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EVALUATING FEDERAL STUDENT LOAN REPAYMENT OUTCOMES AT SIX RESEARCH UNIVERSITIES

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Executive Summary

Using National Student Loan Data System (NSLDS) data from six public and private research universities, this report analyzes loan repayment rates and outcomes of 64,052 federal student loan borrowers across three repayment cohorts. In addition to default, we measure repayment rates and paid-in-full (PIF) rates that provide important complementary insights into the lifecycle of student loan repayment.

- Borrowers at these six universities took out $1.7 billion in federal loans with the average being $27,715 and the median $19,000.
- Most of these borrowers were either in deferment/forbearance (69%) or had paid their loans in full (28%) within five years of entering payment.
- Most undergraduate borrowers (64%) repay via standard 10-year plans while smaller shares of graduate/professional borrowers (34%) use standard repayment plans.
- Graduate/professional students and Black students tend to have the highest participation rates in income-driven repayment (IDR) plans at these six universities. While these plans offer certain protections from repayment risks, they also increase balances over time and reduce repayment rates.
- Repayment rates tend to be highest among borrowers who took out the smallest loans and enrolled in academic programs that tend to have high future earnings (e.g., Engineering).
- We find inequities in repayment outcomes that cut along lines of race and class. For example, Black and Native American borrowers at these six universities have lower paid in full rates but higher default rates than white and Asian American borrowers. These inequities are products of racial wealth gaps and disaggregating repayment data can help partner universities evaluate efforts to help close these gaps.
- The current repayment pause skews existing repayment rates metrics (e.g., College Scorecard, PROSPER Act, College Affordability Act) and rates vary considerably *within* each university in this analysis.

We conducted this analysis in partnership with six universities with the goal of supporting their ongoing efforts to improve loan outcomes for current and former students. The results are correlational (not causal) and they aid each university's ongoing default prevention and outreach efforts including financial wellness programming, informational campaigns, and internal monitoring/assessment of how students borrow and repay federal loans. Results can also help inform public policy conversations interested in using repayment metrics for accountability purposes. For example, to make accountability metrics more useful for practice and addressing inequities, policymakers may consider disaggregating rates by debt levels, repayment plans, and student characteristics.

Introduction

This report calculates student **loan repayment rates** and explores key **loan repayment outcomes** among federal student loan borrowers who attended six public and private research universities in the United States. The analysis is based on each institution's National Student Loan Data System (NSLDS). Findings will support each institution's ongoing efforts to monitor, assess, and improve loan outcomes of former students (e.g., default management plans, loan counseling, etc.).[1]

University leaders and federal policymakers are increasingly interested in how, when, and with what effects borrowers are paying down their student loan debts. This interest dates back to at least 1989 when Congress created the federal Cohort Default Rate (CDR) to monitor and hold colleges accountable for loan repayment outcomes. The CDR measures the percentage of borrowers who default on certain federal loans within three years of entering repayment. If a college's CDR is above 30%, the U.S. Department of Education requires it to implement default prevention plans.[2] And if a college's CDR is persistently above 30%, they may be barred from participating in federal loan programs altogether.[3] Alternatively, if a college's CDR is low enough, they may be granted additional flexibility, such as making early disbursements to first-time borrowers and disbursing loans in single installments for students studying abroad.[4]

These sanctions and rewards are built into existing CDR policies, yet they only focus on the most extreme repayment outcome, default. As a result, federal policymakers have become more interested in measuring intermediate repayment outcomes that shed light on the lifecycle of repayment that CDRs do not capture. For example, the U.S. Department of Education's College Scorecard reports the percentage of undergraduate borrowers paying down at least $1 on their principal balance.[5] The PROSPER Act, introduced by Republicans in the House of Representatives in 2017, measures the proportion of borrowers delinquent on payments.[6] And the College Affordability Act, introduced by House Democrats in 2019, focuses on the share of borrowers making "on-time" payments.[7] While neither the PROSPER Act nor the College Affordability Act became law, they demonstrate bipartisan interest in using repayment rates as an accountability mechanism within the Higher Education Act.

The following repayment rate measures illustrate the variety of methods proposed for measuring loan repayment. Throughout this report, we demonstrate the potential strengths and weaknesses of each measure:

- **College Scorecard:** Until 2018, the College Scorecard published data on the percentage of borrowers who have paid at least one dollar toward the principal balance one, three, five, or seven years after entering repayment. Since 2020, the Scorecard has disaggregated repayment rates by the share of borrowers who are: not making progress; making progress; in deferment; in forbearance; in default; in delinquency; or discharged.[8]

- **PROSPER Act:** This 2017 legislation proposes measuring the percentage of borrowers who have paid their loans in full, are in deferment or an approved forbearance, or are less than 90 days delinquent within two years of entering

repayment. To remain eligible for Title IV aid, this proposal would require academic programs to maintain a loan repayment rate of 45% or higher.[9]

- **College Affordability Act:** This 2019 bill proposes using the percentage of borrowers who have paid at least 90% of their monthly payments "on time" (or repaid their loans in full) within three years of entering repayment. An on-time payment includes loans that are not delinquent, those with zero-dollar payments due, and certain deferment/forbearances.[10]

In response to the COVID-19 pandemic, the U.S. Department of Education moved certain Direct Loans into administrative forbearance (with 0% interest rates) in March 2020.[11] At the time of this writing, the repayment pause was in place and scheduled to expire at the end of August 2022, meaning borrowers have not been required to repay their loans for more than two years. Researchers are concerned that many borrowers will struggle to restart payment and could fall back into delinquency or default when the forbearance period ends.[12] There are also growing concerns that using repayment rates as an accountability tool will have limited impacts on colleges and universities.[13]

Table 1 briefly summarizes three repayment metrics currently used in federal policy conversations. The College Scorecard focuses on making *any* progress toward reducing principal balances while the PROSPER Act and College Affordability Act (CAA) rates focus on making *timely* and *consistent* payments, regardless of whether those payment reduce a borrower's principal balance. Notably, each metric handles administrative forbearance differently, where only CAA counts the current repayment pause as a positive repayment outcome and the others do not. Similarly, both the CAA and PROSPER Acts exclude economic hardship and unemployment deferment from the numerator, effectively penalizing these forms of deferment while allowing military service and certain medical residency deferments to count towards positive repayment. With these details in mind, we are able to estimate repayment rates under each formula in order to support ongoing loan repayment planning and outreach efforts at the six partner universities that provided data for this report.

Table 1:
Repayment rate formulas

	College Scorecard	PROSPER	CAA
Numerator	Number of borrowers paying at least $1 toward principal	Number of borrowers: a) paid in full; b) in deferment or approved forbearance; and c) less than 90 days delinquent	Number of borrowers: a) paid in full; b) in deferment or approved forbearance; and c) making on-time or zero-dollar payments
Denominator	Total number of borrowers not in approved deferments	Total number of borrowers	Total number of borrowers
Degree level	Undergraduate only	Undergraduate & graduate/professional	Undergraduate & graduate/professional
Repayment period	1, 3, 5, 7 years	2 years	3 years
Covered loans	Undergraduate federal loans except Perkins and Parent PLUS	Direct Loans and Federal Family Education Loans, including Grad PLUS Loans	Direct Loans and Federal Family Education Loans, including Grad PLUS Loans
Unit of analysis	Institution	Program	Institution

Context for Understanding Loan Outcomes

As shown above, repayment rates vary considerably in how they are measured, which loans and loan statuses are included, and whether they are measured at the institution or program level. This section outlines several additional considerations to weigh when examining loan outcomes.

First, correlation is not causation: students may have poor loan outcomes due to factors we simply do not measure or are too complex to measure.[14] For example, if a borrower is having life experiences that make it difficult to repay, we will not know the specific reasons for not making payments. Accordingly, we interpret these outcomes as correlational (and not causal) patterns since there are likely several omitted variables that could explain why these outcomes occur. Second, loan outcomes can vary on a monthly basis as borrowers may move

in and out of various loan status and repayment plans. Our analysis reports loan outcomes at a single point-in-time and does not capture this month-to-month granularity. Third, when group sizes are relatively small (i.e., fewer than 30 observations) repayment rates can be sensitive to the "law of large numbers."[15] While we report the overall denominator to provide context, some subgroups have relatively small denominators and we do not report cases with fewer than 30.

In addition to these technical considerations, it is useful to interpret student loan debt and repayment through the lens of social science. Doing so allows us to understand and explain how social inequities – often drawn along lines of race and class – can shape who borrows, how much, and repayment outcomes. For example, there are large and persistent wealth gaps between racial and ethnic groups in America due to inequities in homeownership, education, labor markets, and a host of other wealth-building activities that have historically advantaged white individuals over people of color.[16] Today, the largest wealth gap is between white and Black individuals is 5:1 and has held steady for decades.[17] Because of these large differences, Black families in American typically have fewer resources to pay for college and are more likely to borrow – and to borrow more – than white students.[18] This gap also results in white students having more resources to repay loans quickly, thus reducing their risks associated with carrying debts for long periods of time.[19] Student loans are therefore tightly connected to racial wealth gaps, where loan outcomes are in many respects a result of these broader racial and economic inequities.[20]

Data Sources and Key Measures

The School Portfolio Report (SPR) is derived from the NSLDS and contains loan-level information including the type of loan, original principal amount borrowed, remaining principal balance, interest rate, and the amount of accumulated interest and fees.[21] Additionally, the SPR contains information critical to measuring loan repayment outcomes, including: current loan status; current repayment plan; monthly payment amount; timing of various events (e.g., date each loan entered repayment, monthly payment due dates; forbearance, deferment, and default dates). These records are collected only for loans disbursed by each partner institution; they exclude loans take at other institutions. Additionally, the SPR does not provide educational records or demographic characteristics of borrowers, so data stewards for each of the six university partners linked and deidentified these records to enable further analysis and better understanding of the underlying dynamics of borrowing behavior.

As shown in Table 2, this analysis includes federal loan borrowers who entered repayment between federal fiscal years 2017 and 2019. This analysis includes outcomes for Direct Subsidized and Unsubsidized Loans, including Grad PLUS loans and excluding Parent PLUS, Perkins, and consolidation loans.[22] Loan outcomes of all 64,052 borrowers were "frozen" on the date when each campus partner pulled their respective SPR files.[23] This approach allows us to analyze repayment outcomes nearly five years after borrowers who started repaying in fiscal year 2017 (i.e., the "2017 repayment cohort") entered repayment. This also means certain federal loans included in the analysis have been in administrative forbearance since March 2020, which affects some repayment rate estimates shown below.

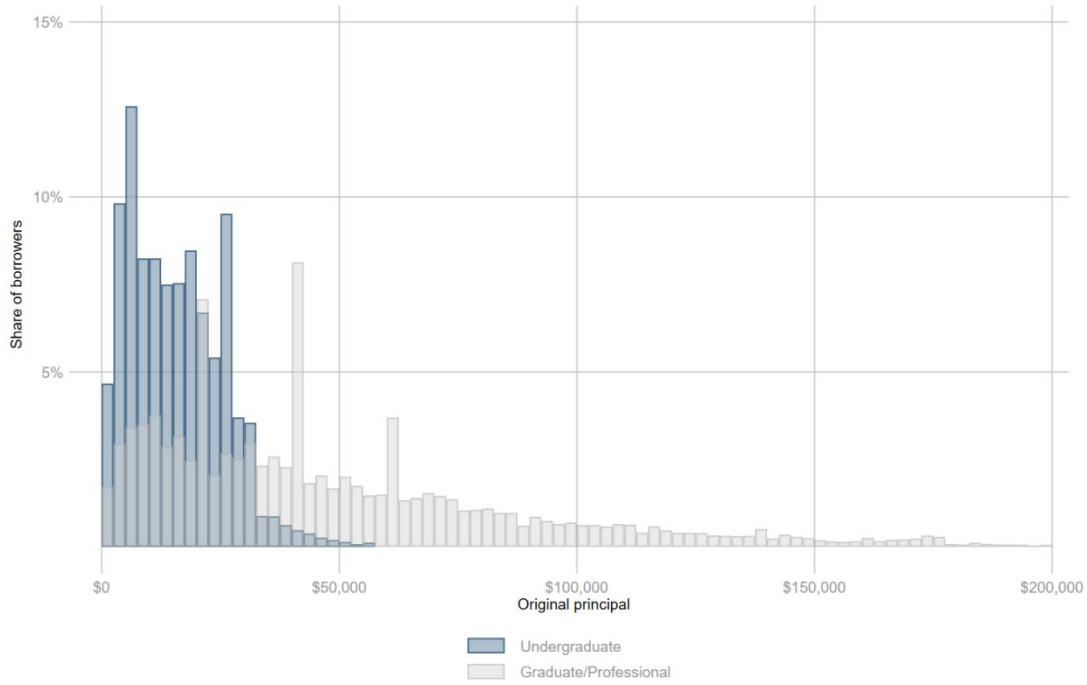
Table 2:
Original principal borrowed, by degree level and repayment cohort

	2017	2018	2019	All cohorts
Undergraduate				
Total original principal (millions)	$214.2	$224.8	$231.6	$670.6
Mean original principal	$15,762	$16,196	$15,834	$15,931
Median original principal	$14,531	$14,833	$14,328	$14,500
Number of borrowers	13,589	13,879	14,625	42,093
Graduate / Professional				
Total original principal (millions)	$300.6	$322.0	$482.0	$1,104.6
Mean original principal	$47,288	$56,685	$48,584	$50,305
Median original principal	$41,000	$43,800	$35,963	$41,000
Number of borrowers	6,357	5,681	9,921	21,959
Total original principal (millions)				
Total original principal (millions)	$514.8	$546.8	$713.6	$1,775.2
Mean original principal	$25,810	$27,956	$29,071	$27,715
Median original principal	$19,500	$19,000	$19,000	$19,000
Number of borrowers	19,946	19,560	24,546	64,052

Across each cohort, the median amount disbursed per borrower is approximately $19,000, in total accounting for $1.775.2 billion across 64,052 borrowers. While there were more undergraduate borrowers (n=42,093) than graduate/professional borrowers (n=21,959), undergraduates borrowed about half the dollar amount of graduate/professional students. For example, undergraduates across all three cohorts at these six universities took out $670.6 million (or about $15,931 per student) while graduate/professional students borrowed $1.104.6 billion (or about $50,305 per student).

Figure 2 shows these differences in more detail, where graduate students have much larger principal amounts due in part to aggregate and annual borrowing limits. This figure also shows why it is useful to report median (rather than mean) statistics when reporting debt levels. Figure 2 is skewed to the right, meaning outliers can easily inflate the mean; therefore, this report focuses on median amounts, which tend to be slightly lower than the mean. Also worth noting, debt levels are controlled to some extent by federal policies. Dependent undergraduates can borrow up to $31,000 over the course of their total undergraduate degrees in subsidized and unsubsidized loans; independent undergraduates can borrow up to $57,500 in aggregate.[24] For graduate or professional students, these caps are set to $138,500 including loans for undergraduate study. Graduate students can exceed these caps if they take out Grad PLUS loans (included in this analysis).

Figure 1:
Distribution of original principal amount by degree level (all cohorts)



Note: This chart excludes values above $200,000 (n=144).

Repayment Statuses

Background context

When borrowers enter repayment, they typically start the process on a 10-year time horizon where each monthly payment is made via a fixed amortization schedule. Nationally, the average borrower takes 13 years to repay their federal loans.[25] A lot can happen in these 13 years; for example, a borrowers might re-enroll in school and request their loans to be deferred. They may face temporary financial hardship and request a forbearance, or they may fall behind entirely and end up defaulting. Alternatively, a borrower might never fall behind on payments or they may even quickly repay their loans in full.

Researchers have only recently started to explore the lifecycle of repayment using robust NSLDS data and our analysis adds to this growing body of literature.[26] A recent nationally-representative analysis found borrowers navigate in and out of various repayment statues throughout their life course, with a wide variation in experiences that cut along lines of race and class.[27] For example, approximately one-fifth of borrowers repay their loans within five years while another one-in-ten default in this same time period.[28] There are many pathways through repayment, meaning statuses are likely to change each month and year. To simplify

this process, our analysis focuses on four main repayment statuses: in repayment; in deferment/forbearance; paid in full; and default.

Findings

Table 3 disaggregates loan repayments statuses for undergraduate and graduate/professional students. It shows most undergraduate borrowers (67%) and graduate/professional borrowers (72%) have a repayment status of "in deferment/forbearance." With more than two-thirds of borrowers in deferment/forbearance, the only other large share of borrowers are those who paid in full. Among undergraduates, 29% have paid in full while this rate is 26% for graduate/professional borrowers. Together, these two groups (i.e., in deferment/forbearance and paid in full) represent approximately 97% of all borrowers in the full analysis. The remaining 3% of borrowers are either in repayment, presumably for voluntarily opting into repayment or for loans ineligible for the pause, or in default.

Table 3:
Median original principal, by degree level, repayment status, and cohort

	2017	2018	2019	Total	n	% of borrowers
Undergraduate						
In Repayment	$17,775	$19,179	$18,500	$18,750	688	2%
Deferment/Forbearance	$17,750	$17,000	$17,500	$17,500	28,396	67%
Paid in Full	$9,500	$8,500	$7,000	$8,000	12,259	29%
Default	$11,000	$12,758	$18,250	$12,500	750	2%
Total	$14,531	$14,833	$14,328	$14,500	42,093	100%
Graduate/Professional						
In Repayment	$40,135	$38,635	$41,000	$41,000	343	2%
Deferment/Forbearance	$41,000	$47,646	$36,482	$41,000	15,879	72%
Paid in Full	$41,000	$40,500	$31,857	$38,492	5,627	26%
Default	$41,000	$41,015	$101,564	$42,516	110	1%
Total	$41,000	$43,800	$35,963	$41,000	21,959	100%
Total						
In Repayment	$20,500	$21,500	$21,500	$21,470	1,031	2%
Deferment/Forbearance	$21,500	$20,500	$21,370	$21,135	44,275	69%
Paid in Full	$14,000	$13,000	$10,719	$12,666	17,886	28%
Default	$14,000	$15,271	$19,000	$15,000	860	1%
Total	$19,500	$19,000	$19,000	$19,000	64,052	100%

Table 3 also reports median original principal amounts borrowed for each repayment status. Although undergraduate and graduate/professional borrowers have overall similar paid in full rates, undergraduates tend to carry considerably lower median debts when they paid in full ($8,000 vs. $38,492, respectively). In total, when looking at repayment statuses of *all* borrowers, the median debt when paid in full was $12,666 – considerably lower than the

overall median of $19,000. Similarly, undergraduate borrowers who defaulted tend to carry relatively lower debts: approximately $12,500 across all three cohorts. However, when graduate/professional borrowers default, their median debt tends to be close to the overall median, except in the case of the 2019 cohort which is considerably higher than the median. While undergraduate and graduate/professional borrowers have similar paid in full and default *rates*, the underlying *amount* of debt for each of these groups is considerably different from one another. Further research is necessary to fully understand how and why undergraduate and graduate/professional borrowers have similar rates yet different amounts on these key metrics. For example, there is research consensus that those who default tend to carry low debts because they leave college before completing their degree; however, this pattern may not be the same for graduate/professional students at these six universities.[29]

Repayment Plans

Background context

A recent research study using nationally representative NSLDS data found repayment is "frequently interrupted by spells of deferment, negative amortization/forbearance, and default that can last years" and "no two repayment trajectories are the same."[30] This is due in large part to the various repayment plans borrowers opt into. For example, the standard 10-year repayment plan requires borrowers to make fixed payments for the entire 120-month repayment period regardless of the borrower's income. Nationwide, 41% of federal loan borrowers repay via this plan. But if a borrower opts into an Income-Driven Repayment (IDR) plan, which includes Income-Contingent Repayment (ICR), Income-Based Repayment (IBR), Pay As You Earn (PAYE) and Revised Pay As You Earn (REPAYE), monthly payments are set at a percentage of the borrower's annual earnings (generally between 10% and 15% of discretionary income) and are made over the course of 20 to 25 years at which time they are forgiven.[31] Nationwide, 34% of federal loan borrowers repay via an IDR plan; 25% of borrowers repay through some alternative plan like extended or graduated plans that are not pegged to incomes but offer smaller payments earlier in the amortization schedule.[32]

To illustrate how IDR plans work, a borrower who owed $45,000 and had an adjusted gross income of $40,000 in 2022 (with no spouse or dependents) would have a monthly payment of $467 under a standard 10-year repayment plan. That payment would be only $174 under PAYE or REPAYE based on their income and household size.[33] In exchange for these lower monthly payments under PAYE and REPAYE borrowers agree to extend their repayment period from 10 to 20 or 25 years. During this time, unpaid interest can get added to the principal balance (i.e., "capitalized"), resulting in balances that grow over time and are eventually forgiven. For many borrowers, this tradeoff is worth it – research finds IDR protects borrowers from defaulting and can be a financial benefit for those who opt in.[34] However, this benefit comes with costs where borrowers must navigate significant administrative burdens in order to participate and stay enrolled in IDR programs.[35] Table 4 summarizes key features of current IDR programs and the following analysis will examine debts and repayment outcomes by repayment plans.

Table 4:
Overview of income-driven repayment plans

	Created	Monthly payments	Participation criteria	Interest capitalization	Forgiveness horizon
Income-Contingent Repayment (ICR)	1994	Lesser of: (a) 20% of discretionary income, or (b) 12-year fixed schedule	Any eligible Direct Loan	Capped at 10% of principal balance	25 years
Income-Based Repayment (IBR)	2009	10-15% of discretionary income	Eligible Direct Loan or Federal Family Education Loan; Must have Partial Financial Hardship	Capitalizes when borrower does not qualify or leaves plan	20 to 25 years
Pay As You Earn (PAYE)	2012	10% of discretionary income	Eligible Direct Loan; Must have Partial Financial Hardship	Capitalizes when borrower does not qualify or leaves plan	20 years
Revised Pay As You Earn (REPAYE)	2015	10% of discretionary income	Eligible Direct Loan; No Partial Financial Hardship requirement	Capitalizes when borrower does not qualify or leaves plan	20 to 25 years

Findings

Figure 2 shows the distribution of borrowers among the six universities according to their repayment plans. There are 100 squares, meaning each individual square represents one percent of the borrowers in the dataset. The top panel shows repayment plan use among undergraduate borrowers, the most popular repayment plan among these borrowers is the 10-year standard plan (63%), while 19% selected IDR plans, 13% selected extended/ graduated plans, and 5% were in other/alternative plans. The bottom panel shows repayment plans among graduate borrowers. Among this group, the 10-year standard plan and IDR plans are equally popular among graduate students, with 34% of borrowers choosing the standard plan and 32% choosing IDR plans. An additional 13% selected extended/graduated plans, and 21% were in other/alternative plans.

Figure 2:
Repayment plans by degree level (all cohorts)

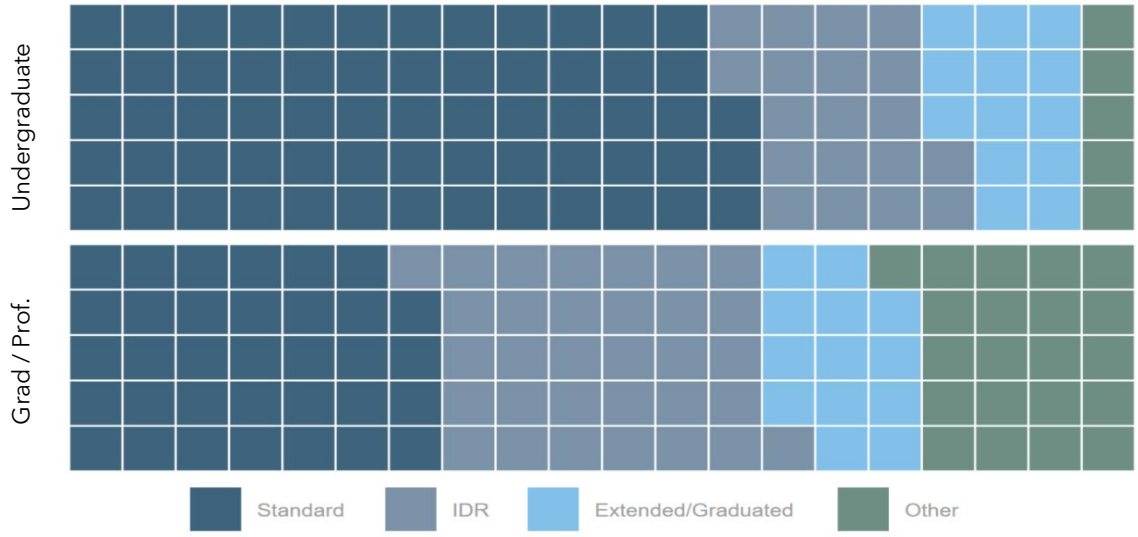


Table 5 examines the median amount borrowers initially took out across each repayment cohort, degree level, and repayment plan. Across both undergraduate and graduate/professional students who borrowed, those repaying in standard plans tend to carry the lowest median original principal balance ($15,000 and $36,865 respectively). However, borrowers who opt into IDR plans tend to have larger original principal amounts. This finding is consistent with national studies finding IDR participants tend to have larger debts than borrowers repaying in standard plans.[36] For example, borrowers repaying via REPAYE had median original principal amounts of $22,180 (undergraduate) and $51,705 (graduate/professional), which is several thousand dollars more than borrowers in standard plans.

Table 5:
Median original principal of borrowers in repayment or forbearance/deferment, by repayment plan, degree level, and cohort

	2017	2018	2019	Total	n	% of borrowers
Undergraduate						
Standard	$15,000	$15,000	$15,340	$15,000	18,485	64%
Income-Driven						
IBR	$19,500	$21,500	$20,664	$21,000	767	3%
ICR	$19,500	$17,500	$18,375	$19,000	228	1%
PAYE	$20,312	$20,250	$19,000	$19,500	1,161	4%
REPAYE	$23,000	$22,023	$21,542	$22,180	3,310	11%
Extended	$28,500	$28,000	$27,125	$28,000	1,176	4%
Graduated	$19,500	$19,000	$19,491	$19,494	2,627	9%
Other / Alternative	$18,900	$17,068	$16,800	$17,991	1,330	5%
Total	$17,750	$17,052	$17,500	$17,500	29,084	100%
Graduate/Professional						
Standard	$38,450	$40,500	$34,899	$36,865	5,537	34%
Income-Driven						
IBR	$41,000	$48,534	$36,510	$41,000	825	5%
ICR	$34,316	$41,000	$33,500	$36,953	98	1%
PAYE	$44,500	$55,018	$47,130	$48,260	2,721	17%
REPAYE	$46,233	$60,245	$50,575	$51,705	1,566	10%
Extended	$41,000	$55,204	$44,342	$45,000	1,259	8%
Graduated	$40,484	$39,500	$41,027	$40,754	971	6%
Other / Alternative	$41,000	$51,000	$28,326	$32,371	3,245	20%
Total	$41,000	$47,375	$36,616	$41,000	16,222	100%
Total						
Standard	$17,500	$17,000	$18,333	$17,635	24,022	53%
Income-Driven						
IBR	$27,000	$27,000	$26,450	$27,000	1,592	4%
ICR	$20,500	$21,478	$21,191	$20,941	326	1%
PAYE	$36,940	$35,887	$34,290	$35,500	3,882	9%
REPAYE	$27,000	$25,000	$25,058	$26,000	4,876	11%
Extended	$31,092	$35,000	$31,000	$31,808	2,435	5%
Graduated	$21,500	$20,909	$22,150	$21,500	3,598	8%
Other / Alternative	$22,166	$23,500	$25,640	$24,250	4,575	10%
Total	$21,500	$20,500	$21,394	$21,148	45,306	100%

Outstanding Balances by Repayment Plan

Background context

Depending on the type of loan and when it was disbursed, borrowers will face different interest rates that typically range between 3% and 5%.[37] In the SPR, outstanding balances are disaggregated between principal and interest, allowing us to sum the two and calculate total outstanding balances. If a borrower's monthly payment does not cover their interest, then the balance can be added to the borrower's principal thus making balances grow over time.[38] As discussed earlier, borrowers who opt into IDR plans might experience interest capitalization, resulting in loans balances that continue to rise. Researchers from the Congressional Budget Office (CBO) found this to be prevalent among IDR plans, where the amount owed by borrowers in IDR grew over time while balances for borrowers using standard plans shrunk over time. Specifically, borrowers who entered repayment in 2010 and enrolled in IDR owed approximately 20% more than their original balance after five years in repayment. Meanwhile, those in non-IDR plans owed approximately half of what they did upon entering repayment. After seven years of entering repayment, over 75% of borrowers in IDR plans owed more than they originally borrowed.[39]

Findings

Figure 3 examines this issue at these six universities by showing the percent of original principal outstanding cohort by repayment plan. For example, if a borrower originally took out $10,000 in principal and, at the time of this analysis, had an outstanding balance of $9,000, then they would owe 90% of their original principal. However, if this same borrower had an outstanding balance of $11,000, then they would owe 110% of what they originally borrowed (indicating they are not making progress on paying down their principal). The College Scorecard measures the proportion of borrowers who are paying down their debts, in which case those with 90% remaining would be treated as a positive outcome while those with 110% remaining would not.

Figure 3:
Percentage of original principal outstanding, by repayment plan and cohort

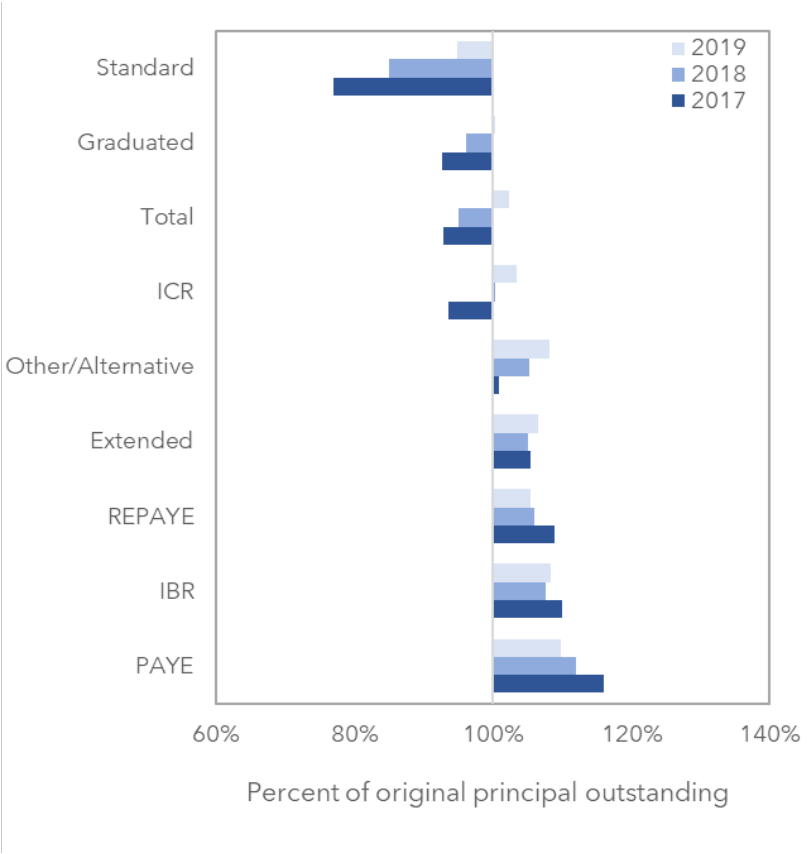


Figure 3 shows borrowers at these six universities repaying via IDR plans (other than ICR) typically owe more than they originally borrowed. For example, among borrowers in the 2017 repayment cohort repaying via PAYE, the average borrower owes 16% more than they originally took out (i.e., 116%). On the opposite end of Figure 3 we see borrowers from the 2017 cohort who repay via standard plans owe, on average, 77% of their original principal (i.e., they have paid 23% of their original principal).

To illustrate this pattern in more detail, Figure 4 plots borrowers' *original* principal balances on the horizontal axis and their *outstanding* balance on the vertical axis. The solid black line in each panel represents the break-even point where borrowers above the line owe more than they originally borrowed while those below the line owe less. For borrowers at these six universities repaying in standard 10-year plans (left panel) we see most observations fall below the solid line. The blue dashed line marks the middle of the distribution where the average borrower at all original principal amounts owe less than they originally borrowed. However, we see an opposite pattern for borrowers repaying via IDR (right panel) where the dashed blue line is above the solid black line, representing most borrower owe more than they originally borrowed. This additional context is relevant for understanding repayment rate outcomes at the six universities where having greater reliance on IDR may help borrowers avoid default (and eventually benefit from forgiveness) but it may make these institutions have low repayment rates under the College Scorecard metric. Understanding the

mechanism for low repayment rates is therefore critical for these universities to identify why borrowers are not making progress on their principal – a borrower failing to make payments due to IDR could be very different from one who fails to repay due to cycling through forbearance or struggle to make full payments under a standard 10-year plan.

Figure 4:
Original versus outstanding balance, by repayment plan (2017 cohort)

Student Characteristics and Repayment Outcomes

Background context

As discussed in the earlier section on "Context for Understanding Loan Outcomes" there are significant racial and economic inequities in who borrows and repays student loans. These inequities stem from racial wealth gaps, where the very students who are most likely to borrow loans to pay for college (due to wealth inequities) are those who also have the least wealth upon exiting college and therefore may not be in a position to quickly repay their loans. Alternatively, students with the greatest family wealth may need to borrow the least (if at all) and may also be well positioned to use their family's wealth to quickly pay down loans.[40]

By linking SPR data with student demographic records, we are able to disaggregate loan repayment rates to explore the magnitude of differences that exist across student groups at these six universities. For example, we can examine two opposite extremes of the repayment experience – paid in full (PIF) and default – that can have consequences on borrowers' overall financial wellbeing. A borrower who pays in full no longer carries any balance on any loans included in this analysis, while a borrower who falls behind and fails to make any payments for at least 270 days are placed in default.[41] Just as the default rate is a key measure for monitoring and intervening in negative loan outcomes, the PIF rate can be a useful measure for understanding and communicating positive loan outcomes.[42] These rates can also help these six campuses measure and monitor inequities that may exist in repayment outcomes. This section also includes a summary of student characteristics associated with opting into IDR repayment plan at these six universities. Given the relatively high take-up rates of IDR and the financial benefits (and costs) associated with these plans, this first look can help partner

universities identify patterns and construct appropriate outreach and guidance for helping students navigate the transition into repayment.

Findings

Table 6 shows the number of borrowers falling into each of these three loan statuses, disaggregated by: first-generation status; Pell Grant status; race/ethnicity; age group; binary gender; completion status; and degree level. The table also shows the percent of borrowers (within each group) experiencing these three outcomes. For example, it shows 6,987 of 26,375 "first-generation" students (26%) at these universities who entered repayment between fiscal years 2017 and 2019 had fully repaid their loans by 2021. It also shows 536 of these same 26,375 first-generation borrowers (2%) were in default at the time the SPR data were pulled. Finally, it shows 4,258 of these 26,375 first-generation student borrowers (16%) were repaying via an IDR plan.

Table 6:
Paid in full, default, and IDR participation rates by student characteristics (all cohorts)

		Total		*Paid in Full*		*Default*		*Income-Driven Repayment*	
		n	%	n	%	n	%	n	%
First-gen status	Not first-gen	37,677	59%	10,899	29%	324	1%	7,554	20%
	First-gen	26,375	41%	6,987	26%	536	2%	4,260	16%
Pell status	Never Pell	43,863	68%	12,892	29%	367	1%	8,457	19%
	Pell ever	20,189	39%	4,994	25%	493	2%	3,357	17%
Racial / Ethnic Group	White	31,245	49%	8,755	28%	308	1%	5,772	18%
	Black	4,143	6%	540	13%	115	3%	1,090	26%
	Hispanic	13,119	20%	2,701	21%	280	2%	2,564	20%
	Asian Amer.	9,163	14%	4,223	46%	54	1%	1,071	12%
	Native Amer.	331	1%	42	13%	-	-	52	16%
	Pacific Islander	88	0%	-	-	-	-	-	-
	Multiple	1,998	3%	547	27%	-	-	367	18%
	Unreported	3,866	6%	1,047	27%	57	1%	843	22%
	Eligible non-citizen	99	0.2%	-	-	-	-	-	-
Age Group	< 25	5,665	9%	2,285	40%	135	2%	340	6%
	25 - 30	38,986	61%	10,428	27%	477	1%	6,066	16%
	30+	19,397	30%	5,172	27%	248	1%	5,408	28%
Binary Gender	Male	30,116	47%	8,861	29%	474	2%	4,704	16%
	Female	33,506	52%	8,926	27%	383	1%	7,012	21%
	Unreported	430	1%	99	23%	-	-	98	23%
Completion status	Non-completer	11,762	18%	2,157	18%	562	5%	1,857	16%
	Completer	52,290	82%	15,729	30%	298	1%	9,957	19%
Degree level	Undergrad.	42,093	66%	12,259	29%	750	2%	5,942	14%
	Grad./Prof.	21,959	34%	5,627	26%	110	1%	5,872	27%

Note: Denominator for total includes all students while denominator for paid in full, default, and IDR correspond to each sub-group.

Table 6 provides many different comparisons, and we will briefly highlight three key disparities revealed through this analysis. First, students who do not complete their degree have default rates that are five-times greater than completers. Although these rates are still relatively small (5% and 1%, respectively), about two-thirds of all defaulters at these six universities left without earning a degree, reinforcing earlier research showing a link between debt and no degree and default risk.

Second, PIF rates vary considerably across race/ethnicity, ranging from a low of 13% among Black borrowers and Native American borrowers, to a high of 28% and 46% among white and Asian American borrowers, respectively. This links back to the earlier discussion of racial wealth gaps, where the same factors associated with borrowing more appear to also be associated with paying loans shortly after leaving college. Further research would enhance our understanding of the role racial wealth gaps play in shaping and closing inequities in repayment outcomes.

And third, borrowers who are graduate/professional students, 30+ year old, and Black tend to participate in IDR plans at higher rates than other borrowers at these universities. These same students also tend to carry higher median loan debt than other students, as shown in Appendix A. Given the negative amortization discussion from earlier, it is also likely that these students' outstanding balances are growing over time and will warrant further research and investigation.

Together, these patterns point to disparities in loan outcomes while highlighting the fact that there are no "typical" situations for repayment at these six universities. Some borrowers pay their loans in full quickly, some end up in default, and others opt into IDR plans leaving them between these two opposite ends of the repayment spectrum (and with balances likely rising over time). Much more research is necessary to understand and ultimately improve these outcomes, and the information provided in Table 6 (and Appendix A) can help in that pursuit by establishing baseline patterns to help inform ongoing discussions on each partner university.

Estimating Repayment Rates

Background context

The College Scorecard has yet to report repayment rates by borrowers' degree level, repayment plans, original principal amount, or key student characteristics. Additionally, neither the PROSPER Act nor the College Affordability Act propose repayment rates that disaggregate borrowers by these same factors. In light of the findings outlined above and given the utility this information has for administering federal loan programs on campuses, the following analysis estimates several new repayment rates that can prove useful for policy and practice.[43]

Additionally, research shows loan outcomes typically change over time; accordingly, we should expect repayment rates to differ by how long borrowers have been in repayment.[44] Unfortunately, the SPR data does not allow us to limit our estimates to certain windows of time. For example, we are unable to limit the 2017 cohort to "within two years" or "within three years" of entering repayment because the data are frozen at their extraction date. As a result, all repayment rates for the 2017 cohort are measured in a five-year window of time since the SPR data was extracted at the end of 2021.

One additional consideration is that each repayment rate is affected by the repayment pause differently. For example, the College Scorecard is based on repaying principal balances. But more recent cohorts of borrowers (who have made no payments during the repayment pause) will be making no progress toward their principal balance unless they opted in to making payments during the pause. Borrowers who were in repayment prior to the pause are likely to have made progress paying down at least some of their principal balance, meaning College Scorecard rates will likely be lower for more recent repayment cohorts.

Additionally, our understanding of the PROSPER Act is that the administrative forbearance used during the repayment pause does not count as positive repayment.[45] Consequently, our estimates for the PROSPER Act repayment rate will result in low rates due in large part to the repayment pause. Alternatively, our interpretation of the CAA rates is that administrative forbearance does count, resulting in relatively high rates due in large part to the repayment pause.[46] However, even with the repayment pause, CAA repayment rates at these universities will not be 100% since the bill also requires borrowers to have "paid at least 90 percent of the monthly payment" during a three-year period.[47] Our period expands to five years, meaning borrowers who were delinquent prior to the repayment pause will bring this rate down in our calculations.

Repayment rates by cohort

Table 7 reports our calculations of institutional repayment rates under each formula for each repayment cohort and degree level. Under each formula, higher rates are associated with positive outcomes. For example, the table shows 77% of undergraduate borrowers in the 2017 cohort paid at least one dollar down on their principal balance (i.e., College Scorecard metric), 38% are not falling too far behind on payments (i.e., PROSPER metric), and 75% are making "on time" payments according to the CAA's measure. Graduate/professional borrowers tend to have lower repayment rates – likely a function of their higher participation rates in IDR repayment plans. Notably, the College Scorecard repayment rate is only for undergraduate borrowers but we calculate rates for graduate/professional borrowers. Similarly, PROSPER and CAA do not disaggregate by undergraduate or graduate/professional borrowers, so this table adds new context to what those rates might look like at these six universities if disaggregated by degree level.

Table 7:
Estimated repayment rates among borrowers at all six partner universities, by repayment cohort

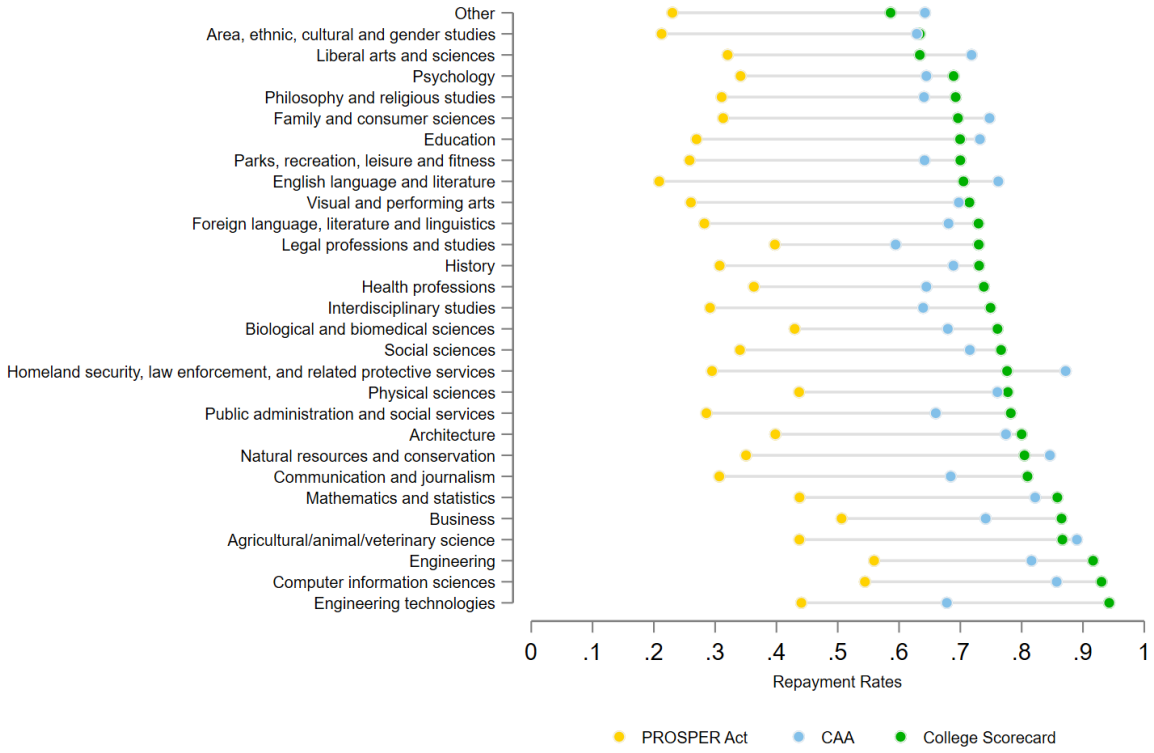
	2017	2018	2019	All cohorts
Undergraduate				
College Scorecard	77%	75%	72%	75%
PROSPER Act	38%	34%	34%	35%
CAA	75%	77%	81%	78%
Graduate/Professional				
College Scorecard	56%	54%	39%	48%
PROSPER Act	39%	34%	27%	32%
CAA	64%	57%	45%	54%
Total				
College Scorecard	70%	68%	57%	65%
PROSPER Act	38%	34%	31%	34%
CAA	71%	71%	67%	69%

Repayment rates by academic program

Using 2-digit CIP codes for the 2017 repayment cohort, Figure 5 shows how repayment rates vary across academic programs using each of the three repayment measures. Although Table 5 disaggregated between undergraduate and graduate/professional borrowers, all subsequent findings revert to the original definitions outlined in Table 1 (i.e., undergraduate only for College Scorecard and both undergraduate and graduate/professional for PROSPER and CAA).

Figure 5 shows wide degrees of variation occurring within these six universities where some programs have considerably higher rates than others. For example, borrowers who were in Engineering and Computer Information Sciences at these six universities have the highest College Scorecard repayment rates compared to other academic programs, while borrowers who were in Physical Sciences or Biological and Biomedical Sciences programs at these institutions had some of the highest PROSPER Act and CAA repayment rates. In contrast, borrowers at these six universities who studied Public Administration and Social Services, Visual and Performing Arts, and English Language and Literature tended to have the lowest PROSPER and CAA repayment rates, while Legal Professions and Studies and Liberal Arts and Sciences had the lowest College Scorecard rates. Consequently, programs with the highest and lowest repayment rates among borrowers at these six universities vary depending on which measure they apply.

Figure 5:
Estimated repayment rates for 2017 cohort, by program



Repayment rates by repayment plan

In addition to calculating repayment rates by academic programs, we calculated repayment rates by borrowers' repayment plans. Table 8 shows these rates for the 2017 repayment cohort by each repayment plan, where borrowers in standard plans tend to have among the highest repayment rates, while those in various income-driven plans (e.g., IBR, ICR, etc.) have considerably lower rates under the College Scorecard and PROSPER Act measures.

Table 8:
Estimated repayment rates for 2017 cohort, by repayment plan

	College Scorecard	PROSPER	CAA
Standard	86%	42%	72%
IBR	55%	18%	66%
ICR	72%	17%	81%
PAYE	52%	19%	64%
REPAYE	37%	15%	70%
Extended	42%	21%	73%
Graduated	78%	23%	70%
Other/Alt.	87%	68%	74%
Total	77%	38%	71%

We have identified three likely factors driving each repayment rate at these six universities. For the College Scorecard, when borrowers opt into IDR they typically have lower repayment rates since these plans are designed to provide zero-dollar or substantially reduced monthly payments that do not reduce the original principal balance. As a result, the "dollar down" metric used in the College Scorecard will be deflated. For the PROSPER Act, repayment rates are typically low because we understand the current repayment pause to not "count" as a positive repayment outcome. As a result, PROSPER Act repayment rates are mainly measuring the "paid in full" rate at these institutions. Finally, CAA are relatively high across all repayment plans since they count the current repayment pause as a positive repayment outcome. However, if a borrower fell behind in payments prior to the pause, they may not have had enough time to get back into good standing under CAA.[48]

Repayment plans appear to play a non-trivial role in calculating repayment rates for College Scorecard and PROSPER Act, but less of a role in CAA. For example, the College Scorecard's repayment rate is 86% for those repaying via standard plans but only 37% for those in REPAYE. Similarly, borrowers in standard plans have 42% repayment rates under PROSPER while those in REPAYE are 15%. We do not see these same differences in CAA, where standard plans have repayment rates of 72% and REPAYE's repayment rate is nearby at 70%.

Repayment rates by debt levels

Table 9 shows repayment rates for different levels of original principal amounts borrowed (combining both undergraduates and graduate/professional students) in the 2017 repayment cohort. There are two patterns that emerge; first, higher original debts tend to have higher outstanding balances. For the 1,107 borrowers with $70k or more of initial debt (5.6% of the total), we see balances being greater than the principal (e.g., negatively amortized). Borrowers with between $80k and $90k of debt, those with the greatest balances relative to their principal, typically owed $8,582 more than their original principal. However, borrowers with low initial principal amounts tend to have considerably lower outstanding balances. For example, the median borrower who originally took out less than $10,000 only owed $888 within five years of entering repayment.

The second pattern is that repayment rates across all three metrics generally decline as debt levels rise. For example, borrowers with the lowest amount of initial debt (e.g., less than $10,000) had College Scorecard repayment rates of 79% while those with the highest (e.g., more than $100,000) had a 28% rate. This gap is considerably large: 51 percentage points. Gaps like this also appear for PROSPER and CAA repayment rates. While the number of borrowers differs across debt levels, this general pattern is useful when considering sources of variation in repayment rates: it may take very outreach, interventions, and strategies to support borrowers with the highest debts versus those with the lowest.

Table 9:
Median original principal, outstanding balance, and repayment rate by debt levels (2017 cohort)

		Median debt		Repayment Rates		
	n	*Original principal*	*Outstanding balance*	*College Scorecard*	*PROSPER*	*CAA*
< $10k	5,246	$5,500	$888	79%	53%	75%
$10k - $20k	4,919	$14,878	$8,972	81%	41%	75%
$20k - $30k	4,493	$24,318	$18,600	71%	28%	73%
$30k - $40k	1,462	$32,608	$31,842	53%	21%	71%
$40k - $50k	1,539	$41,000	$40,090	54%	36%	69%
$50k - $60k	420	$54,414	$55,745	49%	31%	54%
$60k - $70k	760	$61,500	$56,023	56%	38%	63%
$70k - $80k	261	$74,475	$74,587	49%	36%	34%
$80k - $90k	190	$83,777	$92,359	42%	30%	38%
$90k - $100k	167	$94,511	$98,944	43%	31%	35%
$100k +	489	$133,595	$133,393	41%	28%	54%
Total	19,946	$19,500	$8,157	70%	38%	71%

Repayment rates by student characteristics

Table 10 offers three new insights into repayment for each of the six partner universities. This table reveals racial/ethnic inequities with respect to the original principal and outstanding balances of borrowers. For example, white borrowers carried median original principal balances ($20,300) near the overall average ($19,500). However, white borrowers' outstanding balances are among the lowest of all racial/ethnic groups in this repayment cohort. The median white student's outstanding balance is $7,632, a reduction of $12,668 from their original principal amount borrowed. This represents a 62% decrease in debt while Black, Native American, and Hispanic borrowers have reduced their original principal amounts by 19%, 26%, and 43% respectively. Because 53% of the 2017 cohort paid their loans in full, the median Asian American borrower has $0 outstanding balance. Not reported here, the *mean* Asian American borrower has an outstanding balance of $7,000 suggesting a wide degree of variation occurring within this racial/ethnic group.

The estimated repayment rates generally follow these same patterns where borrowers of color tend to have lower repayment rates than white students. Some of these patterns could be a function of which repayment plan borrowers select. For example, Black borrowers at these universities are more likely to participate in IDR (as shown in Table 6) and most of these plans require borrowers to have partial financial hardship to qualify. These plans also cause outstanding balances to rise over time, meaning some Black borrowers at these universities are likely paying down their loans at slower rates because of IDR. Further analysis is necessary to understand these patterns, though they are likely rooted in racial wealth gaps discussed earlier, where students' ability to repay their loans are tied directly to existing racial and economic inequities in our broader society. Similarly, further research should explore variation in loan debt and repayment outcomes *within* racial/ethnic groups. For example,

within the Asian American racial/ethnic category, there are likely differences along regional, national, and other cultural groupings.[49] Exploring data in this way could also reveal patterns on borrowers whose identities and experiences are not reflected by the median statistic (i.e., although the median for Asian Americans is $0 there may be meaningful sub-group differences not captured in this statistic).

Table 10:
Median original principal, outstanding balance, and repayment rate by race/ethnicity (2017 cohort)

		Median debt		Repayment Rates		
	n	*Original principal*	*Outstanding balance*	*College Scorecard*	*PROSPER*	*CAA*
White	9,752	$20,300	$7,632	72%	40%	73%
Black	1,214	$22,478	$18,227	43%	24%	57%
Hispanic	4,054	$18,664	$10,655	67%	27%	69%
Asian American	2,862	$16,672	$0	86%	56%	76%
Native American	92	$15,394	$11,371	50%	24%	66%
Pacific Islander	-	-	-	-	-	-
Multiple	572	$19,500	$10,232	67%	33%	66%
Unreported	1,356	$20,500	$10,017	63%	36%	70%
Eligible non-citizen	-	-	-	-	-	-
Total	19,946	$19,500	$8,157	70%	38%	71%

Conclusion

The School Portfolio Report is a useful data source for monitoring and assessing student loan outcomes for colleges and universities. The six research universities in this study partnered with the SSTAR Lab to explore their loan outcomes and repayment rates based on SPR data for borrowers entering repayment between 2017 and 2019. Not only does this information help each institution in the administration of their federal aid, but it also contributes to ongoing default prevention and financial wellness efforts, exit counseling, and planning for federal accountability policies. Related to this final purpose, this report estimated repayment rates based on our understanding of the language in the College Scorecard data documentation, and legislative text of the PROSPER and College Affordability Acts. It also accounts for the current loan repayment pause, which not only affects repayment rate calculations but has immediate implications on how borrowers will restart payment in the near future. The process of navigating and successfully repaying student loans is complex and this analysis sheds new light into patterns of how and how much debt borrowers from these six universities have repaid:

- The six universities in our analysis disbursed over $1.7 billion to 64,052 borrowers who entered repayment between the fiscal years 2017 through 2019. While the average debt was $27,715, the median was $19,000 and this varied considerably for undergraduate versus graduate/professional borrowers. The median graduate/professional borrowers had $41,000 in original principal debt and

undergraduates had a median of just $14,500.

- Graduate students, Black students, and those ages 30+ at these six universities participate in income-driven repayment rates at much higher rates than other students and typically owe more than their original principal balance. Although the benefits of IDR include certain consumer protections for borrowers (e.g., zero-dollar payments, interest subsidies, loan forgiveness, and more manageable monthly payment amounts) they can skew repayment rate metrics that fail to account for these differences.

- Borrowers' repayment outcomes are likely symptoms of broader social inequities related to racial wealth gaps, where we found Black borrowers tend to have higher original principal amounts of debt, higher outstanding balances, and lower repayment rates than White borrowers at these universities. More research is necessary to fully understand the causes and consequences of the inequities.

- There is no "typical" borrower, so default prevention, informational campaigns, loan counseling, financial wellness efforts, and other financial aid practices require institutions to take proactive and personalized outreach to support successful repayment. For example, 28% of borrowers fully repaid their loans within five years of entering repayment and they typically carried relatively low debts. However, only about 1% of borrowers defaulted, but many of these defaults were concentrated among non-completers. And some borrowers appear to opt into IDR plans while others prefer standard or even extended plans. These various pathways are not well understood in the research literature and can prove fruitful for helping borrowers navigate the complex repayment system that awaits them after leaving college.

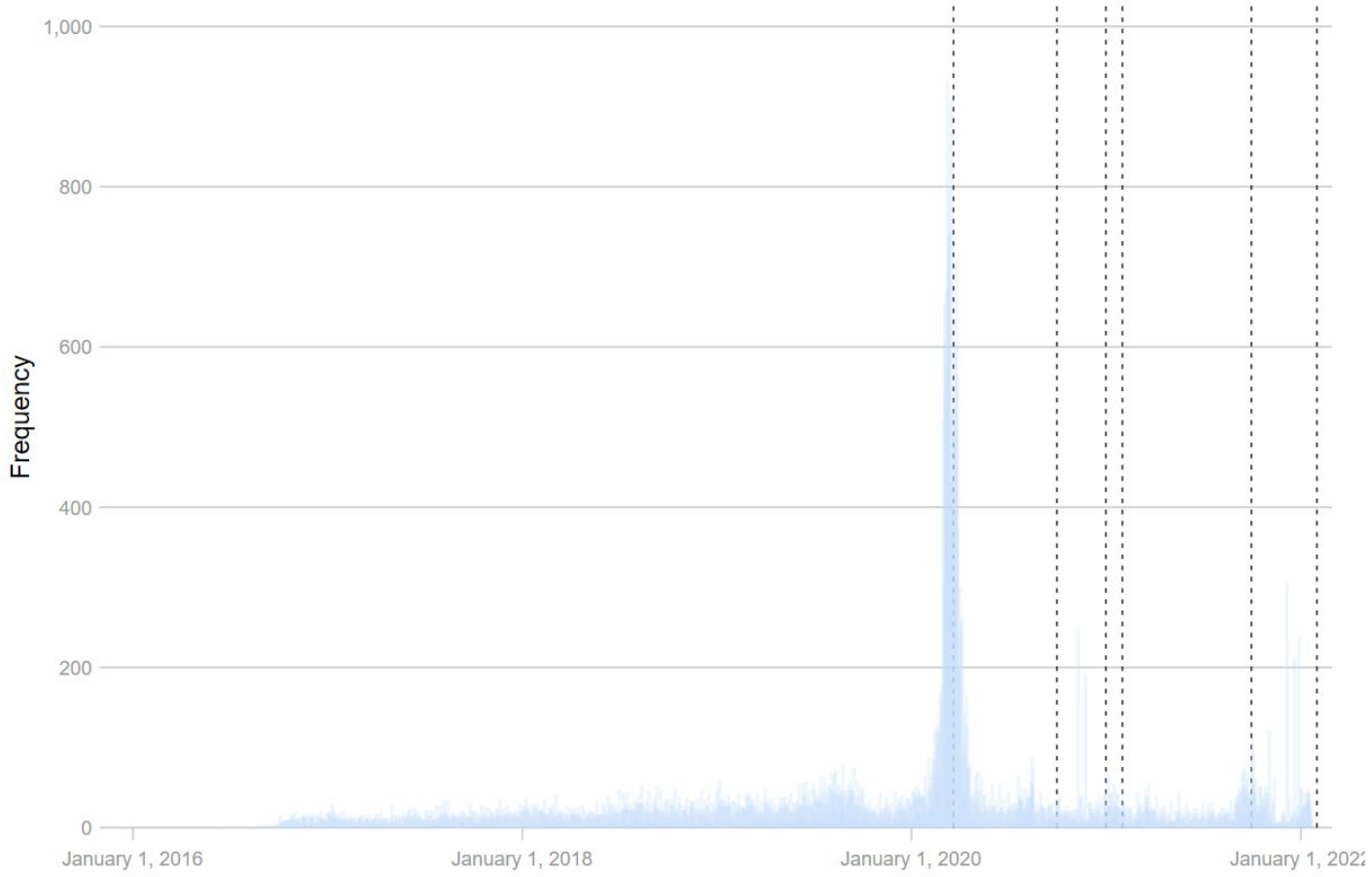
- Federal repayment rate proposals could benefit from the findings from these six universities. At a minimum these rates should be disaggregated by repayment plans and debt levels. Additionally, disaggregating loan outcomes by students' racial/ethnic, academic, and socioeconomic characteristics – in addition to their program of study and completion status – can support financial aid professionals in their efforts to monitor and design appropriate responses based on their students' needs.

The SPR provides a valuable resource for financial aid professionals to learn where inequities, inefficiencies, and possibilities are for improving loan outcomes for undergraduate and graduate/professional students. Using this data to inform practices can help borrowers understand and navigate repayment, but it can also help universities leverage data and accountability reforms in productive ways to support successful loan outcomes. Federal policymakers may also benefit from the findings of this report to help design repayment rate formulas that account for the complexities of loan repayment. These efforts hold great promise for avoiding negative loan outcomes while promoting positive outcomes that can help maximize borrowers' return on their educational investment.

Appendix A: *Median original principal and outstanding balance, by student characteristics and repayment*

		Total		*Paid in Full*		*Default*		*Income-Driven Repayment*	
		Original	*Outstanding*	*Original*	*Outstanding*	*Original*	*Outstanding*	*Original*	*Outstanding*
First-gen status	Not first-gen	$20,500	$11,575	$15,400	$0	$19,500	$22,165	$32,967	$29,367
	First-gen	$16,200	$9,553	$8,750	$0	$13,000	$14,564	$23,751	$23,095
Pell status	Never Pell	$21,000	$11,627	$15,000	$0	$19,500	$22,527	$31,802	$30,163
	Pell ever	$14,879	$9,122	$7,500	$0	$12,018	$13,412	$21,500	$20,422
Racial/Ethnic Group	White	$19,852	$10,521	$14,000	$0	$14,800	$16,582	$27,726	$26,725
	Black	$21,500	$18,831	$10,369	$0	$10,733	$12,221	$31,000	$31,699
	Hispanic	$17,956	$12,206	$8,750	$0	$18,306	$20,394	$25,565	$24,744
	Asian Amer.	$16,331	$2,850	$12,000	$0	$14,500	$14,713	$26,000	$20,671
	Native Amer.	$12,739	$9,751	$10,500	$0	$9,250	$9,713	$25,082	$25,898
	Pacific Islander	$19,500	$15,712	$9,667	$0	$24,980	$30,139	$34,356	$38,158
	Multiple	$19,225	$11,503	$11,567	$0	$20,500	$25,467	$26,151	$25,741
	Unreported	$23,266	$13,601	$18,768	$0	$16,990	$18,401	$33,500	$28,906
	Eligible non-citizen	$22,000	$15,358	$20,500	$0	$20,000	$21,970	$28,617	$33,090
Age group	Unreported	$34,385	$30,621	$20,500	$0	-	-	-	-
	< 25	$5,500	$2,865	$4,750	$0	$5,500	$5,914	$9,500	$7,571
	25 - 30	$17,934	$10,593	$11,250	$0	$16,223	$17,949	$24,277	$23,178
	30+	$32,836	$18,281	$30,481	$0	$25,000	$29,835	$41,000	$37,242
Binary Gender	Male	$19,500	$9,992	$13,500	$0	$14,334	$16,131	$28,000	$27,094
	Female	$19,000	$11,153	$12,000	$0	$16,223	$18,534	$27,000	$25,760
	Unreported	$13,583	$8,905	$9,700	$0	$37,144	$42,043	$19,968	$13,159
Completion Status	Non-completer	$8,000	$6,169	$5,500	$0	$9,896	$11,197	$12,720	$12,747
	Completer	$21,000	$12,429	$14,021	$0	$25,050	$28,016	$29,269	$28,390
Degree level	Undergrad	$14,500	$7,808	$8,000	$0	$12,500	$13,551	$20,500	$19,398
	Grad./Prof.	$41,000	$23,645	$38,492	$0	$42,516	$54,576	$46,946	$47,366
Total		**$19,000**	**$10,594**	**$12,666**	**$0**	**$15,000**	**$16,727**	**$27,000**	**$26,153**

Appendix B: *Most recent recorded payment date for borrowers attending the six universities in this analysis, vertical lines represent repayment pause extension dates*



Note: See Congressional Research Service (2022). Student Loans: A Timeline of Actions Taken in Light of the COVID-19 Pandemic: https://crsreports.congress.gov/product/pdf/IF/IF12136

Appendix C: Sample Stata code for calculating repayment rates

```
// College Scorecard (only undergraduate students)

**define population to be included in the denominator
  generate cs_denom=1
  replace cs_denom=0 if inlist(oldloanstatus, "BK", "DI", "CA", "IA", "IG", "PD", "DE", "PZ", "DD", "VA")

**exclusions from CS repayment rate set to 0: bankruptcy, cancelled loans, loan originated, in grace
period, permanent or temp disabilities, death, child death for plus loans, defaulted then died, veterans
discharge

  drop if cs_denom==0 //none of these should be counted in any repayment rates
  replace cs_denom=0 if oldloanstatus!="DA" & inlist(deferment_reason, "FT", "HT", "GF", "AP", "MO", "MR",
  "PE") //adjust for valid deferments: full time students, half time students, graduate fellowship, armed
  forces, military, national gaurd, six month post enrollment period
  replace cs_denom=0 if career==2        //exclude graduate students

**generating current balances and amounts borrowed based on totals from above, including in scorecard RR
  egen cs_balance=rowtotal(balance_sub balance_unsub)
  egen cs_balance_underlying=rowtotal(balance_underlying_sub balance_underlying_unsub)
  egen cs_balance_overlying=rowtotal(balance_overlying)
  egen cs_loan=rowtotal(loan_sub loan_unsub)
  egen cs_loan_underlying=rowtotal(loan_underlying_sub loan_underlying_unsub)
  egen cs_loan_overlying=rowtotal(loan_overlying)

**disagregating consolidators based on whether SPR includes all underlying loans
  gen consolidation_type=.
  replace consolidation_type=1 if cs_loan_underlying==cs_loan_overlying & consolidator==1
   //we have all underlying loans
  replace consolidation_type=2 if cs_loan_underlying>=cs_loan_overlying & consolidator==1
   //borrower was making progress before consolidating
  replace consolidation_type=3 if cs_loan_underlying<cs_loan_overlying & consolidator==1
   //underlying loans from other schools are likely included
  label define consolidation_type 1 "Underlying matches overlying" 2 "Underlying more than overlying" 3
  "Underlying less than overlying"
  label values consolidation_type

**create numerator equal to 1 is borrow is a "success" in scorecard rr
   generate cs_numerator=0
  *making progress
   replace cs_numerator=1 if paid_full==1
   replace cs_numerator=1 if cs_balance<=cs_loan  & consolidation_type==. //non-consolidation
  *determine proportion of consoldiatoin loans incurred at UW-Madison
   gen consolidation_weight=cs_loan/cs_loan_overlying
   gen cs_balance_weight=cs_balance_overlying*consolidation_weight if consolidation_type==3
   //reduce balance to mirror proportion of consolidation loans for which we have underlying loans
   replace cs_numerator=1 if cs_balance_weight<=cs_loan & consolidation_type==3
   //measure progress against the consolidation amount if consoidation loans includes loans from other
institutions
   replace cs_numerator=1 if cs_balance_overlying<=cs_loan_underlying & consolidation_type==2
   //if underlying total is more than consoidation balance, borrower paid down loans before conslidation,
count as success
   replace cs_numerator=0 if defaulter==1 & default_resolved==0 //kick out defaulted loans from numerator
   replace cs_numerator=0 if days_delinq>90 & days_delinq!=.     //kick out delinquent borrowers from
numerator

**example of repayment rate calculations: repayment rate by cohort
  tabstat cs_numerator if career==1 & idtag==1 & CS_denom==1, by(repay_fy) f(%6.3gc)

// PROSPER Act
  **define population to be included in the denominator
   gen exclude_prosper=0
   replace exclude_prosper=1 if inlist(simp_loantype,5,6) // kick out overlying consolidation loans
   replace exclude_prosper=1 if consolidated_loan==1 // kick out underlying consolidation loans
```

```
   **create numerator equal to 1 is borrow is a "success" in prospers rr
    *version 1 (not counting mandatory forbearance as success)
     gen prosper_num=0
     replace prosper_num=1 if inlist(simp_status, 4, 6)  //includes paid in full (nonconsolidation), in
     repayment
     replace prosper_num=1 if oldloanstatus!="DA" & inlist(deferment_reason, "FT", "HT", "GF", "AP", "MO",
     "MR", "PE") //adjust for valid deferments
     replace prosper_num=1 if default_resolved==1
     replace prosper_num=1 if cs_paid==1
     replace prosper_num=0 if g_days_delinq>90 & g_days_delinq!=.
     replace prosper_num=0 if exclude_prosper==1
   *version 2 (counting mandatory forbearance as success)
     gen prosper_num_ma=0
     replace prosper_num_ma=1 if inlist(g_simp_status, 4, 6)
     //includes loans paid in full (nonconsolidation), in repayment
     replace prosper_num_ma=1 if inlist(deferment_reason, "FT", "HT", "GF", "AP", "MO", "MR", "PE") &
     oldloanstatus!="DA" //adjust for valid deferments
     replace prosper_num_ma=1 if oldloanstatus=="FB" & inlist(forebearance_reason,"MA","MN")
     //includes loans affected by COVID-19 repayment pause
     replace prosper_num_ma=1 if default_resolved==1
     replace prosper_num_ma=1 if cs_paid==1
     replace prosper_num_ma=0 if days_delinq>90 & days_delinq!=.
     replace prosper_num_ma=0 if exclude_prosper==1
  **example of repayment rate calculations: repayment rate by cohort
     tabstat prosper_num prosper_num_ma if idtag==1 & exclude_prosper==0, by(repay_fy) f(%6.3gc)

// CAA
  **define population to be included in the denominator
     gen exclude_caa=0
     replace exclude_caa=1 if inlist(simp_loantype,5,6) // kick out overlying consolidation loans
     replace exclude_caa=1 if consolidated_loan==1 // kick out underlying consolidation loans
  **create numerator equal to 1 is borrow is a "success" in CAA rr
    *version 1 (not counting mandatory forbearance as success)
     gen caa_num=0
     replace caa_num=1 if inlist(simp_status, 4, 6)  //includes paid in full (nonconsolidation), in
     repayment
     replace caa_num=1 if inlist(deferment_reason, "FT", "HT", "GF", "AP", "MO", "MR", "PE") &
     oldloanstatus!="DA" //adjust for valid deferments
     replace caa_num=1 if inlist(deferment_reason, "IR")
     //exclusion for medical residency deferment in addition to other carveouts
     replace caa_num=0 if exclude_caa==1
     //if a borrower is more than 90 days deliquent they've missed at least three payments
     replace caa_num=0 if g_days_delinq>90 & g_days_delinq!=.
     //if a borrower is in default they've missed at least three payments, even if they have since
     rehabilitated
     assert caa_num==0 if default==1

//adding up time a borrower spends in forbearance and non-valid deferment
    generate time_deferment=deferment_end-deferment_date
    replace time_deferment=. if valid_deferment==3
    replace time_deferment=. if inlist(deferment_reason, "IR")
    replace caa_num=0 if time_deferment>=120 & time_deferment!=.
    generate time_forbearance=forebearance_end-forebearance_date
    replace time_forbearance=. if forebearance_reason=="AD"
    replace caa_num=0 if time_forbearance>=120 & time_forbearance!=.
    egen time_defforb=rowtotal(time_deferment time_forbearance)
    replace caa_num=0 if time_defforb>=120 & time_defforb!=.

   *version 2 (counting mandatory forbearance as success)
    gen caa_num_ma=0
    replace caa_num_ma=1 if inlist(simp_status, 4, 6)
    //includes paid in full (nonconsolidation), in repayment
    replace caa_num_ma=1 if oldloanstatus!="DA" & inlist(deferment_reason, "FT", "HT", "GF", "AP", "MO",
    "MR", "PE") //adjust for valid deferments
    replace caa_num_ma=1 if oldloanstatus=="FB" & inlist(forebearance_reason,"MA","MN")   //includes loans
    affected by COVID-19 repayment pause
```

```
    replace caa_num_ma=1 if inlist(deferment_reason, "IR") //exclusion for medical residency deferment in
    addition to other carveouts
    replace caa_num_ma=0 if exclude_caa==1
    //if a borrower is more than 90 days deliquent they've missed at least three payments
    replace caa_num_ma=0 if g_days_delinq>90 & g_days_delinq!=.

   //if a borrower is in default they've missed at least three payments, even if they have since
    rehabilitated
    assert caa_num_ma==0 if default==1

   //adding up time a borrower spends in forbearance and non-valid deferment
    replace caa_num_ma=0 if time_deferment>=120 & time_deferment!=.
    generate time_forbearance_ma=forebearance_end-forebearance_date
    replace time_forbearance_ma=. if inlist(forebearance_reason,"AD", "MA", "MN")
    replace caa_num_ma=0 if time_forbearance_ma>=120 & time_forbearance_ma!=.
    egen time_defforb_ma=rowtotal(time_deferment time_forbearance_ma)
    replace caa_num_ma=0 if time_defforb_ma>=120 & time_defforb_ma!=.

**example of repayment rate calculations: repayment rate by cohort
    tabstat caa_num caa_num_ma if idtag==1 & exclude_caa==0, by(repay_fy) f(%6.3gc)
```

End Notes

[1] Consistent with the data sharing agreements between each university partner and the SSTAR Lab, no personally identifiable information was shared between parties.

[2] See 34 CFR, Sec. 668.217 https://www.govinfo.gov/content/pkg/CFR-2021-title34-vol3/pdf/CFR-2021-title34-vol3-part668-subpartN.pdf

[3] See 34 CFR, Sec. 668.206 https://www.govinfo.gov/content/pkg/CFR-2021-title34-vol3/pdf/CFR-2021-title34-vol3-part668-subpartN.pdf Sanctions can apply when CDRs are above 30% for a period of three years, or 40% in a single year.

[4] See 34 CFR, Sec. 685.303 https://www.govinfo.gov/content/pkg/CFR-2021-title34-vol4/pdf/CFR-2021-title34-vol4-sec685-303.pdf Study abroad benefits activate at 5% CDR (for a single year) and early disbursement benefits activate at 15% CDR (over a three year period). See also: Federal Student Aid Handbook https://fsapartners.ed.gov/knowledge-center/fsa-handbook/2022-2023/vol4/ch2-disbursing-fsa-funds

[5] The College Scorecard now also provides dollar-based repayment rates and additional repayment measures (e.g., delinquency rates), see "Repayment Rate for Loans Taken Out at This School" section of the glossary: https://collegescorecard.ed.gov/data/glossary/

[6] See H.R. 4508, 115th Congress https://www.congress.gov/bill/115th-congress/house-bill/4508

[7] See H.R. 4674, 116th Congress https://www.congress.gov/bill/116th-congress/house-bill/4674

[8] U.S. Department of Education. 2017. Better Information for Better College Choice & Institutional Performance. https://collegescorecard.ed.gov/assets/BetterInformationForBetterCollegeChoiceAndInstitutionalPerformance.pdf

[9] PROSPER Act. H.R. 4508, 115TH Cong. (2017). https://www.congress.gov/bill/115th-congress/house-bill/4508

[10] College Affordability Act. H.R. 4674, 116th Cong. (2019). https://www.congress.gov/bill/116th-congress/house-bill/4674 https://edlabor.house.gov/imo/media/doc/SCOTVA_047_xml.pdf

[11] See Congressional Research Services (2022). Student Loans: A Timeline of Actions Taken in Light of the COVID-19 Pandemic. https://crsreports.congress.gov/product/pdf/IF/IF12136

[12] See for example: T. Plunkett, R. Fitzgerald, & L. West (2021). Many Student Loan Borrowers Will Need Help When Federal Pause Ends, Survey Shows. Pew Research Center https://www.pewtrusts.org/en/research-and-analysis/articles/2021/07/15/many-student-loan-borrowers-will-need-help-when-federal-pause-ends-survey-shows and J. Goss, D. Mangrum, & J. Scally (2022). Student Loan Repayment During the Pandemic Forbearance. Liberty Street Economics; Federal Reserve Bank of New York https://libertystreeteconomics.newyorkfed.org/2022/03/student-loan-repayment-during-the-pandemic-forbearance/

[13] See S. Klebs (2022). Using the Payment Pause to Reinvent the Cohort Default Rate. Third Way, Washington DC. https://www.thirdway.org/memo/using-the-payment-pause-to-reinvent-the-cohort-

default-rate

[14] See Hillman (2014) College on Credit: A Multilevel Analysis of Student Loan Default. Review of Higher Education, 37(2), 169-195 and Scott-Clayton (2018) The Looming Student Loan Default Crisis is Worse Than We Thought. Brookings Institute, Evidence Speaks Report, Vol. 2, #34 for the link between completion and default; see Houle & Addo (2019) Racial Disparities in Student Debt and the Reproduction of the Fragile Black Middle Class. Sociology of Race and Ethnicity, 5(4) 562-577 on the racial/ethnic disparities in debt and repayment; and see Mezza & Sommer (2016) A Trillion-Dollar Question: What Predicts Student Loan Delinquencies. Journal of Student Financial Aid, 46(3) for the link between family income and repayment.

[15] When a sample is small, its summary statistics can be highly sensitive to outliers. Larger sample sizes are less sensitive to outliers, resulting in more accurate estimates when using inferential statistics.

[16] See E. Derenoncourt, C. Kim, M. Kuhn, & M. Schularick (2021). The Racial Wealth Gap, 1860-2020. Russell Sage Foundation: https://www.russellsage.org/sites/default/files/Derenoncourt.Proposal.pdf and M. Small & D. Pager (2020). Sociological Perspectives on Racial Discrimination. Journal of Economic Perspectives, 34(2), 49-67. https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.34.2.49

[17] Ibid.

[18] See M. Chan, J. Kwon, D. Nguyen, K. Saunders, N. Shah, & K. Smith (2019). Indebted Over Time: Racial Differences in Student Borrowing. Educational Researcher, 48(8), 558-563. https://journals.sagepub.com/doi/abs/10.3102/0013189X19864969?journalCode=edra and F. Addo (2021). Ensuring a More Equitable Future: Exploring and Measuring the Relationship Between Family Wealth, Education Debt, and Wealth Accumulation. Postsecondary Value Commission. Bill & Melinda Gates Foundation: https://files.eric.ed.gov/fulltext/ED612727.pdf

[19] See J. Houle & F. Addo (2019). Racial Disparities in Student Debt and the Reproduction of the Fragile Black Middle Class. Sociology of Race and Ethnicity, 5(4), 562-577. https://journals.sagepub.com/doi/abs/10.1177/2332649218790989 and Furquim, F.; Deane, K.; McCall, B.; & DesJardins, S. (2022). Like Any Other Trap: The Circuitous Path of Student Loan Repayment. AERA Open, 8(1), 1-19: https://journals.sagepub.com/doi/full/10.1177/23328584221093325

[20] See J. Scott-Clayton (2016). Black-white Disparity in Student Loan Debt More than Triples After Graduation. Brookings Institution. Evidence Speaks Reports, 2(3), https://www.brookings.edu/wp-content/uploads/2016/10/es_20161020_scott-clayton_evidence_speaks.pdf

[21] For the file layout, see https://fsapartners.ed.gov/knowledge-center/library/nslds-user-resources/2019-10-16/nslds-school-portfolio-report-extract-file-layout-schools-schpr1-comma-separated-values

[22] It also includes some borrowers from Federal Family Education Loan programs, but the majority are Direct Loans.

[23] This ranged from November 2021 to March 2022.

[24] These limits are for subsidized and unsubsidized Direct Loans. See https://studentaid.gov/understand-aid/types/loans/subsidized-unsubsidized and note dependent undergraduate students whose parents are unable to obtain PLUS loans may have higher limits.

[25] See A. Looney & C. Yannellis (2015). A Crisis in Student Loans? How Changes in the Characteristics of Borrowers and in the Institutions they Attend Contributed to Rising Loan Defaults. Brookings Papers on Economic Activity, (2), 1-89. Online appendix "flows of borrowers" file and "paid_length" variable, which measures the "average duration until all loans are paid off for borrowers who paid off all their loans and exited repayment."

[26] See Furquim, F.; Deane, K.; McCall, B.; & DesJardins, S. (2022). Like Any Other Trap: The Circuitous Path of Student Loan Repayment. AERA Open, 8(1), 1-19: https://journals.sagepub.com/doi/full/10.1177/23328584221093325 and J. Scott-Clayton (2018) The Looming Student Loan Default Crisis is Worse Than We Thought. Brookings Institute, Evidence Speaks Report, Vol. 2, #34 https://www.brookings.edu/wp-content/uploads/2018/01/scott-clayton-report.pdf

[27] See School Portfolio Report file layout for more information https://fsapartners.ed.gov/knowledge-center/library/nslds-user-resources/2019-10-16/nslds-school-portfolio-report-extract-file-layout-schools-schpr1-comma-separated-values For the purposes of this analysis, we excluded irrelevant statuses like "Closed School Discharge" and "Fraud." We also excluded deaths, refinanced loans, and bankruptcy codes. We also only focus on "Default, unresolved" (DF) when measuring default. We also exclude borrowers in grace periods since they are not in repayment. The main codes of interest for this analysis include: DA; DC; DF; DU; DX; FB; PF; and RP.

[28] See pages 34-35 where "17 percent of borrowers in the 2009 cohort had paid off all of their debt" and Figure 20 in White House (2016). Investing in Higher Education: Benefits, Challenges, and the State of Student Debt. https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160718_cea_student_debt.pdf

[29] See for example N. Hillman (2014). College on Credit: A Multilevel Analysis of Student Loan Default. The Review of Higher Education, 37(2), 169-195 and S. Dynarski (2015). Why Students With Smallest Debts Have the Larger Problem, New York Times https://www.nytimes.com/2015/09/01/upshot/why-students-with-smallest-debts-need-the-greatest-help.html

[30] Furquim et al., p. 15.

[31] See U.S. Department of Education https://studentaid.gov/manage-loans/repayment/plans/income-driven also Public Service Loan Forgiveness provides forgiveness after 10 years or 120 qualifying payments: https://studentaid.gov/manage-loans/forgiveness-cancellation/public-service. We do not include Income Sensitive Repayment, which is an earlier option for FFEL loans and is not a major program today.

[32] The statistics in this paragraph are drawn from the U.S. Department of Education's Office of Federal Student Aid Data Center "Portfolio by Repayment Plan" in Q1 of 2022 for federally managed portfolio https://studentaid.gov/data-center/student/portfolio

[33] Monthly payment for the standard 10-year plan is based on a 4.5% interest rate on unsubsidized loans, calculated via the U.S. Department of Education's Loan Simulator. Under PAYE and REPAYE, the borrower would owe $2,086, or 10% of discretionary income, in 2020; this would be paid in 12 monthly installments of $173.83. https://studentaid.gov/loan-simulator/repayment/results/plan/

[34] See D. Herbst (2020). Liquidity and Insurance in Student-Loan Contracts: The Effects of Income-Driven Repayment on Borrower Outcomes. *Working paper:* https://djh1202.github.io/website/IDR.pdf and U.S. Congressional Budget Office (2020). *Income-Driven Repayment Plans for Student Loans: Budgetary Costs and Policy Options*. See Figure 2-6. https://www.cbo.gov/publication/55968

[35] See for example U.S. Government Accountability Office (2022). Federal Student Aid: Education Needs to Take Steps to Ensure Eligible Loans Receive Income-Driven Repayment Forgiveness https://www.gao.gov/products/gao-22-103720 and NASFAA (2022). ED to Public Proposed Regulations for Borrower Defense, PSLF, and More Targeted Relief Programs https://www.nasfaa.org/news-item/27578/ED_to_Publish_Proposed_Regulations_for_Borrower_Defense_PSLF_and_More_Targeted_Relief_Programs

[36] See for example Congressional Budget Office (2020). Income-Driven Repayment Plans for Student Loans: Budget Costs and Policy Options, see Chapter 2: https://www.cbo.gov/publication/56277#_idTextAnchor025

[37] See U.S. Department of Education's Interest Rates and Fees for Federal Student Loans page: https://studentaid.gov/understand-aid/types/loans/interest-rates

[38] See U.S. Department of Education https://studentaid.gov/help-center/answers/article/what-is-loan-capitalized-interest

[39] See N. Karamcheva, J. Perry, C. Yannelis (2020). Income-Driven Repayment Plans for Student Loans. Congressional Budget Office, Working Paper 2020-02: https://www.cbo.gov/system/files/2020-04/56337-CBO-working-paper.pdf See page 13, also "approximately 20%" is based on Figure 4 (page 25).

[40] See for example J. Miller, S. Brady, A. Balmuth, L. D'Ambrosio, & J. Coughlin (2021). Student Loans at the Dinner Table: Family Communication Patterns About Student Loans Before Accrual and During Repayment. Journal of Family and Economic Issues, 42, 251-271 https://link.springer.com/article/10.1007/s10834-021-09759-3 and J. Houle & F. Addo (2019). Racial Disparities in Student Debt and the Reproduction of the Fragile Black Middle Class. Sociology of Race and Ethnicity, 5(4), 562-577. https://journals.sagepub.com/doi/abs/10.1177/2332649218790989

[41] See U.S. Department of Education for more information on default https://studentaid.gov/manage-loans/default

[42] We exclude loans paid in full through consolidation in the PIF calculation.

[43] In 2021, the College Scorecard began reporting additional repayment outcomes including delinquency rates, paid in full rates, and the share of borrowers in deferment or forbearance. They also now report repayment outcomes at the program level, which can provide useful metrics to contextualize how borrowers navigate repayment.

[44] See Kelchen & Li (2017). Institutional Accountability: A Comparison of the Predictors of Student Loan Repayment and Default. Annals of the American Academy of Political and Social Sciences, vol. 671, 202-223 https://journals.sagepub.com/doi/full/10.1177/0002716217701681 and See Figures 20 and 23 in "Investing in Higher Education: Benefits, Challenges, and the State of Student Debt" (2016). Executive Office of the President of the United States https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160718_cea_student_debt.pdf

[45] For PROSPER, section 481B(c)(3)(C) states "in a deferment or forbearance that is comparable to a deferment described in 469A(b)(1)" which refers to seven eligibility criteria: enrolled at least half-time; pursuing an eligible course of study; serving on active duty; performing National Guard duty; is a member of the national Guard ineligible for post-active duty deferment; serving in a medical or dental internship/residency; eligible for Armed Service interest payments. https://www.congress.gov/bill/115th-congress/house-bill/4508/text#HAE6BBAF83CF04EABA7FE3C81720347C0

[46] For CAA, section 493L(a)(3)(E) states a study is considered to have made a monthly payment if they are in one of the following six statuses: medical/dental internship; national service forbearance; active duty or Armed Service forbearance; National Guard forbearance; military mobilization or national emergency; or teacher loan forgiveness forbearance. The administrative forbearance for the COVID-19 pandemic pause is covered under the national emergency forbearance. https://edlabor.house.gov/imo/media/doc/SCOTVA_047_xml.pdf

[47] See Section 493L(a)(1) https://edlabor.house.gov/imo/media/doc/SCOTVA_047_xml.pdf

[48] For example, consider a borrower who entered repayment in June 2017 – they would have had 55 payments by December 2021. If they failed to make 5 payments "on time" in 2017, 2018, or 2019 (long before the repayment pause) then they would fail to meet CAA's 90% "on time" threshold. Notably, our CAA estimate uses a five-year repayment window (for the 2017 cohort) rather than three years as the statute outlines.

[49] See S. Museus & M. Chang (2009). Rising to the Challenge of Conducting Research on Asian Americans in Higher Education. New Directions for Institutional Research, no. 142 and D. Baker, K. Ford, S. Viano, & M. Johnston-Guerrero (2022). Racial Category Usage in Education Research: Examining the Publications from AERA Journals. EdWorking Paper, No 22-596: https://www.edworkingpapers.com/ai22-596