Methodology

Introduction

The project on student borrower success worked with RTI International to collect empirical data on student loan debt, income, and demographics to estimate how repayment outcomes vary across different types of borrowers. To achieve these ends, we developed a set of profiles for different types of borrowers, including statistical information on their educational attainment, annual income, family demographics, and federal student loan debt. The profiles are based on the following characteristics:

- Highest degree earned: graduate degree, bachelor's degree, associate degree, some college no degree[1].
- Federal student loan debt: federal loan debt based on 25th, 50th, and 75th percentiles of debt within highest degree earned.
- Annual income: annual income based on 25th, 50th, and 75th percentiles of income within highest degree earned.

The sources of data for generating these profiles include the 2004-09 and 2012-17 Beginning Postsecondary Students (BPS:04/09 and BPS:12/17) Longitudinal Study, the 2015-16 National Postsecondary Student Aid Study (NPSAS:16), the 2017-21 American Community Survey (ACS), the 2016 Survey of Consumer Finances, and the 2019 Bureau of Labor Statistics (BLS) Employment Cost Index. The selection of these data sources was based on coverage of the targeted population; the year data was collected; sample size; availability of educational debt, degree type, and income measures; and the reliability and stability of the estimates.

Educational Loans

Federal student loan debt

Federal student loan debt for borrowers who earned a bachelor's degree, associate degree, or some college and no degree was calculated using BPS:12/17.[2] Loan amounts were calculated for borrowers only by highest degree earned as of 2017 at the 25th, 50th, and 75th percentile.[3] Annual interest rates for undergraduate loans are based on the federal rate for unsubsidized loans between July 1, 2023, and July 1, 2024, or 5.5%. All loans are assumed to be unsubsidized. In September 2023, debt amounts were indexed to 2023 dollars using the Consumer Price Index. As a result of the update, both debt and income amounts are currently expressed in 2023 dollars.

Debt for borrowers who earned a graduate degree was calculated using NPSAS:16. Loan amounts were calculated for borrowers only and grouped for all graduate degree earners who earned a degree as of 2016 at the 25th, 50th, and 75th percentile.[4] Annual interest rates for graduate loans are based on the federal rate for unsubsidized loans between July 1, 2023, and July 1, 2024, or 7.05%.

Income

Average annual earnings

Income was calculated using the new 2017-21 ACS five-year data. The ACS includes information on total family income, highest degree earned, age, marital status, and family size. Income was calculated at the 25th, 50th, and 75th percentiles by highest degree earned for all respondents within a specific age range.[5] Estimated income was based on a seven-year age range encompassing the median age of

borrowers entering repayment, which was calculated for each degree type using BPS:12/17 and NPSAS:16. The median age entering repayment was 23 for bachelor's and associate degree earners, 25 for certificate earners, 20 for individuals who attended college but did not earn a degree, and 33 for graduate degree earners. Married borrowers were assumed to file jointly; thus, the income for archetypal borrowers who were married represented the household income for the borrower and spouse.

Income estimates were used only in the income-driven repayment (IDR) estimates. IDR plans use borrowers' income levels to calculate monthly loan payments that are generally 10% of the borrowers' discretionary income values. Discretionary income is based on federal poverty guidelines and family size. For these estimates, it was assumed that the federal poverty guidelines for all borrowers were equal to the values for the 48 contiguous states.[6]

Average Annual Wage Increase

Annual increases in salary were calculated by highest degree earned using data collected between 2000 and 2019 by the BLS Employment Cost Index. Annual increases were averaged over 10 years for bachelor's degree earners, graduate degree earners, and combined associate and nondegree earners. The average wage increase for associate and nondegree earners was divided into two parts by assigning a higher average wage increase to associate degree earners and a lower average wage increase to nondegree earners.[7]

Graduate Students

For the purposes of reducing complexity, all graduate students were grouped together into a single category encompassing master's, doctoral, and professional degree students. Although this approach enables the generation of sufficient sample sizes for analysis, it obscures differences across degree types with respect to income, debt, and income trajectory. To account for these differences, each graduate profile is assigned a hypothetical career field, type of graduate degree, and corresponding income trajectory.

Nontraditional Borrowers

Recent graduates and currently enrolled students of postsecondary education may not reflect the "traditional" profile of 18-to-24-year-old, first-time, full-time beginners. Nontraditional borrowers in this study are identified in three ways: 1) borrowers who are independent when they enter postsecondary education; 2) borrowers who have dependent children when they enter postsecondary education; and 3) borrowers who move in and out of postsecondary education (i.e., stop-out at least two times before returning to higher education). Nontraditional profiles were created only for borrowers who earned bachelor's or associate degrees or who had some college and no degree. Limitations in the data precluded the creation of nontraditional profiles for borrowers with graduate degrees.

The result is the creation of additional archetypes for nontraditional borrowers across the three possible degree outcomes. The same data sets were used to identify and define these profiles. The National Center for Education Statistics (NCES) data sets contain information on borrowers' initial dependency status and the number of dependents when entering postsecondary education. They also contain data on the number of stop-outs a borrower experienced during their postsecondary education. BPS:12/17 was used to determine the amount borrowed at the 50th percentile for each nontraditional borrower, and BPS:04/09 was used to estimate their repayment trajectories.

Income for nontraditional degree earners was estimated at the 50th percentile using the ACS. Independent respondents and respondents with dependent children could be identified in the data set.

After determining the debt, income, and some repayment information for these nontraditional degree earners, each new profile was matched with its closest traditional-student borrower analog based on debt, income, and highest degree.

Borrower Profiles by Race

This analysis generates additional borrower profiles determined primarily by race/ethnicity and highest degree earned. The same data sets were used to calculate income (at the 50th percentile), debt (at the 50th percentile), age entering repayment (a seven-year frame inclusive of the median age), annual wage increase, repayment trajectories, and demographics across each profile. Importantly, income and debt statistics were reported at the 50th percentile only, rather than at the 25th and 75th percentiles. A six-year gap was also used to assess demographics at the age entering repayment and at a later date.

Repayment Specifications

Standard plan

The standard plan estimates are based on a 120-month fixed-rate and fixed-payment repayment period for unsubsidized undergraduate or graduate loans. Because any payments made during months of forbearance or deferment are not counted as qualifying payments under this plan, the actual repayment period (in months) from the end of the grace period until the loan is fully paid is extended by the number of months in either deferment or forbearance. Any interest that accrues during a period of forbearance or deferment (with the exception of some administrative forbearances) is capitalized.[8] Capitalized interest is added to the principal balance upon exiting a period of forbearance or deferment.

Monthly payments in the standard plan are re-amortized following an interest capitalization event, which can occur at the end of a deferment/forbearance or during a monthly periodic servicer check. When re-amortization occurs while the loan has outstanding interest, the interest is included in the loan balance when calculating the new repayment schedule for that purpose only.

Graduated plan

In graduated plan estimates, amortized payments increase by a biannual growth rate (*g*) of 31.635%. The initial payment under this plan is calculated according to the following formula: where *PV* is the present value of the loan, *i* is the interest rate divided by 12, and where the four subsequent graduate payment tiers are calculated as *initial payment*(1+g)^*t* (where *t* refers to payment tier; for example, *t*=2 refers to the second time the payments “graduate”—or, after the 48th qualifying payment).

PAYE plan

PAYE plan monthly payments are estimated using the adjusted gross income of the borrower and the 2020 poverty guidelines for the 48 contiguous states and the District of Columbia as follows:

> 10% of the borrower’s discretionary income divided by 12, where one’s discretionary income is defined as the adjusted gross income minus 150% of the poverty level for the borrower’s family size and state.

For the PAYE plan, this monthly payment amount is capped at the monthly payment amount for the same principal amount and interest rate under the standard plan, amortized based on the original principal balance of the loan upon entering the IDR plan but before the six-month grace period. In the PAYE plan, it is possible for a borrower's monthly payments to be $0 (if the borrower's earnings are less than 150% of the poverty level).

The rate at which the poverty thresholds are assumed to change each year are based on the Office of Federal Student Aid's loan simulator tool.

Any payments (including $0 payments) made during months of economic hardship deferments count as qualifying payments toward forgiveness, thus the total repayment period is not extended by the number of months in economic hardship deferment. However, the repayment period is extended by the number of months during other types of deferments and forbearances. Under the PAYE plan, any amount of the loan owed after 240 months of qualifying payments is forgiven, regardless of the level of the loan (ii.e,., graduate or undergraduate). PAYE does not include an interest subsidy for unpaid interest on unsubsidized loans. Any capitalization interest as a result of deferment or forbearance is capped at 10% of the original loan principal. Capitalization can also occur in the event of borrowers losing eligibility for lowered payments under PAYE and is subject to the same 10% of original loan principal cap.

REPAYE plan

The REPAYE plan is similar to the PAYE plan with some important differences. Under the REPAYE plan, any amount owed on undergraduate loans (not combined/consolidated with graduate loans) are forgiven after 240 months of qualifying payments. Any amount owed on graduate loans are forgiven after 300 months of qualifying payments. In addition, the government provides a loan subsidy for borrowers on the REPAYE plan that covers 50% of the unpaid interest each month. Borrowers do not receive the interest subsidy benefits during periods of deferment or forbearance; this subsidy is provided only during periods that the borrower is required to make payments.

SAVE plan

The SAVE plan is an updated version of the REPAYE plan. All borrowers previously enrolled in REPAYE were enrolled into SAVE upon its initial rollout in summer 2023. Upon its full implementation, which is expected in July 2024, SAVE will lower the percentage of discretionary income used as part of the payment calculation to 5% for undergraduate borrowers. The percentage of discretionary income will remain at 10% for graduate borrowers. SAVE also modifies the definition of discretionary income to be calculated as the difference between a borrower's annual income and 225% of the poverty guidelines, depending on family size and state. This change increases the amount of borrowers' income protected from the payment calculation. In addition to adjusting the payment calculation, SAVE also includes a subsidy for all unpaid interest that remains on a loan after borrowers make their monthly payment. The plan also reduces the forgiveness timeline for borrowers who originally borrowed $12,000 or less. Borrowers with original borrowing amounts beneath this amount who are enrolled in REPAYE will receive forgiveness after making loan payments for the equivalent of 10 years. For every additional $1,000 of borrowing, forgiveness would be granted after one additional year.

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[1] Students who earned certificates were excluded from this analysis, as sufficient data on students earning this type of credential were not available from other sources.

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[2] In this analysis, the category for "some college and no degree" does not include students who were still enrolled in postsecondary education. This category includes only students who were no longer enrolled in postsecondary education and had not obtained a credential.
[3] Estimates exclude Parent PLUS loans. Dollar amounts are indexed from 2017 to reflect 2020 values.
[4] Estimates exclude Parent PLUS loans. Dollar amounts are indexed from 2016 to reflect 2020 values.
[5] Dollar amounts are indexed from 2016 to reflect 2020 values.
[6] Federal poverty guidelines for Hawaii and Alaska differ; thus, for this simulation all borrowers are assumed to reside in the 48 contiguous states.
[7] The average annual increase for the two groups when averaged together is 1%; nondegree earners are assigned an increase of 0.5% and associate degree earners are assigned an increase of 1.5%. This assumption is based on research suggesting that associate degree earners experience steeper income gains compared with nondegree earners.
[8] The only basis in the Department of Education's regulations for declining to capitalize interest upon the expiration of an administrative forbearance is one that is granted while processing a borrower's request for a deferment, forbearance, change in repayment plan, or consolidation. However, interest capitalization is sometimes waived based on a standing policy (as in the case of a natural disaster) or on an ad hoc basis.