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CFPB Data Point: Student Loan Repayment

The CFPB Office of Research

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This is another in an occasional series of publications from the Consumer Financial Protection Bureau's Office of Research. These publications are intended to further the Bureau's objective of providing an evidence-based perspective on consumer financial markets, consumer behavior, and regulations to inform the public discourse.

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1. Introduction

While student loan originations, outstanding balances, and defaults are regularly reported, there are surprisingly few data on the payment patterns of student loan borrowers over the last fifteen years. Steady increases in student loan balances raise concerns as to whether student loan borrowers' access to other credit products, such as obtaining a mortgage, will be affected in the years to come. Unfortunately, there have been few opportunities to study how quickly consumers have repaid their student loan debt due to a lack of data that allow researchers to see how balances evolve after students leave school.¹

Recently, researchers have begun to document the share of borrowed amounts that are repaid within a few years of entering repayment in addition to trends in outstanding balances.² But a

¹ Until recently, the primary sources of data on individual student loan borrowers were surveys conducted by the National Center for Education Statistics, but the data cover a relatively short period after college and cohorts of students who complete four-year degrees (Beginning Postsecondary Students and Baccalaureate and Beyond). More recently, other administrative datasets like the consumer credit panels at the Consumer Financial Protection Bureau and the Federal Reserve Bank of New York have offered new opportunities to follow all types of consumers with student loans indefinitely.

² See, for example, Andrew Haughwout, Donghoon Lee, Joelle Scally, Wilbert van der Klaauw, "Student Loan Borrowing and Repayment Trends, 2015," (April 2015), available at <https://www.newyorkfed.org/medialibrary/media/newsevents/mediaadvisory/2015/Student-Loan-Press-Briefing-Presentation.pdf>; Raji Chakrabarti, Andrew Haughwout, Donghoon Lee, Joelle Scally, and Wilbert van der Klaauw, "Press Briefing on Household Debt, with Focus on Student Debt," (April 2017), available at <https://www.newyorkfed.org/medialibrary/media/press/PressBriefing-Household-Student-Debt-April32017.pdf>; and Meta Brown, Andrew Haughwout, Donghoon Lee, Joelle Scally, and Wilbert van der Klaauw "Student Debt

more dynamic analysis of repayment behavior over time is necessary to understand how recent changes in the student loan market—including increased use of alternative repayment plans and increased student loan indebtedness among older consumers—are affecting the repayment behavior of student loan borrowers and their usage of and performance on other consumer credit products.

To learn more about the behavior of student loan borrowers, we analyze data from the Consumer Financial Protection Bureau’s Consumer Credit Panel (CCP). These data contain detailed information on the balances and payment status of the student loans held by de-identified consumers in the panel. Using this information, we can track the overall repayment history for borrowers who entered repayment at different points in time and observe how borrower behavior changed over a 14-year period. In this *Data Point*, we also show how payments have changed over time for different cohorts of borrowers and how delinquency has changed among cohorts of borrowers who are not paying down the balance on their loans.

Key findings include:

- Holding the amount borrowed constant, student loan borrowers whose repayment period began recently have fully repaid their loans at rates similar to those whose repayment period began fifteen years ago. However, 25 to 30 percent of the borrowers in the older cohorts do not pay off their loans within the standard 10-year repayment period, and the more recent cohorts appear to be following the same trend.
- There is a strong relationship between repayment speed and loan amount which has changed overall payoff rates across cohorts. Borrowers with more than \$20,000 in loans, who represented only 20 percent of all student loan borrowers entering repayment 15 years ago, now make up more than 40 percent of all borrowers entering repayment. Average repayment periods for the overall student loan portfolio have increased over this

Growth and the Repayment Progress of Recent Cohorts,” (Winter 2015), *The American Bankruptcy Institute Law Review* 23(1): 331-346.

same span because of the slower repayment speed of these large dollar borrowers. For example, borrowers with very small loan amounts (less than \$5,000) are 2.5-4 times more likely than borrowers with large loans (\$50,000 or more) to fully repay their loans within eight years of entering repayment.

- Student loan borrowers are older now than in years past: the share of borrowers younger than 25 fell from 30 percent in the 2002 cohort to 15 percent in the 2014 cohort while the share of borrowers 35 or older almost doubled over this period. However, there is remarkably little variation in repayment speed by consumer age despite potential differences in income or resources and the repayment progress of recent older borrowers is not noticeably different from older borrowers in the early or mid-2000s.
- Among student loan borrowers making large enough payments to reduce their loan balances, the median number of months remaining until full repayment is lower for recent cohorts than for earlier cohorts.
- Meanwhile, the share of borrowers not making payments large enough to reduce their balances has increased, particularly among borrowers with loans smaller than \$20,000. Indeed, five years after starting repayment over 23% of these small-loan borrowers in recent cohorts are not making payments large enough to reduce their balances. While some of this trend likely reflects the growth of income-driven repayment plans, over half of this group is made up of borrowers who are delinquent or in default on their student loans.

Taken together, these results suggest that most borrowers have continued to repay their student loans over the 14-year period analyzed in this Data Point, despite changes in the macroeconomy and the student loan market (including increases in student loan interest rates and the availability of alternative repayment plan options as well as changes in the composition of

borrowers³). However, growing student loan amounts mean many borrowers will be affected by student loan debt much longer than in prior cohorts. This points to a greater need to understand how large loan balances affect consumers' use of other credit products. While the majority of borrowers may continue paying down their balances or remaining in good standing on their loans, the cost of doing so may be changing and constraining consumers' other financial decisions.⁴ Additionally, increases in the share of borrowers in delinquency, especially among those with smaller loan amounts, suggest borrowers may not be successfully accessing their available alternative repayment options—raising important questions about whether the available debt management options such as income-driven repayment plans⁵ and the servicing delivery platform are adequate for this important segment of student loan borrowers.⁶

³ See Adam Looney and Constantine Yannelis, “A Crisis in Student Loans?” (Fall 2015), Brookings Institution, Washington, D.C. available at <https://www.brookings.edu/bpea-articles/a-crisis-in-student-loans-how-changes-in-the-characteristics-of-borrowers-and-in-the-institutions-they-attended-contributed-to-rising-loan-defaults/>.

⁴ See Zachary Bleemer, Meta Brown, Donghoon Lee, Katherine Strair, and Wilbert van der Klaauw, “Echoes of Rising Tuition in Students' Borrowing, Educational Attainment, and Homeownership in Post-Recession America” (July 2017), available at https://www.newyorkfed.org/research/staff_reports/sr820.html.

⁵ While many student loans qualify for some form of an income-driven repayment (IDR) plan, private student loan repayment plan options are at the discretion of the lender. Similarly, federal parent PLUS loan borrowers cannot qualify for most IDR plans, though they may qualify for graduate or extended repayment options.

⁶ See the U.S. Government Accountability Office's report “Federal Student Loans: Education Could Do More to Help Ensure Borrowers Are Aware of Repayment and Forgiveness Options” (September 2015), available at <https://www.gao.gov/assets/680/672136.pdf>, and the Consumer Financial Protection Bureau's “Annual Report for the CFPB Student Loan Ombudsman” (October 2015), Federal Reserve Bank of New York Staff Report No. 820, available at http://files.consumerfinance.gov/f/201510_cfpb_annual-report-of-the-cfpb-student-loan-ombudsman.pdf, for additional discussion of issues with alternative repayment plan enrollments.

2. Data

The CCP is a panel of de-identified credit records for a 1-in-48 nationally representative sample of consumers with a credit record from one of the top three nationwide credit repositories. These credit records provide the outstanding balances and payment histories of all tradelines for each consumer in the sample, including both federal and private student loans.⁷ For each student loan the CCP contains the origination date, periods of deferment, repayment, delinquency, and default, payment amounts, and the balance throughout the life of the loan. These data also include the year of birth for each consumer in the panel.

This study uses a CCP subsample of more than 1 million people consisting of all consumers with at least one student loan that first entered repayment between 2002 and 2014 to limit any issues with unobserved loans which are paid off or defaulted on before first appearing in the dataset. Unlike most other consumer products, most student loans typically go through a period of deferment after origination while borrowers are in school so the time between origination and the start of repayment can be several years. Federal loans for parents (PLUS loans) and some private student loans may not go through a deferment period,⁸ but the majority of student loans

⁷ As provided, the data do not directly distinguish between federal and private student loans. However, the data do detail some characteristics which are exclusive to federal student loans or exclusive to private student loans, such as being sent to government collections or interest only payments.

⁸ Federal parent PLUS loans are eligible for in-school and grace period deferments, similar to those available for Stafford and graduate/professional student PLUS loans, but Parent PLUS borrowers must apply for the deferral for

(Stafford, Perkins, and graduate PLUS loans) do not immediately go into repayment upon final disbursement. Moreover, many consumers with student loan debt take out multiple student loans over a period of several years.

To compare borrowers across time, we construct annual repayment cohorts comprised of all borrowers who enter repayment within a particular federal fiscal year. While this generally mirrors the cohort definition used by the Department of Education in its cohort default rate and repayment rate calculations, we assign all loans for a borrower to a single cohort instead of allowing those who return to school and borrow again to be in multiple cohorts.⁹ Because the focus of this analysis is on the overall repayment of student loan balances, all borrowers are assigned to the cohort corresponding to their last observed period of deferment¹⁰ to best proxy for when borrowers (or the student they borrowed on behalf of) leave school for the last time.¹¹ We label each cohort with the calendar year corresponding to the beginning of the fiscal year (so borrowers entering repayment between October 2014 and September 2015 are all in the 2014

such loans. Some private student loans also offer in-school deferments or interest only payments while in school. All of these deferments are observable in the data.

⁹ Consumers who fully repay a loan and then borrow another student loan are still assigned to the last period they enter repayment. For consumers with this borrowing pattern, their total loan amount at the time of repayment is only the portion of their loans still outstanding when they enter repayment and does not include the earlier loans they have already repaid.

¹⁰ The small share of consumers (about 8 percent) who only borrow loans without a deferment period have a single repayment period which begins after their first loan is fully disbursed. As a result, these borrowers are assigned to a repayment cohort that likely begins before they have left school. Periods of forbearance are not included when determining repayment cohorts; while forbearance and deferment both allow for the temporary suspension of payments, forbearance is much more likely to be used by borrowers who have left school and have begun repayment, and deferment is more commonly used by borrowers who are in school (or who have borrowed on behalf of someone still in school).

¹¹ A borrower can take out a new student loan after her last deferral period if she uses a new private or parent PLUS loan without a deferral period, or if she consolidates or refinances her earlier loans. Borrowers in the former group will be assigned to an earlier repayment cohort relative to leaving school than their counterparts with deferments who borrow in the same year. Borrowers in the latter group, however, are correctly assigned to the repayment cohort that best corresponds to when they completed borrowing for their education as their new loans represent a new structuring of their debt, not an increase in debt.

repayment cohort). Following this fiscal year cohort definition, all measurements of balances and loan delinquency are based on the last reported status for each borrower in the fiscal year, typically September.

3. Repayment Progress

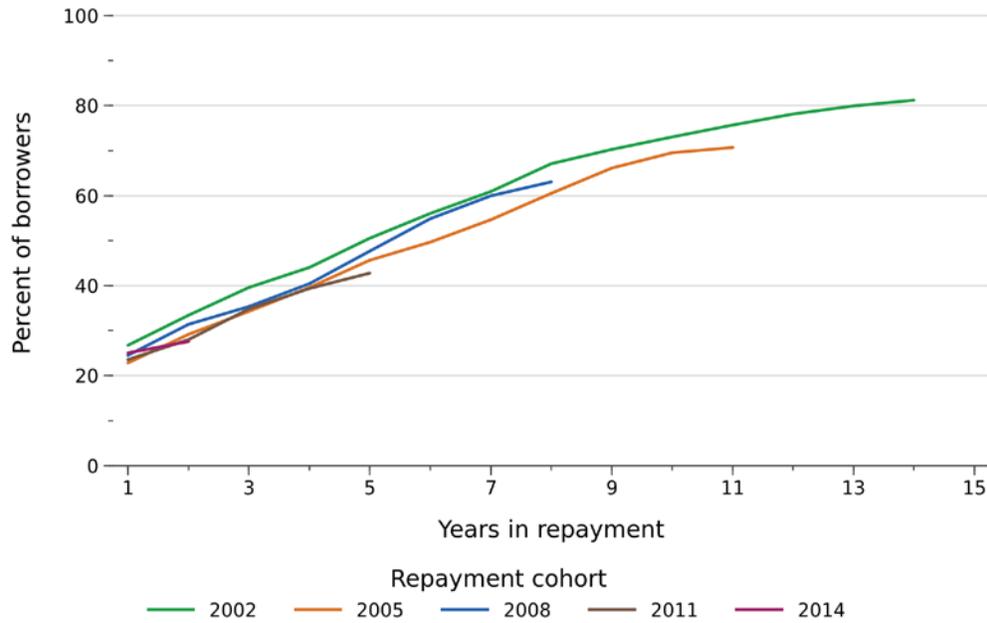
The repayment paths of students vary substantially. While some student loan borrowers make payments every month according to their repayment plan, others miss payments, begin repaying their loans while in school, or prepay their loans early. By tracing out the payment progress of student loan borrowers who enter repayment at different points in time, we can get a better understanding of how student loan repayment has (or has not) changed over time and across different types of students.

Figure 1 shows the portion of borrowers who have fully repaid their loans in the 2002, 2005, 2008, 2011, and 2014 repayment cohorts from the start of repayment to up to 13 years later. By the end of the first year of repayment,¹² between 20 and 30 percent of borrowers have fully repaid their loans. This share steadily increases in later years until more than 60 percent of borrowers have fully repaid eight years after entering repayment. While there is not a lot of variation in payoff rates across cohorts (the largest difference is 10 percentage points), recent cohorts are somewhat less likely to have fully repaid their loans than the oldest cohorts. A sizeable portion of borrowers, 25 to 30 percent, do not pay off their loans within the standard

¹² Because borrowers may enter repayment at different points of the year, borrowers may have been in repayment for a different number of months while in the same repayment year. For example, if one borrower left deferment in October 2008 and a second borrower entered repayment in March 2009, both would be part of the 2008 repayment cohort, but the first borrower would have five additional months in repayment resulting in more opportunities to reduce her balance (or miss a payment and experience a balance increase).

federal 10-year repayment window, though they may be in good standing on their loans and using alternative repayment plans that extend beyond 10 years.¹³

FIGURE 1: PORTION OF BORROWERS WHO HAVE FULLY REPAID THEIR LOANS



¹³ In recent years, the share of all federal Direct loan borrowers on income-driven repayment plans or payment plans lasting longer than ten years has increased by about 50 percent, documented by the Department of Education’s Office of Federal Student Aid, “Direct Loan Portfolio by Repayment Plan” available at <https://studentaid.ed.gov/sa/sites/default/files/fsawg/datacenter/library/DLPortfolioByRepaymentPlan.xls>.

3.1 Balance Ratios

To get an overall look at how loan balances have changed for different cohorts over time, we calculate a borrower’s “remaining balance ratio” as her total outstanding balance at any point in time divided by the sum of reported principal at the start of repayment (or her total initial loan amount).¹⁴ This “initial aggregate loan amount” or “total loan amount” includes capitalized unpaid interest from unsubsidized loans so long as servicers report this addition of the interest to the principal to the credit repositories. As a result, remaining balance ratios may be less than one when borrowers enter repayment having already started making payments and may be greater than one if any of their loans have unpaid interest at the start of repayment that was not reported as capitalized into the principal. While balance ratios decrease for most borrowers during repayment, balance ratios will increase for borrowers who make payments that do not fully cover their accruing interest¹⁵ or who miss payments entirely. However, because borrowers are grouped into cohorts based on when they last enter repayment, balances do not increase because of new borrowing.

To show how balance ratios evolve before borrowers fully repay their loans, we present the distribution of balance ratios of those with non-zero balance for the same repayment cohorts from the start of repayment to up to nine years later in figure 2. Not including those who repay almost immediately after entering repayment, many borrowers appear to smoothly pay down their balances over time. A large share of borrowers still in repayment move from balance ratios close to one to one-half several years into repayment and then on to zero. In contrast, about 23

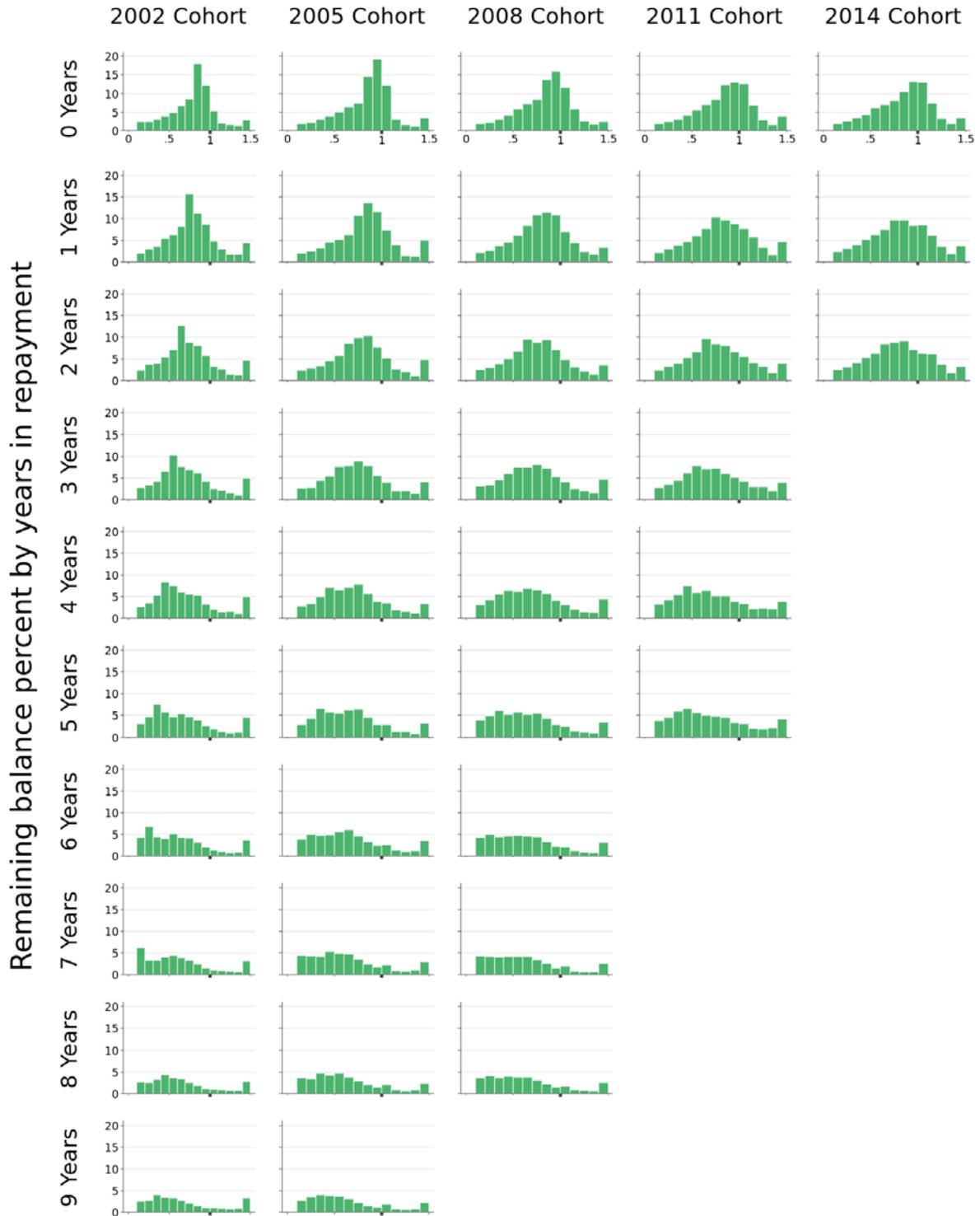
¹⁴ As explained above, for borrowers who enter repayment multiple times, we use the last date at which repayment began as the date at which the borrower enters repayment.

¹⁵ Borrowers with unsubsidized loans (both federal and private) will have accruing interest during periods of deferment if they do not make payments to cover this interest. Payments while in school are not required for most federal loans and some private loans. Federal Parent PLUS loans require payments while students are attending school if the parent borrower does not explicitly request a deferment, but all other federal student loans automatically have payments deferred.

percent of borrowers in each of the 2002, 2005, and 2008 cohorts still owe more than 50 percent of their initial loan amount eight years out. Some borrowers hardly pay down their balances (or experience balance increases) resulting in more than six percent of borrowers with ratios above 0.9 eight years into repayment.

More recent cohorts appear about as likely as earlier cohorts to be at or close to full repayment during the first few years of repayment. At the same time, a larger portion of consumers in later cohorts have balance ratios close to or greater than one in the first few years of repayment. In the next few sections, we present a more detailed look at borrower repayment by loan amount and age in order to provide more insight on how changes in borrowers and loans over time have impacted aggregate repayment progress.

FIGURE 2: PERCENT DISTRIBUTION OF REMAINING BALANCE RATIOS BY YEARS IN REPAYMENT AND COHORT

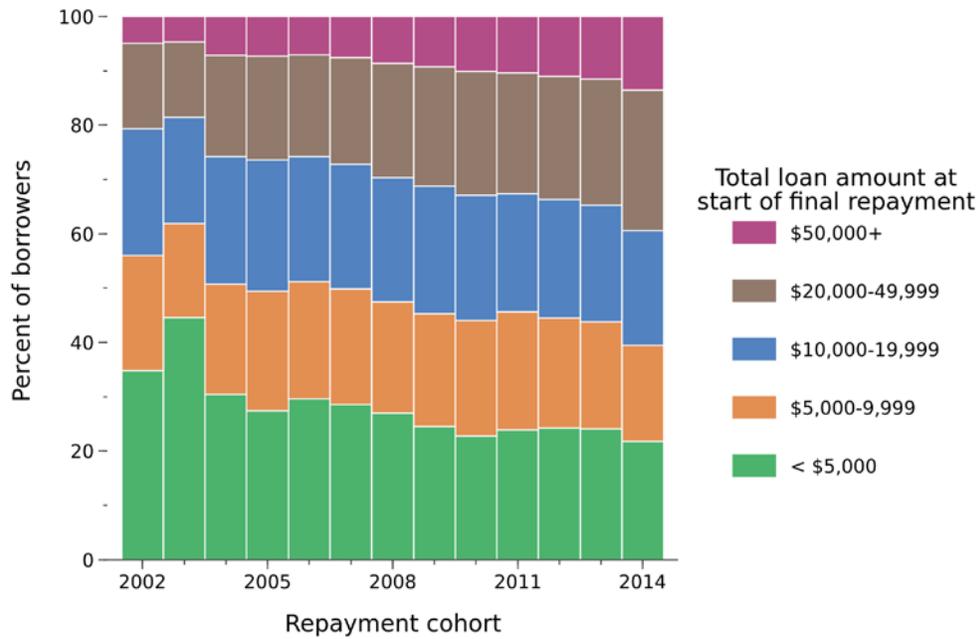


3.2 Repayment Progress by Total Loan Amount

Because borrowers with different total loan amounts are likely to differ for many reasons (including, among other things, family resources, degree attainment, and income after graduation), repayment rates are also broken out into five total loan amount categories. These loan categories are in nominal dollars and are based on the total amount borrowed as of when the consumer last entered repayment (this is the same as the denominator used in calculating the remaining balance ratio). As previously noted, this total loan amount may be greater than the balance at the start of repayment if borrowers prepay some of their loans before the official start of repayment or smaller than the balance if they have unpaid interest that accrued while in school.

The five loan amount categories include borrowers with less than \$5,000 of loan principal at the start of repayment, \$5,000-\$9,999, \$10,000-\$19,999, \$20,000-\$49,999 and \$50,000 or more. Over the full period, none of the loan amount categories represents less than 5 percent or more than 35 percent of any repayment cohort. As average borrowing has increased over the last decade and a half, the relative share of most categories has changed substantially. As seen in figure 3, among more recent cohorts the share of borrowers with total student loans in the two lowest loan categories (less than \$5,000 and \$5,000-\$9,999) has fallen, especially for the lowest category. Meanwhile, the share of borrowers with loans totaling \$10,000 to \$19,999 has held steady over the various cohorts entering repayment over the last 15 years and the share of consumers with loans in the highest two categories (\$20,000-\$49,999 and \$50,000 or more) has grown substantially. Borrowers with \$20,000 or more in student debt represented around 20 percent of all borrowers in the cohort that entered repayment 15 years ago and now make up almost half of all borrowers in the most recent cohort. As a result, to the extent that amortization schedules and repayment behavior among those with small loan amounts differ from those with greater student loan indebtedness, overall repayment patterns will change over time as well.

FIGURE 3: TOTAL STUDENT LOAN AMOUNT SHARE OF BORROWERS BY REPAYMENT COHORT



The next five figures (4-8) show the portion of borrowers in each cohort who have fully repaid their student loans for the above loan categories up to 14 years into repayment. Across all loan amount categories, there is remarkably little difference across cohorts in both the share of borrowers who have fully repaid one year into repayment and in the trend over time. Borrowers in the 2014 cohort are somewhat more likely to have fully repaid their loans at the start of repayment, particularly those with less than \$5,000 in loans, but the difference is relatively small.

Overall, borrowers who took out smaller loans are much more likely to have fully repaid their loans at every point after entering repayment. Seven years out, for example, across cohorts around 80 percent of borrowers who started with loans of \$5,000 or less have repaid their loans in full, while only 50 percent of borrowers who started with \$10,000-19,999 in loans and 20 to 30 percent of borrowers with more than \$50,000 in loans have repaid their loans. Still, the relatively slow-paying, highest-balance borrowers have typically paid as much or more in absolute dollars than their counterparts in the lower balance groups at the same point in the repayment process. For example, while 50 percent of the lowest balance group in each cohort has paid off their loans within two years, these borrowers have only repaid a principal balance of up to \$5,000. In contrast, the median borrower in the highest balance group has paid about

\$13,000 of the principal balance two years into repayment yet still owes 83 percent of their initial balance (not shown).

FIGURE 4: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND WITH TOTAL LOANS LESS THAN \$5,000

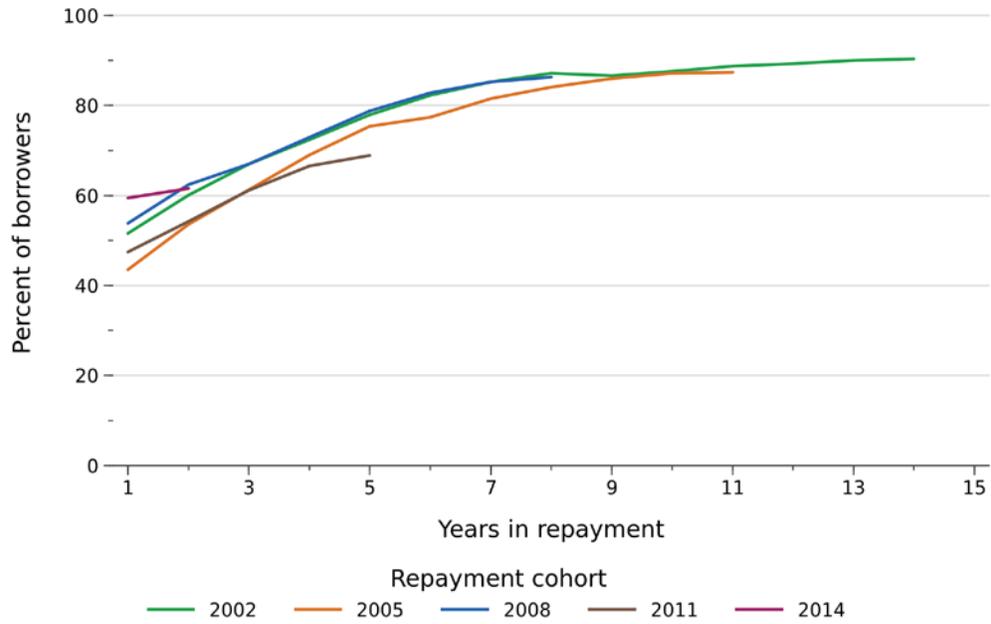


FIGURE 5: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND WITH TOTAL LOANS BETWEEN \$5,000 AND \$9,999

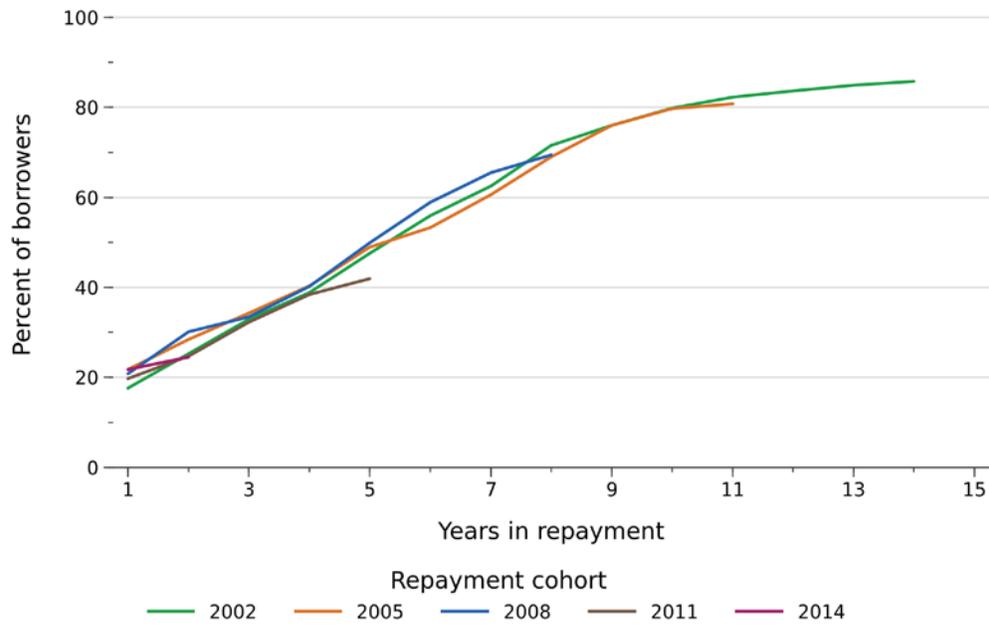


FIGURE 6: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND WITH TOTAL LOANS BETWEEN \$10,000 AND \$19,999

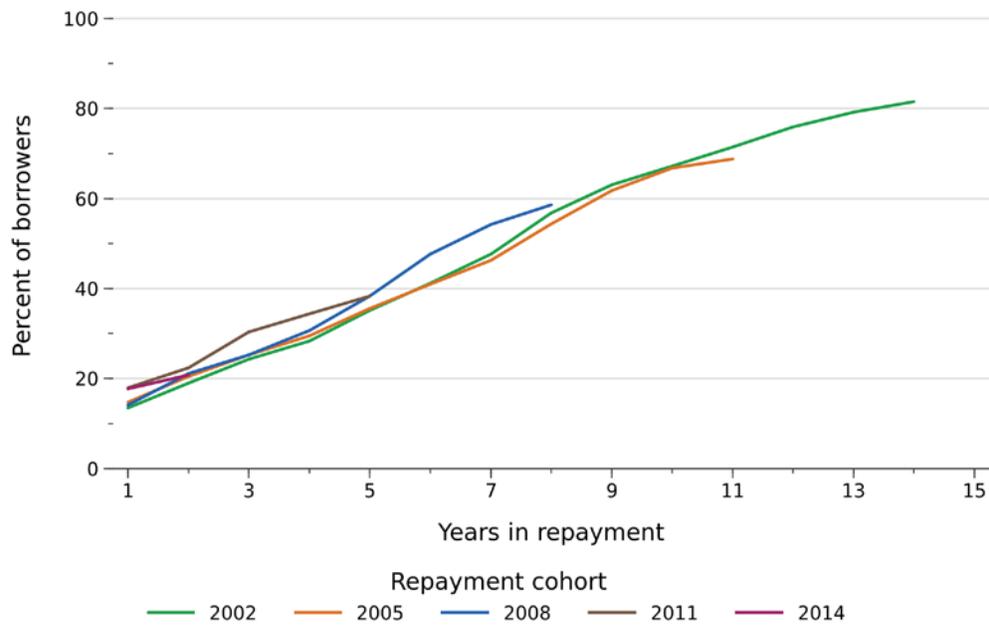


FIGURE 7: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND WITH TOTAL LOANS BETWEEN \$20,000 AND \$49,999

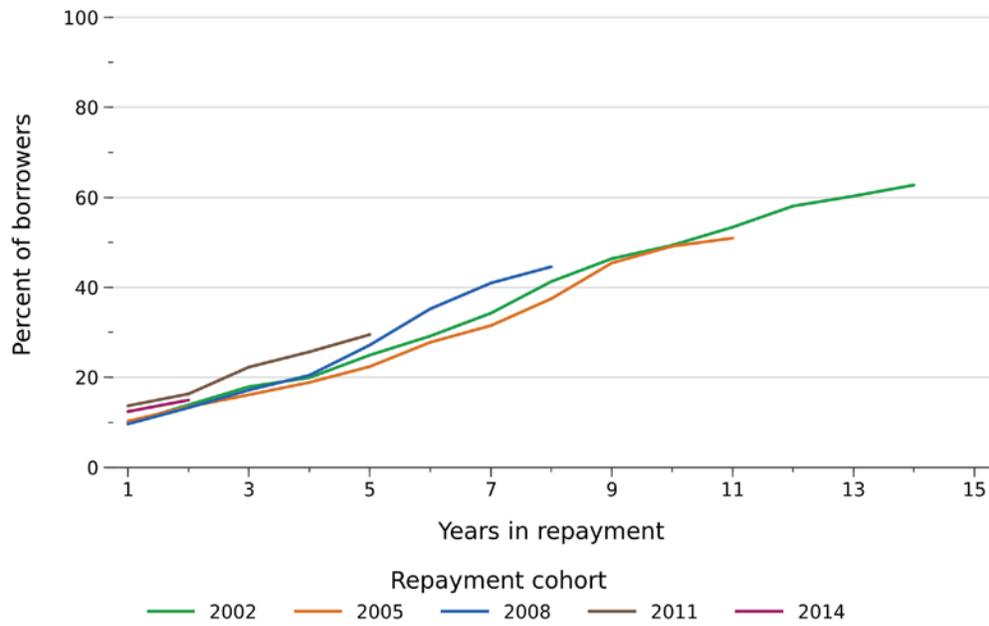
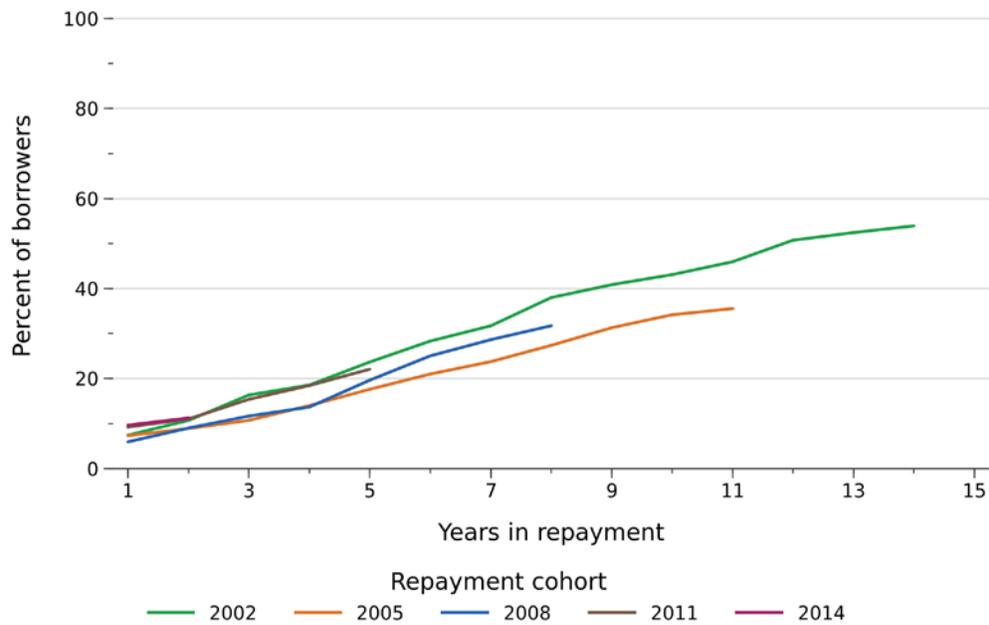


FIGURE 8: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND WITH TOTAL LOANS OF \$50,000 OR MORE



3.3 Repayment Progress by Age

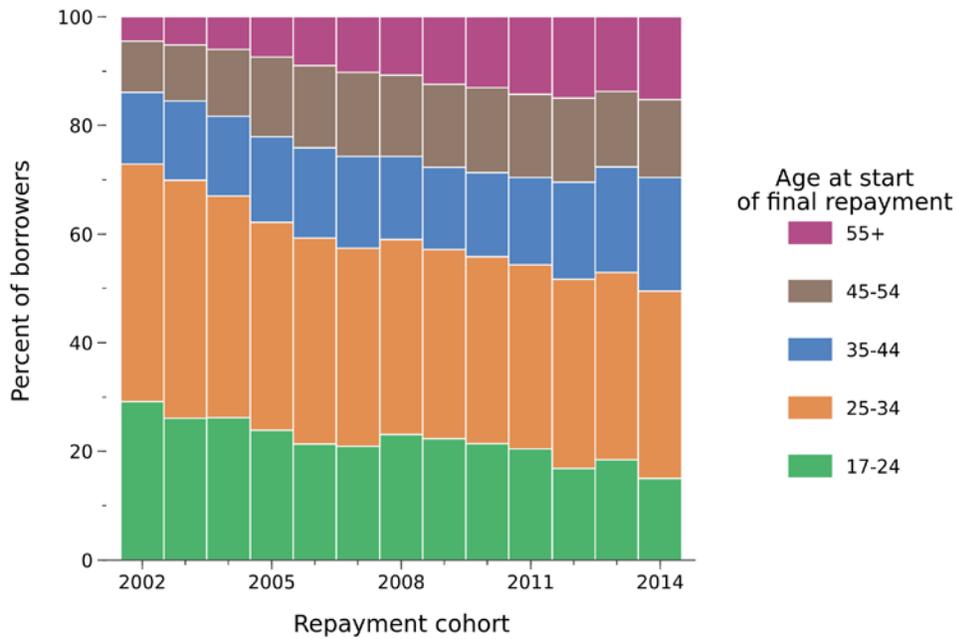
While the majority of student loan borrowers are financing their own education, there has been an increase in the share of borrowers taking out loans on behalf of a child or grandchild. There also has been an increase in the share of borrowers returning to school at older ages. Figure 9 shows across cohorts how the share of borrowers by age category has changed over the last 15 years. During the entire period, borrowers between 25 and 34 years old at the beginning of their last repayment period make up the largest share of borrowers in repayment. Meanwhile, the share of borrowers younger than 25 has fallen from about 30 percent in the 2002 cohort to less than 15 percent in the 2014 cohort as the share of borrowers 35 or older has almost doubled over this period.¹⁶

Much like the repayment patterns by total loan amount, repayment patterns across age groups are remarkably consistent over time, though there are differences between age groups (figures 10-14). Overall, younger borrowers are less likely to have fully repaid their loans after one year and this difference has recently grown. For the 2002-2011 cohorts, the oldest group of borrowers was 8.5 percentage points more likely to have fully repaid their loans at the beginning of repayment relative to the youngest group of borrowers, but by the 2014 cohort that difference had grown to 14.5 percentage points. However by repayment year nine, across those cohorts with at least nine years of repayment history, borrowers who started repayment between 17 and 24 are just as likely as borrowers starting repayment at 55 or older to have fully repaid their loans. To the extent that very young borrowers enter repayment when their incomes are still relatively low, these young borrowers will face greater difficulties matching the repayment

¹⁶ This increasing share of student loans held by older Americans follows the trend documented in the CFPB's "Snapshot of older consumers and student loan debt" (January 2017) available at https://www.consumerfinance.gov/documents/2215/201701_cfpb_OA-Student-Loan-Snapshot.pdf. The share of loans held by the oldest age group in this report is larger than in the earlier snapshot in part because the highest age category here includes all borrowers 55 years or older, while the earlier snapshot included consumers 60 or older. Additionally, the shares in figure 9 are of all borrowers who enter repayment in a particular year, not all borrowers holding any student debt in a particular year.

progress of older borrowers. As young borrowers spend more time in the workforce and their incomes grow, their repayment progress appears to catch up to that of other age groups. For these slow-starting borrowers, access to income-driven repayment plans can help smooth their repayment to align with their income¹⁷ and may reduce the impact of student loan debt on other economic decisions.

FIGURE 9: SHARE OF BORROWERS BY AGE AND REPAYMENT COHORT



¹⁷ See Susan Dynarski, “An Economist’s Perspective on Student Loans in the United States” (September 2014), Brookings Institution Economic Studies Working Paper Series, available at <https://www.brookings.edu/research/an-economists-perspective-on-student-loans-in-the-united-states/>.

FIGURE 10: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND LAST ENTERED REPAYMENT BETWEEN AGES 17 AND 24

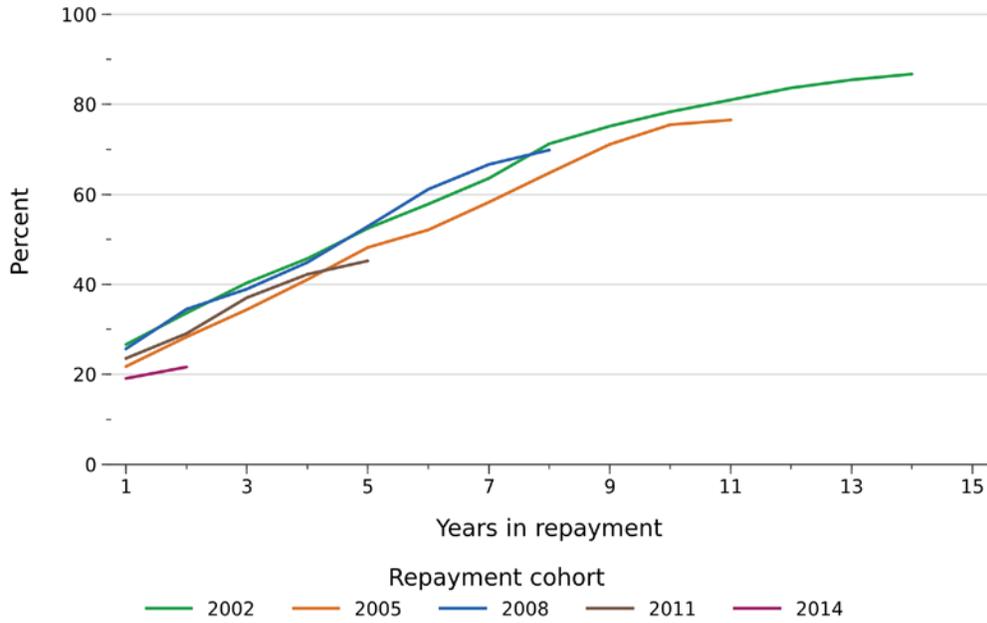


FIGURE 11: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND LAST ENTERED REPAYMENT BETWEEN AGES 25 AND 34

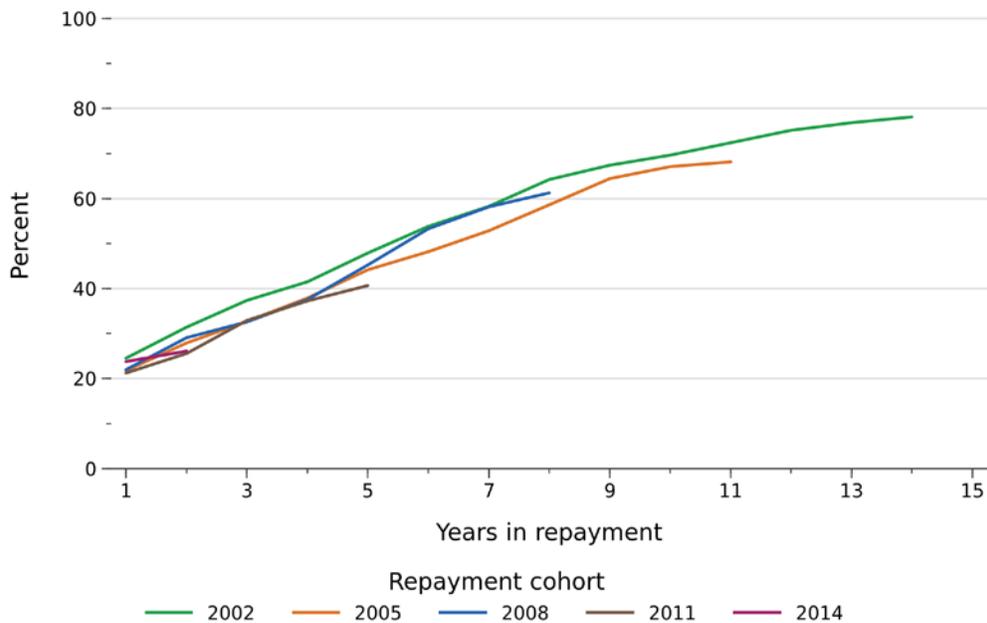


FIGURE 12: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND LAST ENTERED REPAYMENT BETWEEN AGES 35 AND 44

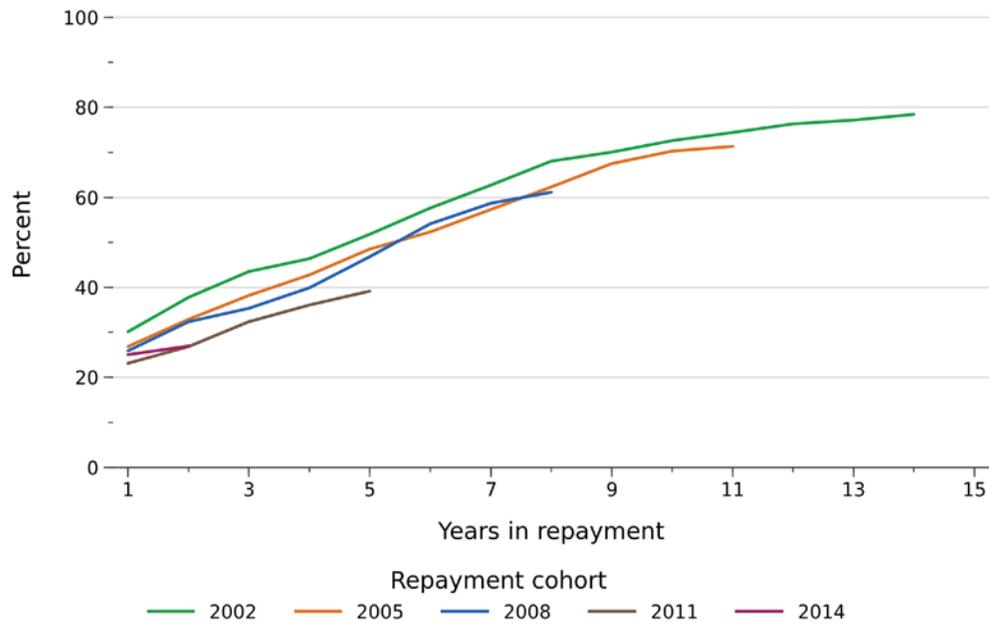


FIGURE 13: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND LAST ENTERED REPAYMENT BETWEEN AGES 45 AND 54

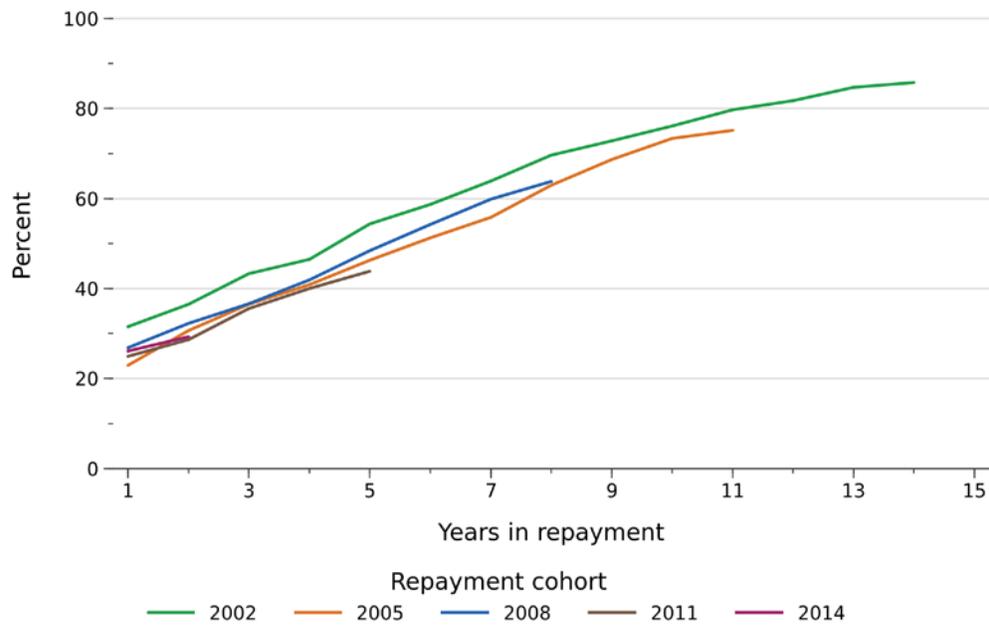
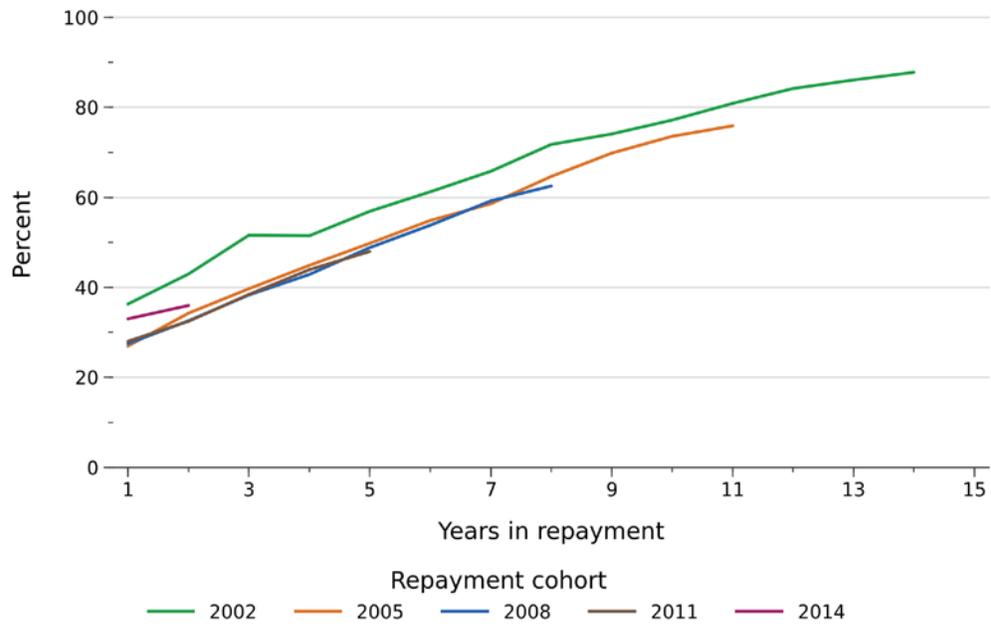


FIGURE 14: PORTION OF BORROWERS WHO HAVE FULLY REPAID AND LAST ENTERED REPAYMENT AGE 55 OR OLDER



4. Active Repayment and Loan Status

As shown earlier in figure 3, average student loan burdens have increased over the last fifteen years. This alone would slow the aggregate repayment rates among more recent cohorts, as observed in figure 2. However, increased enrollment in income-driven repayment (IDR) plans coupled with higher average interest rates, would also have slowed repayment rates and increased the outstanding portion of borrowers' loan amounts.¹⁸ While the last section showed that recent student loan borrowers have fully repaid their loans at rates similar to earlier cohorts conditional on total loan amount, emerging differences in pay down speeds among those still in repayment may soon be amplified by differences among the types of borrowers who select into IDR plans. Borrowers with larger total loan amounts take longer to repay their loans, for example, and a growing share of borrowers fall into this category (figures 8 and 3). Although we have not yet seen a slowing in payoff rates across cohorts for these large loan holders, the disproportionate share of borrowers with larger balances—25 percent of borrowers representing

¹⁸ While enrollment in an IDR plan lowers payments and extends the repayment term of the loan, borrowers will not necessarily hold on to their student loan debt for longer. For example, a borrower may enroll in an IDR plan to lower her payments, but later increase her payments above her minimum monthly payment when her income rises. She may end up repaying her loan in the same amount of time as another borrower making smoother payments by shifting more of her payments toward the end of the loan, similar to the federal graduated repayment plan. On the other hand, borrowers on an IDR plan may have low minimum monthly payments that result in negative amortization during some periods.

more than 40 percent of outstanding balances—opting into alternative repayment plans may lead to diverging repayment progress in the coming years.¹⁹

4.1 Time until Full Repayment

Another way to understand how borrowers are paying down their student debt is to isolate the portion of borrowers actively paying down their student loan debt—that is, those making large enough payments to reduce their total student loan balance—and estimate how much longer it will take borrowers to fully repay their loans given the payments they are making at a particular point in time. This measure of repayment progress also allows us to compare how payment speed changes over time. Specifically, based on the payments a borrower is making five years into repayment, we calculate how long it will take to repay the loan in full assuming she continues to make payments of the same amount for the rest of the loan.

4.1.1 Calculating Time until Full Repayment

To estimate the number of months remaining until a borrower fully repays her loans, we need to know how much she still owes, how much she is paying each month, and the interest rates of her loans. Each borrower's outstanding balance is directly observable in the CCP and payment amounts are also usually reported. However, to avoid issues with missing or misreported payment amounts,²⁰ we estimate the borrower's monthly payment five years into the repayment

¹⁹ Calculations based on U.S. Department of Education's Federal Student Aid federal student loan portfolio data (accessed June 2017), available at <https://studentaid.ed.gov/sa/sites/default/files/fsawg/datacenter/library/DLPortfolioByRepaymentPlan.xls>

²⁰ Actual payment amounts are not likely to be missing at random as different loan servicers may have different policies regarding reporting loan payments and most student loans were not randomly assigned to servicers. Additionally, if servicers report extra monthly payments differently, the actual payment information in the credit record may differ.

period by taking the difference between observed balances in consecutive months and adding in the estimated interest payment. For this analysis, we then assume the borrower will continue to make monthly payments of the same amount until all of her loans are paid off.

Finally, because interest rates are not reported in the credit records and student loans are offered at different interest rates, largely depending on the product type and the year the loan was originated,²¹ we also calculate an interest rate for each loan using several different strategies (for details, see appendix).

We next aggregate each borrower's loans into a single loan with one outstanding balance amount, one monthly payment amount, and one interest rate. These first two numbers are simple sums across all of the borrower's loans while the interest rate is weighted by the balance share of each loan. So if a borrower has a \$4,000 loan at 5 percent and a \$1,000 loan at 2 percent, her overall weighted-average interest rate would be 4.4 percent.²² With the typical

²¹ From 1992-2005, for example, Stafford and PLUS loans were offered at different variable interest rates that ranged from 3.37 to 8.99 percent. Many borrowers with variable rate Stafford loans have multiple loans at the same rate; these rates reset every year at either a 3.1 percentage point markup over the May-ending 91-day Treasury for loans originated before July 1998 or a 2.3 markup over for those originated in July 1998 or later. Since 2006, all new federal loans have been fixed rate, but by 2008 the rates for subsidized and unsubsidized Stafford loans (including both Direct and FFEL loans) all differed in a given year by anywhere from 80 basis points to 450 basis points. Meanwhile, Federal Perkins loans are always offered at 5 percent and private student loans have ranged from just over 0 percent to nearly 20 percent and include both fixed and variable interest options. For more information on current federal student loan interest rates, see the Federal Student Aid website, <https://studentaid.ed.gov/sa/types/loans/interest-rates> and, for historical federal rates, see FinAid's "Historic Interest Rates", <http://www.finaid.org/loans/historicalrates.phtml>. For more information on the pricing of private student loans, see Consumer Financial Protection Bureau, *Private Student Loans Report*, (Aug. 2012), available at http://files.consumerfinance.gov/f/201207_cfpb_Reports_Private-Student-Loans.pdf.

²² In assigning a single interest rate this way, we assume borrowers will continue to make the same monthly payment until all of their loans are fully repaid. In reality, some borrowers may reduce their total payments after an individual loan is repaid to the new monthly minimum; for these borrowers, our estimate of the time remaining until full repayment will be too low. Alternatively, some borrowers may intentionally pay off their highest interest rate loans first; for these borrowers, the weighted interest rate will be too high causing the remaining number of months until full repayment to be too large even if the monthly payment remains unchanged. Likewise, if borrowers repay their highest interest loans first, this estimate will be too high.

monthly payment, outstanding balance, and interest rate, it is straightforward to calculate the expected number of months remaining until the balance is fully paid off.

4.1.2 Months Remaining until Full Repayment

Figure 15 below shows the median number of months until full repayment for borrowers making payments large enough to decrease their balances five years into repayment by the same loan categories as in section 3.²³ We refer to this group of borrowers as “active repayers” or borrowers in “active repayment.” For most of the 2003-2011 repayment cohorts, more than half of active repayers with small loan amounts (less than \$10,000) have repaid their loans within five years after starting repayment. As a result, the median number of months until full repayment is zero for these groups for most of the cohorts. Beginning with the 2009 cohort, the typical borrower in active repayment in each loan amount category has been on track to repay her loan within the standard 10-year repayment period. In fact, typical borrowers in recent cohorts with loans less than \$50,000 and in active repayment are on track to fully repay their loans within seven or eight years after the start of repayment. Overall, the typical number of months left until full repayment for more recent cohorts is more than 50% smaller than for earlier cohorts for nearly all loan size categories for borrowers paying down their balances five years into repayment.

To further explore the payment behavior of these borrowers, figure 16 graphs the distribution of the monthly payment amount at the end of the fifth year of repayment divided by the initial aggregate loan amount for the same groups shown in figure 15. Across cohorts, borrowers in

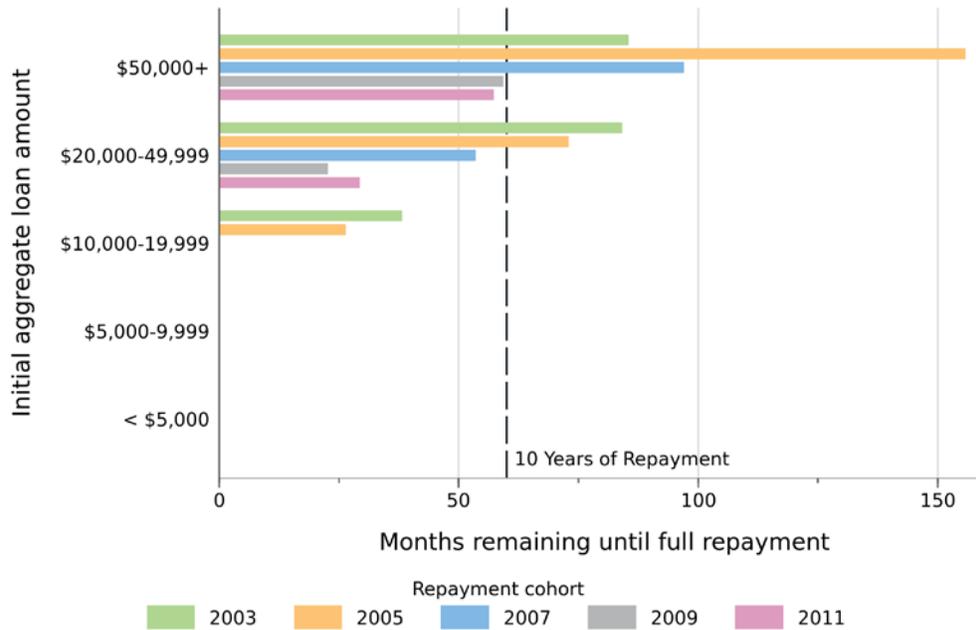
²³ Borrowers with \$0 balances are treated as active repayers and included in the analysis as having 0 months until full repayment, but borrowers with non-decreasing balances are not included in this analysis because a repayment period cannot be calculated for those without a positive estimated payment amount.

active repayment with smaller loans typically pay a larger share of their initial loan amount each month, largely due to minimum monthly payment requirements and shorter loan terms.²⁴

Among borrowers with loans larger than \$10,000 who are paying down their balances, monthly payments as a share of the amount initially borrowed are slightly higher for more recent cohorts as seen by the rightward shift in distribution of payment percentages in figure 16. This may be driven, in part, by a decrease in borrowers on extended repayment plans with low interest rates. While the percentages shown are restricted to those active repayers who have not yet fully repaid their loans, the share of borrowers who have fully repaid their loans within each loan category has remained fairly constant across cohorts, as seen in section 3.2. Thus, the lower time to full repayment seen in figure 15 is also likely driven by a higher the portion of borrowers whose small payments (or non-payments) do not decrease their balances month-to-month. As a result, these borrowers will not be active repayers and the median number of months among active repayers until full repayment will fall. We present details on this group of borrowers in the next section.

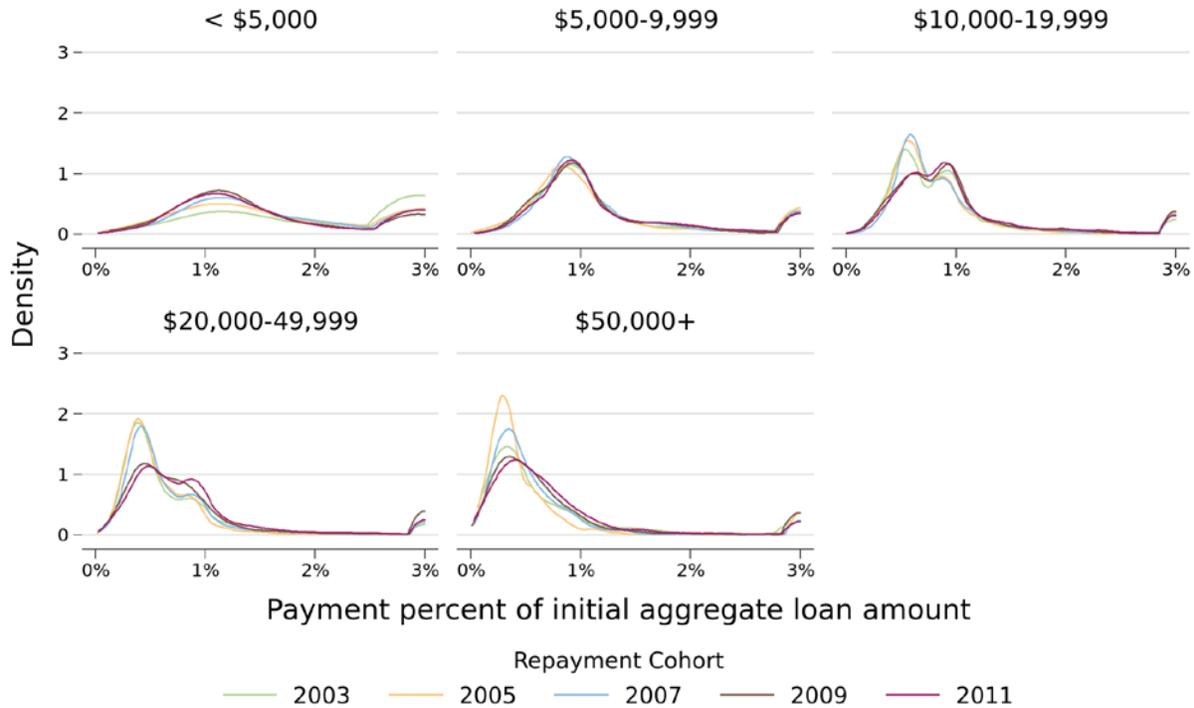
²⁴ While the standard ten-year repayment plan results in most borrowers having monthly minimum payments around one percent of their initial loan amount, a statutory lower bound on monthly minimum payments means borrowers with very small loans will pay a higher share of their loan each month and fully repay before the ten-year mark. Once a borrower's minimum monthly payment is greater than \$50, the share of their loan amount their monthly minimum represents is driven by the interest rate of their loan. Meanwhile, borrowers with large loans may qualify for repayment plans that draw out the term of the loan and lower the portion of their loan amount their monthly payment represents.

FIGURE 15: MEDIAN MONTHS REMAINING UNTIL FULL REPAYMENT FIVE YEARS INTO REPAYMENT AMONG THOSE IN ACTIVE REPAYMENT



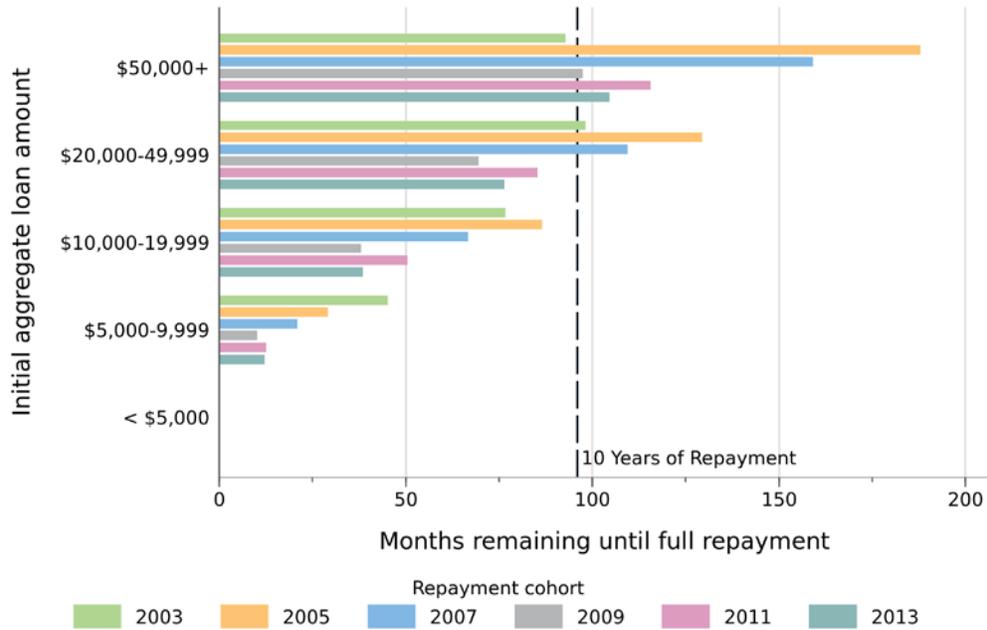
Because the repayment progress shown in figure 15 is five years into repayment, very recent cohorts are necessarily not covered. As a result, the greater repayment progress among active repayers in later cohorts shown in figure 15 does not speak to any changes in repayment speed for more recent borrowers. To address this, figure 17 displays the median number of months remaining until full repayment based on payments made two years into repayment among those making payments large enough to reduce their balances. As in figure 3, figure 16 suggests that the median active repayer in the 2014 cohort with a small loan amount (less than \$5,000) has repaid her loan within two years after entering repayment. Active repayers with loans larger than \$5,000 have not repaid their loans, but they are still on track to repay their loans within the standard repayment period beginning with the 2009 cohort (and for earlier cohorts among those with smaller loans). The typical borrower in active repayment in cohorts since 2013 appears to be repaying her loans at about the same speed as borrowers in 2009-2011.

FIGURE 16: DISTRIBUTION OF MONTHLY PAYMENT PERCENT OF INITIAL LOAN AMOUNT 5 YEARS INTO REPAYMENT AMONG THOSE IN ACTIVE REPAYMENT WHO HAVE NOT FULLY REPAID



However, figures 15 and 17 are restricted to borrowers actively repaying their loans and the number of months shown is for the borrower at the 50th percentile of months remaining until full repayment. So to the extent that borrowers have increasingly moved to payment plans that reduce their payments enough that they no longer (or only just) cover accruing interest, these results understate the increase in the time until full repayment in recent cohorts.

FIGURE 17: MEDIAN MONTHS REMAINING UNTIL FULL REPAYMENT TWO YEARS INTO REPAYMENT



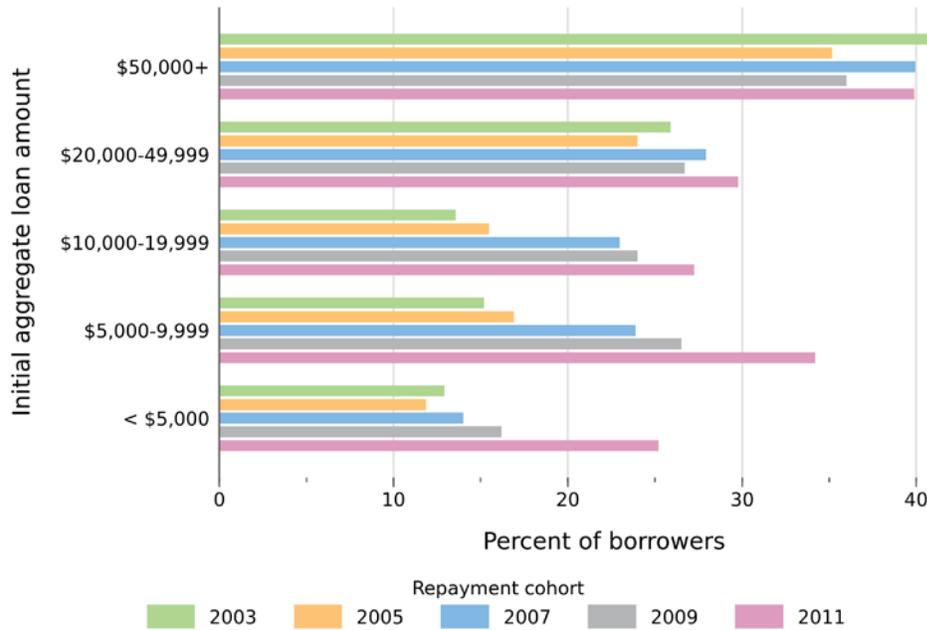
4.2 Active Repayment and Loan Status

To better understand this change in borrowers not making large enough payments to cover their interest charges, we turn to figure 18.²⁵ Overall, borrowers with smaller total loan amounts (less than \$20,000) are more likely to be actively paying down their loans than those with loan amounts greater than \$20,000. But while borrowers with large loan amounts in the more recent cohorts are about as likely to be actively paying down their balances as earlier cohorts, recent

²⁵ For these borrowers (even those making small minimum monthly payments on alternative repayment plans), no payoff term can be calculated because the payments will not cover interest and total loan balances grow for these borrowers.

borrowers with smaller loan amounts are about half as likely to be actively paying down their loans as compared to earlier cohorts.

FIGURE 18: PORTION OF BORROWERS WITH NONDECREASING BALANCES FIVE YEARS INTO REPAYMENT

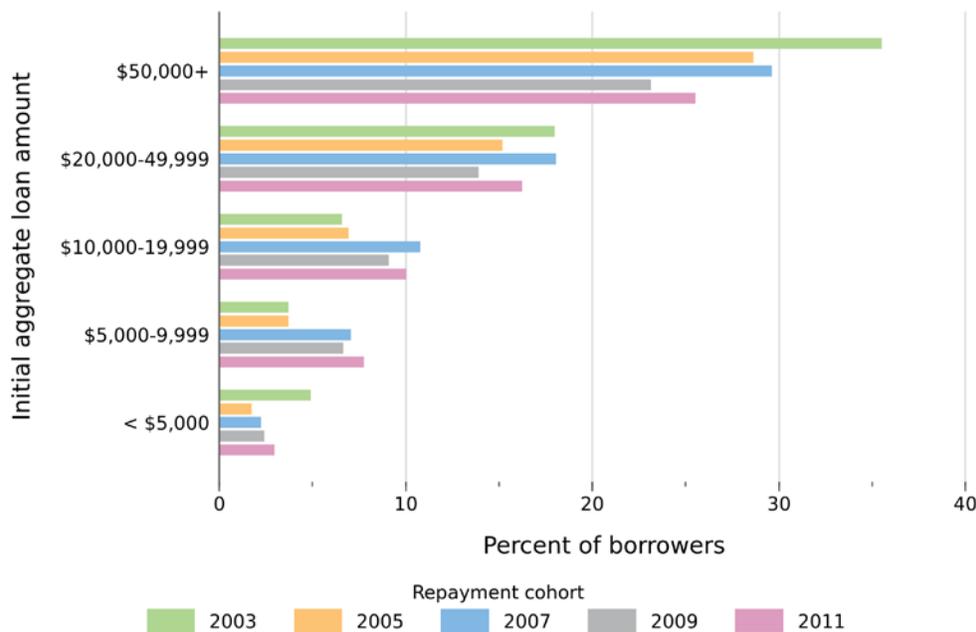


Among those not lowering their balances are borrowers in good standing—either because they re-entered deferment,²⁶ entered into forbearance, or are on alternative payment plans such as IDR—and those who are delinquent or in default. Part of the increase across cohorts in the portion of borrowers with non-decreasing balances is due to those borrowers who are not active repayers but remain in good standing. Across smaller loan size categories, the share of

²⁶ Borrowers in deferment are not required to make payments which may cause their balances to remain unchanged (or increase if they have any unsubsidized loans). These borrowers may also increase their balances by taking out additional loans.

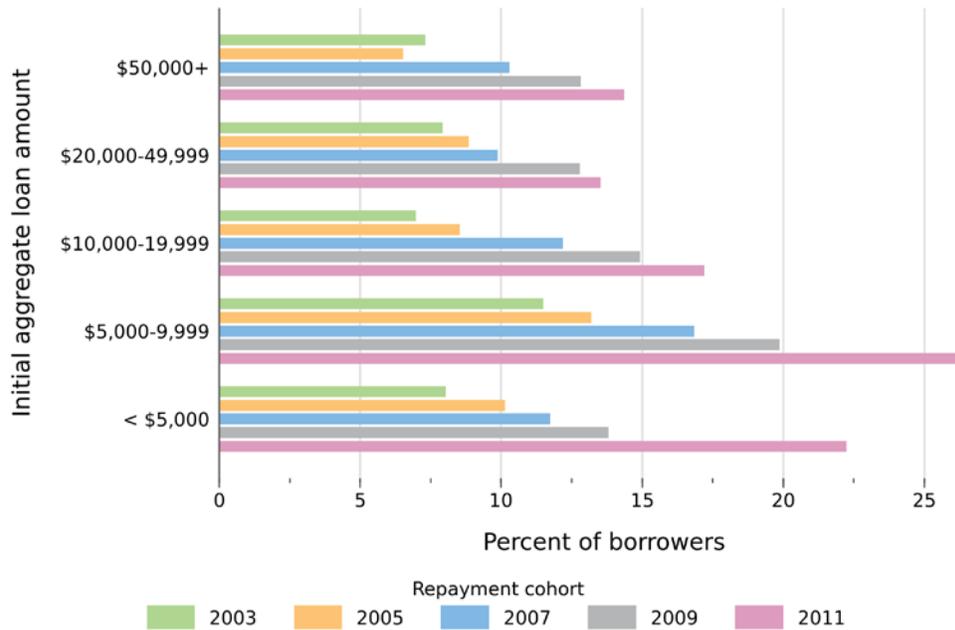
borrowers with nondecreasing loan balances in good standing has generally risen between the 2003 and 2011 cohorts, especially beginning with the 2007 cohort (figure 19). Over the entire period, borrowers who enter repayment with an initial aggregate loan amount in excess of \$50,000 remain the most likely to not be actively paying down their loans while remaining in good standing while borrowers the with loans between \$5,000 and \$20,000 have become relatively more likely to be in good standing but not active repayment across the different cohorts. Some of this may reflect increases in the number and variety of repayment options, as well as increases in interest rates across repayment cohorts.

FIGURE 19: PORTION OF ALL BORROWERS WITH NONDECREASING BALANCES AND IN GOOD STANDING FIVE YEARS INTO REPAYMENT



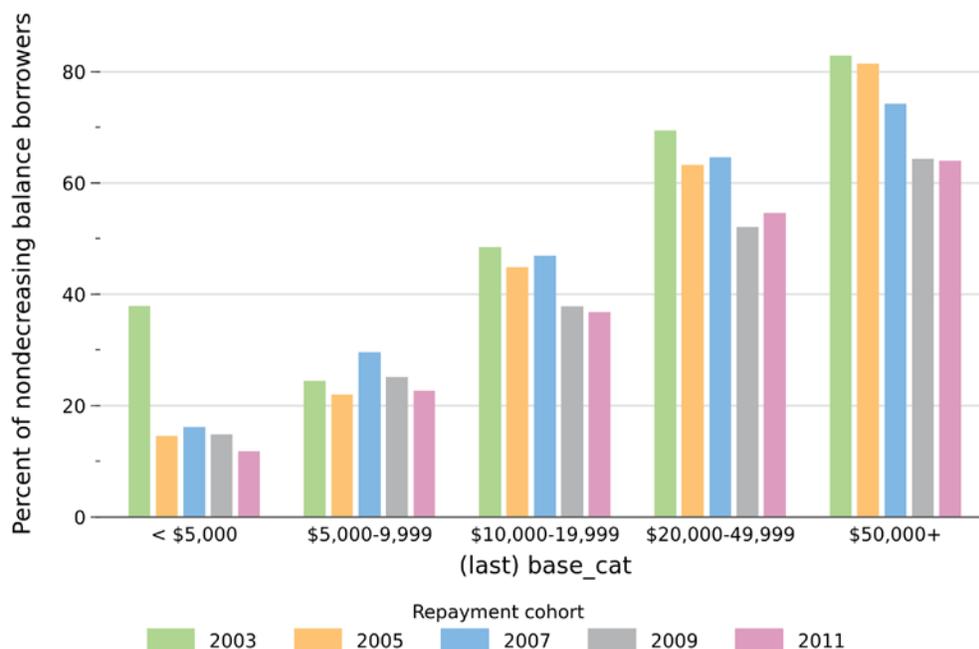
There has also been a rise in the portion of all borrowers in delinquency or default (what we will call “poor standing”) five years into repayment, especially among borrowers with loans totaling less than \$20,000 (figure 20). Unlike the share of borrowers in good standing with nondecreasing balances, in the data the share of borrowers in poor standing is not ordered by initial loan amount. Borrowers with loans between \$5,000 and \$9,999 are much more likely to be in poor standing five years into repayment across all cohorts. Borrowers with total loans less than \$5,000 in recent cohorts have become much more likely to be in poor standing than those in earlier cohorts.

FIGURE 20: PORTION OF ALL BORROWERS WITH NONDECREASING BALANCES AND IN POOR STANDING FIVE YEARS INTO REPAYMENT



Taken together, we are able to see how much of the population of borrowers who are not paying down principal has nonetheless been able to remain in good standing, and how that has changed over time. Although borrowers with loans less than \$10,000 and nondecreasing balances are much more likely to be have a delinquency than not (between 3 and 7 times more likely), this share has largely held steady across cohorts (figure 21). In contrast, while the share of borrowers with loans larger than \$20,000 who are not paying down their balances has not changed much over time, the portion of these borrowers with at least one delinquency has risen. Finally, the share of borrowers with loans between \$10,000 and \$19,999 who are not paying down principal has increased over time, but the share of that group with a delinquency has increased at a higher rate. This suggests that cohorts of borrowers with more than \$10,000 in debt who do not pay down principal have struggled more in recent years with delinquencies than in past years, despite an increase in the availability of alternative repayment plans that allow borrowers to stay in good standing while not necessarily paying down principal. While the typical borrower paying down her balance is doing so more quickly than in the past, a higher share of borrowers are not actively paying down their loan five years into repayment.

FIGURE 21: PORTION OF BORROWERS IN GOOD STANDING AMONG THOSE WITH NONDECREASING BALANCES FIVE YEARS INTO REPAYMENT

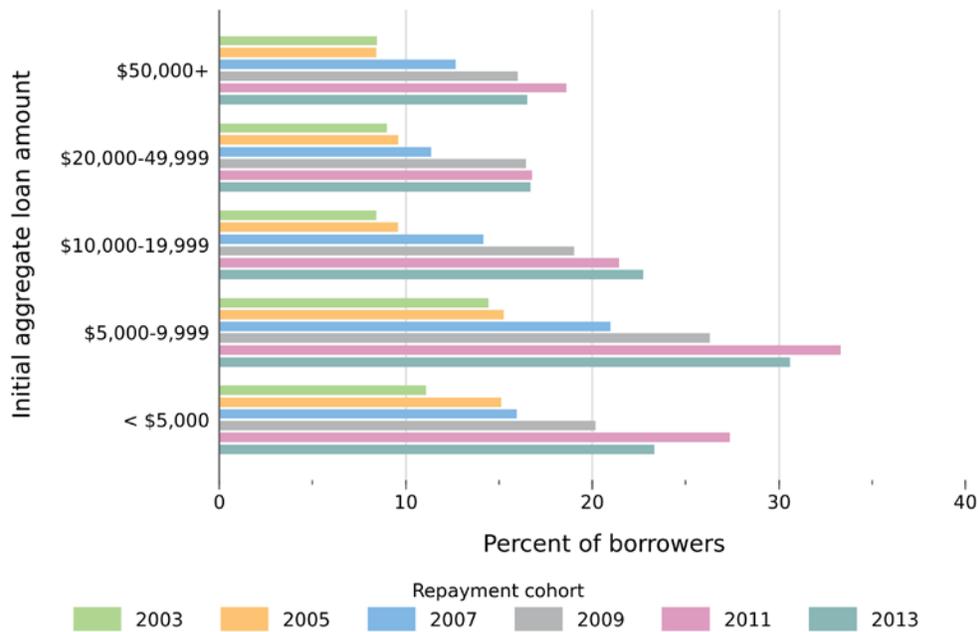


Because these data look at borrowers' status five years into repayment, more recent cohorts are excluded. Figure 22 examines the portion of borrowers in poor standing two years into repayment. It shows that this proportion has begun to fall among more recent cohorts though it still remains elevated relative to the 2003-2007 cohorts. Because the 2009 and 2011 cohorts experience relatively high delinquency/default rates at both two and five years into repayment, the lower likelihood of poor standing seen for the 2013 cohort two years into repayment suggests more recent cohorts may be less likely to be in poor standing five years into repayment, as well. Even if recent cohorts perform better, the persistence in delinquency for the 2009 and 2011 cohorts remains concerning as the ability of these borrowers to access other credit may be hampered for years to come.

Finally, figure 23 presents a more in-depth look at how borrowers in good and poor standing have been repaying their loans over time and across cohorts. Strikingly, the higher portion of borrowers in poor standing on their loans in recent cohorts has occurred throughout the distribution of remaining balance ratios. Both borrowers who have seen their loan balances grow relative to their initial loan amounts and those who have repaid half of their loans are more likely to be delinquent in recent cohorts than in earlier cohorts. The higher share of consumers in later cohorts with high balance ratios is driven about equally by borrowers in good and poor

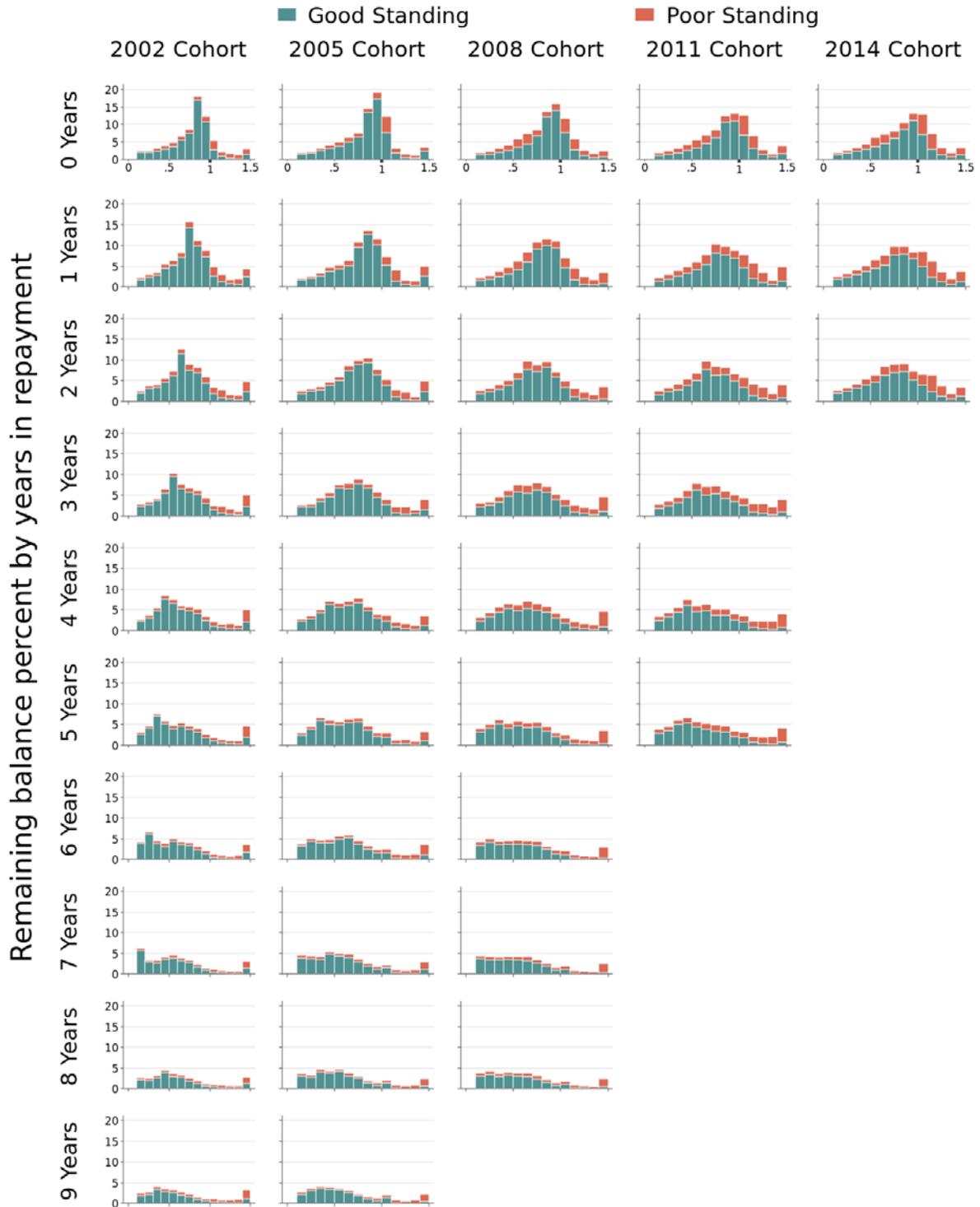
standing. Aside from delinquent borrowers with very high balance ratios, borrowers in poor standing appear to both move into good standing and reduce their balance ratios as they proceed through repayment. Still, the share of borrowers in poor standing and of all borrowers with high balance ratios remains elevated in recent cohorts even a few years into repayment. These changes in repayment speed and in delinquency status across loan size categories may reflect, among other things, increases in student loan interest rates over the last 15 years and different experiences in the job market and with the IDR application and certification process.²⁷

FIGURE 22: PORTION OF ALL BORROWERS WITH NONDECREASING BALANCES AND IN POOR STANDING TWO YEARS INTO REPAYMENT



²⁷ Consumer Financial Protection Bureau, Midyear update on student loan complaints, (August 2016), available at http://files.consumerfinance.gov/f/documents/201608_cfpb_StudentLoanOmbudsmanMidYearReport.pdf

FIGURE 23: DISTRIBUTION OF REMAINING BALANCE RATIOS BY YEARS IN REPAYMENT AND COHORT FOR BORROWERS IN GOOD AND POOR STANDING



5. Conclusion

According to analysis of the CFPB's CCP, nearly 20 percent of consumers with a credit record have outstanding student loan debt and for nearly 16 percent of consumers a student loan is the first account on their credit record.²⁸ Therefore, how quickly and how successfully borrowers manage to repay student loans has important implications not only for borrowers and holders of student debt—largely the federal government—but for other credit markets, as well.

Remarkably, there has been little insight into the long term repayment patterns of student loan borrowers even as take-up and loan balances have grown and new products and repayment plans have been developed. Using the CFPB's anonymized panel of credit records, this study provides a new look at repayment trends among cohorts who began repayment at various points over a 15-year period.

Overall, there are remarkable similarities in repayment patterns over time and across consumers' initial loan amounts. Though borrowers with larger loans repay them more slowly borrowers with smaller loans, they typically pay more in absolute terms and many are on track to fully repay their loans within the standard 10-year repayment period. This consistency is encouraging given the substantial increase in loan amounts in recent years, though a considerable portion of borrowers continue to carry nearly the entire amount they borrowed several years into repayment, especially in recent cohorts.

²⁸ See Kenneth Brevoort and Michelle Kambara, "CFPB Data Point: Becoming Credit Visible" (June 2017), available at https://www.consumerfinance.gov/documents/4822/BecomingCreditVisible_Data_Point_Final.pdf.

Meanwhile, consumers with small loan amounts have become less likely to actively pay down their loans in recent cohorts and, for some cohorts, more likely to go delinquent. This increase in borrowers with small loan amounts who are in poor standing is striking given the growth in the usage of alternative repayment plans in the last several years. The results presented here suggest a need for further research on the extent to which borrowers from recent cohorts go into delinquency despite greater availability of options to reduce payments. Likewise, evidence on the longer term consequences of more borrowers holding this debt for more years remains limited,²⁹ but is important for understanding the full costs of recent changes in how consumers finance education.

²⁹ See Alvaro Mezza, Daniel R. Ringo, Shane M. Sherlund, and Kamila Sommer (2016). “On the Effect of Student Loans on Access to Homeownership,” Finance and Economics Discussion Series 2016-010. Washington: Board of Governors of the Federal Reserve System, <http://dx.doi.org/10.17016/FEDS.2016.010> and Zachary Bleemer, Meta Brown, Donghoon Lee, Katherine Strair, and Wilbert van der Klaauw, “Echoes of Rising Tuition in Students’ Borrowing, Educational Attainment, and Homeownership in Post-Recession America” (July 2017), available at https://www.newyorkfed.org/research/staff_reports/sr820.html.

APPENDIX A:

Calculating Interest Rates

With the first method to determine the interest rate, we use the scheduled payment amount, term of the loan, and the origination amount to back out an interest rate.³⁰ If unpaid interest is capitalized into the loan balance (and not updated in the principal/origination amount), then the calculated interest rate will be too high, so an alternative approach uses the outstanding balance in the last month of deferment in place of the origination amount. This second approach only works when the balance is observed just before the start of repayment.³¹

Finally, a third approach uses the actual payment borrowers make and the change in balances in consecutive periods, but this method relies on consistency in the reporting of payments made each month. For each approach, we then take the median rate calculated across all periods the loan is observed.

Each loan is assigned a rate using the three methods in the order listed above: if the first method does not produce an interest rate (due to data limitations) or produces a rate outside of the typical range of a federal student loan (2-10 percent), the second method is used, followed by the third. Any calculated interest rates outside of this range are then used if the loan still has no

³⁰ Due to data anomalies (for example spikes or drops in the term length of the month that last for only one quarter or use of income driven repayment plans without a recorded change in term length), it is possible to calculate extremely high or low interest rates. As a result, interest rates below zero or above 20 percent are dropped entirely.

³¹ Typically, this second method would be preferable since it more accurately reflects the interest accruing on the principal lenders and servicers use. However prior to 2013, the records in the CCP were not reported monthly so it is much less common to observe the balance just before the start of repayment.

assigned rate. For the remaining loans with no calculated interest rate, we assign the federal subsidized Stafford interest rate for the year the loan was originated.³² Additionally, for all loans originated prior to 2006, we assign a variable interest rate that changes each year of repayment.³³

Figure 24 shows the distribution of interest rates for loans with a calculated rate and the distribution for those with an assigned rate. Both plots also include a reference line at 6.8 percent, the federal rate for subsidized Stafford loans for 2006-2008 and for unsubsidized Stafford loans for 2006-2012. PLUS loans were almost always offered at higher rates and Stafford loans were usually, though not always, offered at lower rates for the rest of the period. By construction, all rates are capped between zero and 20 percent, but the majority falls within the range of federal student interest rates. Overall, half of all the loans in this sample have an assigned or calculated interest rate between 4.02 and 7.46 percent and half of loans with calculated rates fall between 4.48 and 8.8 percent.

³² In future work, we plan to better refine these calculations and reduce the number of loans without a calculated interest rate.

³³ This approach will assign all private loans originated in 2006 or later to fixed interest rates and all private loans prior to 2006 to variable interest rates, which will not be true for all such loans.

FIGURE 24: DISTRIBUTION OF STUDENT LOAN INTEREST RATES

