resulting in a decline in enrollment at HBCUs that stressed institutional finances (Johnson et al., 2019). These changes were largely reversed by 2014 after lobbying from HBCUs and the United Negro College Fund (Jones & Brown, 2020).

A sizable body of research has examined student and institutional characteristics associated with the amount of undergraduate federal student debt borrowed (see Hillman (2015) for a summary). These factors include student demographics such as race/ethnicity and gender, institutions' financial resources, and whether institutions are public or private. For example, previous research has generally found that Black students borrow more than White ones and that graduates of private nonprofit colleges tend to have more debt than those of public colleges (Hillman, 2015).Yet no research to this point has examined whether the factors affecting student debt burdens differ from those affecting Parent PLUS debt due to the previous lack of available data. This is particularly important due to the aforementioned concerns about racial equity in the student loan program.

In this brief, I used newly-released data from the U.S. Department of Education's College Scorecard to examine the following research questions:

(1) Which factors are associated with Parent PLUS loan burdens of bachelor's degree recipients at public and private nonprofit institutions?
(2) Which factors are associated with federal student loan burdens of bachelor's degree recipients at public and private nonprofit institutions?

Sample, Data, and Methods

I began with a sampling frame of 555 public and 937 private nonprofit four-year institutions that had a 2018 Carnegie basic classification that was not graduate-only, special-focus, or primarily associate degree granting and was located in the 50 states or Washington, DC. For-profit colleges were eliminated from the start due to high rates of missing data on debt burdens and other variables in my models. I then excluded colleges from the sample for two reasons. The first reason was to drop colleges without student and Parent PLUS loan data, which excluded 11 public and 97 private nonprofit colleges. Second, I dropped an additional 78 public and 73 private colleges for not having data on all of the control variables used in the regression. Colleges dropped from the sample tended to be smaller or newer institutions that either did not have enough students with loans to have data reported or were lacking data on other institutional characteristics. This resulted in an analytic sample of 1,233 colleges (466 public and 767 private nonprofit).

I ran three linear regressions to examine the relationships between debt of graduates and their parents and institution-level factors, with summary statistics for the variables used in the regressions being presented in Table 1. Two of the regressions had median cumulative federal student loan debt as an outcome, with one regression not controlling for Parent PLUS debt and the other doing so. The third regression used median cumulative Parent PLUS debt as an outcome.

The debt data came from the U.S. Department of Education's institution-level College Scorecard dataset in December 2020 and combined the 2017-18 and 2018-19 graduating cohorts. Students who did not have that type of loan were excluded from the medians, and I logged median debt to account for the skewed nature of the data and to allow for estimates to be interpreted as percent changes. Median PLUS debt of graduates was $24,410, which is very similar to the $23,472 student debt of graduates. Yet at most 14% of students' families had PLUS debt, which is much lower than the two-thirds of students who typically complete their bachelor's degree with debt (Thomsen et al., 2020). Interestingly, parent debt and student debt only had a correlation of 0.25, which suggests at most a limited relationship between the two types of debt.

Table 1

Summary statistics of the dataset (debt from 2018, other characteristics from 2013-14)

Characteristic	Mean	(SD)
PLUS debt of graduates ($)	24,410	(12,016)
Percent with PLUS debt (upper bound)	14.3	(6.7)
Student debt of graduates ($)	23,472	(3,795)
Percent Black	13.6	(18.7)
Percent Hispanic	9.3	(10.8)
Percent Asian	4.2	(6.0)
Percent race unknown	6.2	(7.2)
Percent other race/ethnicity	3.6	(3.4)
Percent female	57.2	(11.6)
Percent Pell	36.0	(14.0)
Percent public	37.8	(48.5)
Full-time equivalent students	6,959	(8,704)
Pell graduation rate (pct)	51.2	(17.9)
Endowment per FTE ($)	44,572	(135,094)
Total revenue per FTE ($)	37,931	(45,989)
Tuition as share of total revenue (pct)	43.4	(18.8)
Admit rate (pct)	65.0	(17.6)
Yield rate (pct)	32.0	(14.1)
Number of colleges	1,233	

Note. College Scorecard (student/parent debt), Integrated Postsecondary Education Data System (all others).

I included a number of control variables that prior research or theory have identified as potentially affecting debt burdens (e.g., Hillman, 2015). Unless noted, all variables are from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) and measured during the 2013-14 academic year to represent the characteristics of incoming students. Student demographic controls included race/ethnicity, with Black, Hispanic, Asian, race unknown, and other race/ethnicity (Native American, Native Hawaiian, and multiracial) as variables in the model and White as the reference group. Nonresident alien students were excluded from the race/ethnicity denominator. I did not include an indicator for Historically Black Colleges and Universities (HBCUs) because it was strongly correlated with the percentage of Black students and was not significant after including the percent Black variable. I also controlled for the percentage of female students and the percentage of Pell Grant recipients.

Institutional control variables included whether a university was public (with private nonprofit as the reference group), the number of full-time equivalent (FTE) students, per-FTE endowment values and tuition revenues, tuition revenue as a share of total revenue, the percentage of applicants who were admitted, and the yield rate (the percentage of admitted students who attended). Standardized test scores were excluded from the model for being highly correlated with other measures of selectivity and resources. The six-year graduation rate of Pell Grant recipients, which was available for the 2017-18 graduating cohort) is a proxy for the success of students from lower-income families at that college.

The College Scorecard contains data on the lower and upper bound of the percentage of students whose parents take out PLUS loans, and I included the upper bound in my models. Finally, as an additional specification for the Parent PLUS model, I included student loan debt as a control variable. Student debt values, financial variables, and FTE enrollments were logged due to the skewed nature of the variables; this also allows the outcomes to be interpreted as percent changes.

Results

Table 2 contains findings from three separate regressions: two examining Parent PLUS debt (not controlling and controlling for student debt) and one examining student debt. My findings show that the racial and ethnic background of students plays a significant role in both parent and student loan debt. A ten percent increase in the share of Black students is associated with a 1.3%-2.0% increase in parent debt, but a 2.7% increase in student debt. For the share Hispanic and Asian students, the coefficients on parent debt are positive, while the student debt coefficients are negative. A ten percent increase in the share of female students relates to a 2.7%-2.9% decrease in parent debt, but just a 0.7% decrease in student debt. The share of Pell recipients is strongly negatively associated with parent debt, as a ten percent increase in Pell recipients is associated with a 13.3% decline in parent debt. This is likely due to the parents of Pell recipients being less willing to borrow large amounts of money and possibly being rejected from borrowing PLUS loans in some years. However, there is no relationship with student debt.

Turning to institutional characteristics, institutional control (public or private nonprofit) is not associated with parent or student debt. FTE enrollment has a modest negative relationship with student debt, but no relationship with parent debt. A ten percent increase in the graduation rate of Pell Grant recipients is associated with a 5.6%-5.8% increase in the Parent PLUS debt of graduate and a marginally significant 0.6% increase in student debt. Institutional endowments are not associated with parent debt and have only a modest positive relationship with student debt. Colleges with higher levels of per-student revenue had more parent debt, but not more student debt.

Table 2

Regressions showing factors associated with Parent PLUS and student loan debt

	Parent PLUS debt (log)		Parent PLUS debt (log)		Student loan debt (log)	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
Percent Black	0.195***	(0.060)	0.131**	(0.062)	0.273***	(0.030)
Percent Hispanic	0.175**	(0.075)	0.235***	(0.076)	-0.253***	(0.038)
Percent Asian	0.029	(0.157)	0.188	(0.161)	-0.677***	(0.079)
Percent race unknown	0.251**	(0.100)	0.251**	(0.099)	0.003	(0.050)
Percent other race/ethnicity	1.018***	(0.213)	1.011***	(0.212)	0.029	(0.107)
Percent female	-0.285***	(0.062)	-0.268***	(0.062)	-0.073***	(0.031)
Percent Pell	-1.340***	(0.093)	-1.333***	(0.092)	-0.031	(0.047)
Public (versus private nonprofit)	0.048	(0.032)	0.046	(0.032)	0.008	(0.016)
Full-time equivalent students (log)	-0.014	(0.010)	-0.009	(0.010)	-0.021***	(0.005)
Pell graduation rate	0.575***	(0.064)	0.561***	(0.063)	0.059*	(0.032)
Endowment per FTE (log)	-0.004	(0.008)	-0.006	(0.008)	0.009**	(0.004)
Total revenue per FTE (log)	0.215***	(0.024)	0.213***	(0.024)	0.011	(0.012)

Tuition reliance (pct)	0.563***	(0.067)	0.501***	(0.069)	0.264***	(0.034)
Admit rate (pct)	-0.094**	(0.047)	-0.128***	(0.047)	0.144***	(0.024)
Yield rate (pct)	-0.497***	(0.055)	-0.469***	(0.056)	-0.122***	(0.028)
Parent PLUS borrowing rate (upper bound) (pct)	3.156***	(0.129)	3.012***	(0.132)	0.611***	(0.065)
Student loan debt (log)	--	--	0.235***	(0.057)	--	--
Number of colleges	1,233		1,233		1,233	
Adjusted R-squared	0.758		0.756		0.561	

Note. Statistical significance is indicated by p<.10, ** p<.05, and *** p<.01. The reference group for race/ethnicity is White, and nonresident alien students are removed from the percentages. Parent PLUS borrowing rates are given as a lower and upper bound in the College Scorecard dataset.

Tuition-driven colleges (institutions that received a larger share of total revenue from student tuition dollars) had more parent and student debt, but the coefficients on parent debt were larger. This could reflect how Parent PLUS loans serve as an overflow for students who have already exhausted loans in their own names. More selective colleges, as defined by admitting a lower percentage of students, had higher levels of parent debt, but lower student debt. The share of parents taking out PLUS loans was strongly associated with both parent and student debt. Finally, I examined whether controlling for student debt predicted parent debt. The coefficient was positive and significant, providing more evidence of Parent PLUS loans being a loan of last resort for families.

Discussion

In this brief, I begin by confirming previous literature on factors related to student loan debt based on a recent cohort of bachelor's degree recipients (Hillman, 2015). My main contribution is providing the first evidence that the factors associated with Parent PLUS and federal student loan debt differ in meaningful ways. Race/ethnicity and gender are both associated with PLUS loan burdens, which is crucial given the large racial wealth gap in the United States and continued differences in labor market outcomes by race and gender. My regressions also provide evidence that the largest Parent PLUS loan burdens are associated with colleges which enroll large numbers of wealthier students and rely heavily on tuition dollars to balance their budgets. These uses of Parent PLUS loans are less concerning because these families have more financial means to repay their obligations. Future research should examine whether factors affecting PLUS debt differ by institutional wealth, selectivity, or other characteristics.

From an equity perspective, Parent PLUS loans are extremely concerning as they can disrupt the development of wealth among families who have been historically underrepresented in higher education. The important differences in PLUS debt burdens by student and institutional characteristics call for more research to unpack how families expect to repay Parent PLUS loans. This is of particular concern as there is some evidence that parents of students attending minority-serving institutions are more likely to expect their children to help repay the loan (Fletcher et al., 2020). Combinations of document analyses and interviews, using the methodological framework supplied by Baker (2019) but focused on Parent PLUS loans, would be especially valuable to practitioners and researchers. This work is especially important as potential reforms to the PLUS loans could drive families to use private loans or credit card debt, which are currently smaller portions of the college financing equation.

A potential way to reduce PLUS loan burdens is to allow all dependent students to access the higher loan limits of independent students, which would allow access to income-driven repayment protections. Prior research has found that increasing federal undergraduate student loan limits does not result in increases in total borrowing as students replace private and Parent PLUS loans with federal student loans

(Lee et al., 2020). However, this would likely have an adverse effect on the federal budget since PLUS loans have higher interest rates and fewer repayment protections, making this change more politically difficult. This also would not fully eliminate PLUS loans because of the existing caps on undergraduate federal student loans, but it would likely help to reduce repayment issues somewhat.

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