

New America Education
Policy Brief

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ZERO MARGINAL COST

**Measuring Subsidies for Graduate
Education in the Public Service Loan
Forgiveness Program**

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About New America

New America is a nonprofit, nonpartisan public policy institute that invests in new thinkers and new ideas to address the next generation of challenges facing the United States.

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INTRODUCTION

In the midst of America's college affordability problem and disinvestment in public universities, one segment of the system is set to quietly reap the benefits of very large federal subsidies. Graduate and professional students who go on to work in the public or not-for-profit sectors can now collect substantial amounts of indirect tuition assistance—even if they earn middle and high incomes—through the recently-modified Income-Based Repayment program for federal student loans (IBR) and the Public Service Loan Forgiveness program (PSLF).

The findings we present in this paper show that the programs provide benefits and incentives that go far beyond what many realize. As more students and schools become aware of these programs and enrollment grows, policymakers will likely scrutinize their design and purpose. In fact, earlier this year the Obama administration, which supports both IBR and PSLF, noted that the programs should be better targeted and proposed curbing the benefits.¹

Some observers have argued in the past that income-based payments and forgiveness for federal student loans can misallocate benefits, encourage over-borrowing, and enable price escalation. Yet these criticisms are usually leveled in abstraction. We analyzed debt and income information from national surveys to gauge how likely the programs are to have those effects. We limited our analysis to the subset of borrowers using IBR and PSLF where the effects should be most pronounced: students

who pursue graduate and professional degrees and work in jobs eligible for PSLF.

Our analysis shows that IBR and PSLF provide benefits that are in fact large enough that it could become common for the government to pay for a student's entire graduate education via loan forgiveness under PSLF, especially in some professions. That is because the debt levels at which borrowers bear no incremental cost in borrowing more when using IBR and PSLF are low relative to what many graduate and professional degrees cost and to what students already borrow in federal loans. Even typical levels of debt will result in substantial amounts of loan forgiveness for borrowers earning *more* than most of their peers. In short, IBR and PSLF are likely to have a significant impact on what students opt to borrow and what institutions of higher education charge for many degree programs.

THE EVOLUTION OF INCOME-BASED REPAYMENT

The federal government has maintained a student loan program since the 1960s, and since the early 1990s the program has been available to all undergraduate, sub-baccalaureate, and graduate students without regard to family income. While undergraduates may borrow limited amounts annually and in aggregate, graduate students have been able to use the program to finance the entire cost of their educations (in any program, for any credential, and including living expenses) without limit since 2006.²

From a federal policy perspective, a government loan program is a logical tool to help ensure that citizens can obtain a postsecondary education. In essence, loans allow students to move some of the future earnings that they will gain from that education to the present in order to finance the education itself. There is, however, a downside to a loan arrangement for the student. If his future earnings are lower than expected or erratic, he may not be able to repay the loan on time or in full and he could incur penalties, fees, accrued interest charges, a damaged credit history, and so forth. But if the student can repay the loan as a share of his income, that problem mostly falls away.

Recognizing the value in such an idea, policymakers added an income-based repayment plan to the federal loan program in the mid-1990s, coupling it with loan forgiveness after 25 years of payments.³ This early program suffered from a number of limitations, and although it is still available today, it has never been widely used.⁴ In 2006, student aid advocates argued that the program should be redesigned to offer lower payments to borrowers and fewer restrictions on eligibility.⁵ They also argued that loan forgiveness programs for certain professions should be expanded and funded on an entitlement basis to provide certainty to borrowers. Ultimately, lawmakers agreed and enacted IBR, coupled with PSLF in 2007, although implementation of IBR was delayed until 2009.

Under this version of IBR (which this paper refers to as Old IBR to distinguish it from the most recent version of the program), borrowers make payments equal to 15 percent of their adjusted gross incomes after an exemption equal to 150 percent of the federal poverty guidelines adjusted for household size. Remaining

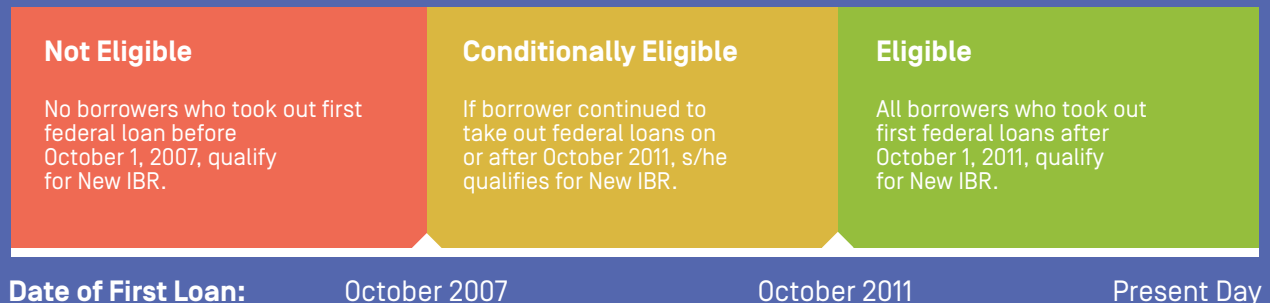
debt is forgiven after 25 years of payments. Borrowers are eligible for the program if it would reduce their monthly payments below what they would pay under a 10-year fixed amortization plan, which is also known as the standard repayment plan, and is the one into which borrowers are automatically enrolled when they begin repayment.⁶ PSLF allows borrowers using IBR and working for nonprofit organizations, or any level of government, to have their remaining debt forgiven after 10 cumulative years of qualified employment.⁷ There is no limit to the amount that can be forgiven and the amount forgiven through PSLF is not considered income for federal tax purposes (the other loan forgiveness benefit under IBR is treated as taxable income).

In 2010, only months after borrowers could first enroll in Old IBR, President Obama proposed that Congress modify the program for all borrowers by reducing monthly payments to 10 percent of income and shortening the loan forgiveness term to 20 years of payments. All other terms under IBR would be left unchanged, including PSLF. Congress passed this proposal in early 2010 as part of a larger health care reform bill.⁸ While this law made the new terms available to new borrowers as of 2014, the Obama administration used its authority under a different statute to accelerate the start date to December 2012 for new borrowers as of October 1, 2007.⁹ This “bridge” program is called Pay As You Earn (PAYE). In 2014 the Obama administration announced that it would undertake the same rule-making process again to expand PAYE to all past borrowers, with implementation expected in 2015. This paper refers to both PAYE and the IBR that began for new borrowers in 2014 as New IBR. The terms of the two programs are virtually identical, with only one minor exception.¹⁰

Figure 1: Comparing Terms for New and Old IBR Plans

Repayment Term	Old IBR	New IBR
	<ul style="list-style-type: none"> Enacted in 2007 Available 2009 	<ul style="list-style-type: none"> Partially enacted in 2010; partially enacted in 2012 Available 2012
Eligible Borrowers [See Eligibility Timeline Below]	All borrowers with federal student loans not in default	Borrowers who took out first federal loans on or after October 1, 2007, and also took out a loan on or after October 1, 2011; and all new borrowers as of October 1, 2011
Eligible Loans	Both apply to all federal student loans (except Parent PLUS loans)	
Income Definition	Both use Adjusted Gross Income (AGI) on prior year's federal tax return. A spouse's income can be excluded if filing separately	
Exemption	Both use an exemption equal to 150% of the federal poverty guidelines, adjusted for household size (\$16,335 single, plus \$5,730 for each additional person, including spouse, in 2011). Household size includes spouse and/or children regardless of tax filing status.	
Payment as Share of Income Above Exemption (annual)	15%	10%
Maximum Monthly Payment, Regardless of Income	Both require a monthly payment no greater than the payment on the original loan balance using a 10-year fixed monthly payment	
Public Service Loan Forgiveness Eligibility	Both require 120 cumulative monthly payments (10 years) in qualified job	
Number of Payments for General Loan Forgiveness Eligibility (all enrollees)	After 25 years of payments	After 20 years of payments

Eligibility for New Income-Based Repayment, by Date of First Loan:



GRADUATE STUDENTS AND PUBLIC SERVICE LOAN FORGIVENESS

To better understand how New IBR would affect borrowers, New America developed a calculator in 2012 that incorporates all of the repayment parameters and rules (i.e., income exemption, interest accrual, loan forgiveness, etc.) for both New and Old IBR for our paper *Safety Net or Windfall: Examining Changes to Income-Based Repayment*.¹¹

We analyzed hundreds of hypothetical borrower scenarios, comparing how New IBR would affect different types of borrowers over their entire repayment terms.¹² One of our main conclusions was that the Obama administration's changes to IBR made the program much more generous than was commonly understood, particularly for graduate students. Borrowers with debt from graduate school, despite earning high incomes, stand to have substantial debts forgiven because they can borrow much more than undergraduates.¹³ The 2012 paper includes many tables and narrated examples to demonstrate those effects. We include an adapted version of one here as **Figure 2**.

This earlier work did not include the effects of the 10-year loan forgiveness benefit under PSLF. The policy and market implications of New IBR when combined with PSLF should be even more significant than those under New IBR alone because debt is forgiven after only 10 years of payments under PSLF, rather than 20 years for borrowers not eligible for PSLF. We make the benefits that these programs provide for graduate and professional students the focus of this paper.

Our analysis uses three components: income projections for individuals working in certain professions who have earned graduate and professional credentials; total federal student loan balances for a range of degree completers in the 2011–12 school year as reported by the U.S. Department of Education; and a calculator that reflects the repayment terms of New IBR and PSLF over a borrower's entire 10-year repayment term. Each component is discussed in more detail below.

Income Projections

We opted to estimate incomes by profession rather than for broader categories of graduate and professional degrees, such as master of arts or master of science. This approach allows for more distinctions in probable earnings between different professions.

Read More:

Safety Net or Windfall?

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Moreover, many students who seek a graduate or professional degree do so to obtain employment or advancement in a defined field. For example, a student seeking a juris doctor typically intends to practice law or work in a field that requires that credential, and a student pursuing a master of education likely intends to work in primary or secondary education. Thus, we can link specialized graduate and professional degrees to specific career and income paths. One limitation of this approach is, however, that it does not capture the incomes of borrowers who earn a degree in one area but are employed in another.

We selected 10 professions for our analysis: 1) accountant, 2) engineer, 3) lawyer, 4) pharmacist, 5) registered nurse, 6) journalist, 7) social worker, 8) speech pathologist, 9) teacher, and 10) veterinarian. The selection process aimed partly to present a wide range of professions that have varying earnings levels among the employment categories available in the data we used, and partly to capture graduate and professional programs that vary in cost.

While some of these professions are more likely than others to align with qualified employment under PSLF, the definition of qualified employment is very broad and the nature of the job is irrelevant for eligibility. Only the status of the employer matters. Employment at any 501(c)(3) tax-exempt nonprofit qualifies, as does any government position (state, federal, local, and tribal).¹⁴ For example, an accountant at a non-profit hospital would



Figure 2: Comparing a Borrower Under Old and New IBR Plans

Repayment Year	1	5	10	15	20	25		
Income	\$45,000	\$58,986	\$82,731	\$116,034	\$162,744	\$228,257		
							Total Payments	Forgiven
Old IBR								
Monthly Payment	\$291	\$259	\$472	\$713	\$722	-	\$132,459	\$0
Loan Balance	\$65,410	\$67,112	\$63,815	\$46,187	\$12,993			
							Total Payments	Forgiven
New IBR								
Monthly Payment	\$194	\$173	\$315	\$475	\$694	-	\$88,045	\$55,817
Loan Balance	\$66,574	\$72,908	\$77,210	\$73,241	\$55,817			

Source: Adapted from *Safety Net or Windfall*, New America 2012

Note: Loan balance reflects principal and accrued unpaid interest at the end of the repayment year indicated. Borrower's income increases at 7 percent annually. Income reflects total income, but payments are calculated off of Adjusted Gross Income which is reduced by an assumed amount explained in endnote 19. The exemption is calculated for a household size of one for the first three years and a size of two each year thereafter to reflect a spouse.

qualify for PSLF. In other words, borrowers who might not be considered employed in traditional public service jobs will in fact qualify for loan forgiveness after 10 years. This is why the federal government estimates that 25 percent of all jobs in the economy meet the eligibility criteria under PSLF.¹⁵

To generate a 10-year income projection for each profession, we used age-based income data reported in the American Community Survey (ACS) for 2003 to 2011 for individuals who indicated that they worked in the specified profession and held a master's degree or higher level of education. The data do not allow us to confirm that the respondent holds a degree that matches that profession; however, we selected many professions where that would generally be the case (e.g., a lawyer with a juris doctor, a social worker with a master of social work). Furthermore, we did not attempt to differentiate between individuals working in nonprofit, for-profit, or government jobs. Respondents are included regardless of the type of their employer.

To illustrate, we used the income data to project roughly what a lawyer earns when she is 30 years old, when she is 31 years old, and so on. This allowed us to construct an income projection to correspond with each year a borrower would make payments under New IBR and PSLF. We assumed all borrowers graduate and begin repaying their loans at age 27, so that a 30-year-old lawyer would be in her fourth year of loan repayment.¹⁶

We projected two categories for each income profile, one at the 50th percentile and one at the 75th. Thus, the projection roughly shows what a 30-year-old lawyer earns at the 50th and 75th income percentiles for his profession.¹⁷ We chose to generate income estimates at these percentiles because they give a sense of how New IBR and PSLF affect those who might be considered typical earners in a given profession, and those who earn more than most of their peers. Borrowers with earnings that are lower than what is typical earn even larger benefits under the programs. Focusing on typical and higher earners therefore biases the analysis to reveal smaller rather than larger benefits under New IBR and PSLF.

Because we used earnings data over the 2003–2011 period, we first adjusted all income figures for inflation and converted them to 2011 dollars. Then we inflated them again to match the future year in the borrower's repayment plan. Therefore, the income projections begin in 2011, and a borrower's income in his 10th year of repayment is increased to adjust for nine future years of inflation.

We also aggregated the earnings information because of the somewhat limited number of respondents in a given profession at a specific age. We used five-year age ranges to approximate earnings by age and then interpolated and extrapolated income with increases for age. For example, we used the income information for

veterinarians aged 30–34 to approximate the earnings of a 32-year-old veterinarian and income information for veterinarians aged 35–39 to approximate the earnings of a 37-year-old veterinarian. Then we interpolated incomes in the intervening years in even, incremental steps, such that earlier years are lower and later years are incrementally higher.

That approach tends to produce smoother increases in incomes each year in a borrower's repayment term than individuals may actually experience. When combined with the 2.5 percent annual inflation increases, our income projections show borrowers increasing their incomes every year in the repayment term based both on age and inflation. That effect also likely overstates borrowers' incomes because of issues such as negative income shocks that occur over an individual's life, although some of those effects should be captured in the data we used to build the projections. However, biasing a borrower's income to be higher than it is likely to be in reality means our analysis *overestimates* what a borrower would pay on his student loans under New IBR and *underestimates* the amount of debt that would be forgiven under PSLF. The income projections are shown for each profession in the tables and charts starting on page 11. Note that the starting year reflects incomes in 2011.

Graduate Student Debt Balances at Completion

To gauge debt levels for recent cohorts of graduate and professional students, we used the 2012 National Postsecondary Student Aid Survey (NPSAS). It is the most complete and reliable information on the amounts that graduate students borrow for specific degrees and programs. These data are not self-reported, as the NPSAS draws from the National Student Loan Data System, which tracks the performance of all federal student loans.

In some cases, the NPSAS data are grouped only by general categories for graduate and professional programs, and we attempted to match the best NPSAS category with the degree–profession categories for which we projected incomes. In some cases they match exactly, such as for teachers and lawyers. For others, the closest match is a broader categorization, such as a master of science or “other master's degree.”

The NPSAS statistics we used include only students who have some federal debt (the relevant group for this study) at approximately the time they completed their degrees, in this case, the 2011–12 school year. We used the borrower's cumulative federal debt owed, including principal and accrued but unpaid interest, from undergraduate and graduate studies, rounded to the nearest \$1,000. We opted to use combined undergraduate and graduate debt balances because borrowers repay their loans under New IBR and PSLF as a combined balance. It is therefore the most comprehensive measure of federal debt and the most relevant for this analysis. **Figure 3** shows the degree–profession matching and debt levels.

Calculating Payments and Forgiveness Under New IBR and PSLF

The calculator we used to determine loan payments reflects all of the repayment rules for New IBR and several important assumptions and adjustments.¹⁸ First, annual payments are set equal to 10 percent of a borrower's adjusted gross income (AGI). AGI tends to be lower than a borrower's stated income due to pretax fringe benefits and above-the-line deductions and credits. The calculator adjusts for these benefits by reducing total income to reflect an AGI figure.¹⁹ We assume that all borrowers make IBR payments based only on their incomes, exclusive of any income from a spouse, as is allowed under New IBR.²⁰

New IBR also reduces a borrower's AGI by an exemption amount equal to 150 percent of the federal poverty guidelines, based on household size. For this paper, we used the 2011 exemption level to match it to the starting year of our income projections. We also assumed that all borrowers have a household size of one for the first five repayment years and a household size of two each year thereafter to reflect a spouse (a larger household size increases the exemption and therefore the benefit to the borrower).²¹ The calculator increases the exemption, initially set at 2011 levels, by 2.5 percent each incremental repayment year to reflect adjustments for inflation.

The calculator also incorporates the maximum monthly payment cap in New IBR that is separate from the income-based payments. This cap limits a borrower's payments to what he would be responsible for if he were repaying his initial loan balance on a fixed, 10-year amortization schedule. A borrower's required monthly payment cannot exceed this level while enrolled in IBR no matter how much his income increases. This payment cap is also the initial eligibility test for enrolling in IBR. If a borrower's payments reach the cap while enrolled in New IBR, she is not disqualified from PSLF (or IBR's final loan forgiveness benefit after 20 years of payments).

Consistent with the rules under New IBR, interest on the loan accrues and payments are first credited to unpaid accrued interest before principal. Unpaid accrued interest during repayment is not added to the borrower's principal balance (i.e., capitalized or compounded) unless and until his payments reach the capped payment discussed above. Outstanding principal and interest on the loans is forgiven after 10 years of payments for PSLF. We assume the borrower makes his qualifying payments consecutively in the first 10 years of repayment, although eligibility for PSLF is based on cumulative payments at any point in the repayment term.

We set the fixed interest rate on the borrower's debt at the weighted average of the rates on federal student loans (unsubsidized Stafford loans and Grad PLUS), which were 6.8 percent and 7.9 percent, respectively, in the 2012–2013 school year.²² Those are still reasonable proxies for future loans despite a recent change in law that slightly reduced those rates for the time being.²³

Figure 3: Graduate Degree Categories and Debt Levels

	Degree-Profession Profile	Degree by Department of Education Survey Category	Low Debt	Typical Debt	High Debt
	Accountant	Other Master's Degree	\$29,000	\$49,000	\$85,000
	Engineer	Master of Science [MS]	\$23,000	\$47,000	\$75,000
	Journalist	Other Master's Degree	\$29,000	\$49,000	\$85,000
	Lawyer	Law [LLM or JD]	\$86,000	\$140,000	\$191,000
	Nurse	Master of Science [MS]	\$23,000	\$47,000	\$75,000
	Pharmacist	Other Health Science Degree	\$98,000	\$132,000	\$199,000
	Social Worker	Other Master's Degree	\$29,000	\$49,000	\$85,000
	Speech Pathologist	Other Master's Degree	\$29,000	\$49,000	\$85,000
	Teacher [K-12]	Education [any Master's]	\$23,000	\$42,000	\$69,000
	Veterinarian	Other Health Science Degree	\$98,000	\$132,000	\$199,000

Source: U.S. Department of Education National Postsecondary Student Aid Survey 2012 (NPSAS); New America 2012.

Note: Low, typical, and high debt refer to debt at the 25th, 50th, and 75th percentiles of borrowers.

Figure 4: Debt Levels for Zero Marginal Cost Threshold (ZMCT)

Degree-Profession Profile	50th Earnings Percentile	75th Earnings Percentile
Accountant	\$37,500	\$71,500
Engineer	\$51,500	\$74,500
Journalist	\$20,500	\$41,000
Lawyer	\$54,500	\$117,000
Nurse	\$33,500	\$49,500
Pharmacist	\$70,000	\$82,500
Social Worker	\$17,500	\$28,000
Speech Pathologist	\$22,000	\$31,500
Teacher [K-12]	\$16,500	\$26,000
Veterinarian	\$31,500	\$76,500



Source: New America. **How to read this table:** When a student pursuing a master's degree in teaching accumulates \$16,500 in federal student loans, borrowing an additional dollar does not increase his total loan payments if he earns a typical income for his age and profession. If he earns at the 75th percentile, the debt level at which borrowing more does not increase his total payments is \$26,000.

LOAN PAYMENTS AND THE “ZERO MARGINAL COST THRESHOLD”

With the terms of New IBR and PSLF built into a calculator, we can determine what graduate and professional students in various fields would repay on their student loans and how much they would have forgiven by entering our 10-year income projections and the range of debt balances reported in the NPSAS dataset.

We can also do another calculation using the income projections. Because what borrowers repay on their loans in total is largely a function of their incomes, not necessarily the amount they borrow, we can use the calculator to find the level of debt at which borrowers with certain graduate and professional degrees cease to incur any increases in future loan payments if they borrow an additional dollar. Taking on more debt at that point increases only how much debt is forgiven after 10 years; it does not increase monthly or total payments. We call this the Zero Marginal Cost Threshold, or ZMCT.

Figure 4 summarizes the ZMCT for all of the degree–profession categories. Following that we present a series of charts and tables for each degree–profession category that illustrate borrower incomes, debt levels, repayment amounts, and forgiveness amounts, in relation to the borrower’s ZMCT. This information is broken out in the following manner:

The top left Income chart shows a 10-year income projection for the selected profession (the yellow line); below that is the borrower’s adjusted gross income (the bronze line); below that is her adjusted gross income after New IBR’s exemption (the orange line). A borrower’s payments under New IBR are based on this measure of income: adjusted gross income after the exemption. The monthly and annual payments that the borrower would make under New IBR are shown in the bottom left “Payments” chart.

The table in the top right of each figure includes four columns, showing the ZMCT, along with the combined undergraduate and graduate federal debt levels at the 25th, 50th, and 75th percentiles of indebtedness for program completers who borrowed. The first row, “Debt,” shows the level of debt associated with each of these categories, as reported in the 2011–12 NPSAS. These are depicted on the Debt/Repaid chart using differently sized white circles. In the case of the ZMCT column, the debt amount is the total level of debt marked with a red dotted line on the horizontal axis of the Debt/Repaid chart. This is the level of debt at which a student in the stated degree–profession category, earning at the percentile indicated in the table title, would bear no incremental cost in repayment if he borrowed an additional dollar.

The second row of the table, “Repaid,” shows the total

principal and interest payments the borrower in the stated degree–profession category would make for the corresponding debt level indicated in the row above it over the life of the loan. On the Debt/Repaid chart, for a given debt amount on the horizontal axis, the ‘repaid’ row shows the associated total repayment amount on the vertical axis. In the case of the ZMCT, it shows the maximum amount a borrower will repay. Repayment amounts are discounted to the present at a rate of 2.5 percent.

The final row of the table, “Forgiven,” shows total debt forgiveness, given each level of debt and repayment. This is the total amount of debt forgiven under PSLF after 10 years of payments for the corresponding debt level, discounted to the present at a rate of 2.5 percent.

A few clarifying points are helpful in interpreting the tables and charts.

First, what a borrower repays for a debt level *above* the ZMCT will never exceed the payments he would make for a debt level at the ZMCT. For example, if a borrower repays \$39,000 when he borrows up to the ZMCT his total payments will be the same if he leaves school with a loan balance of exactly that amount or any amount greater.

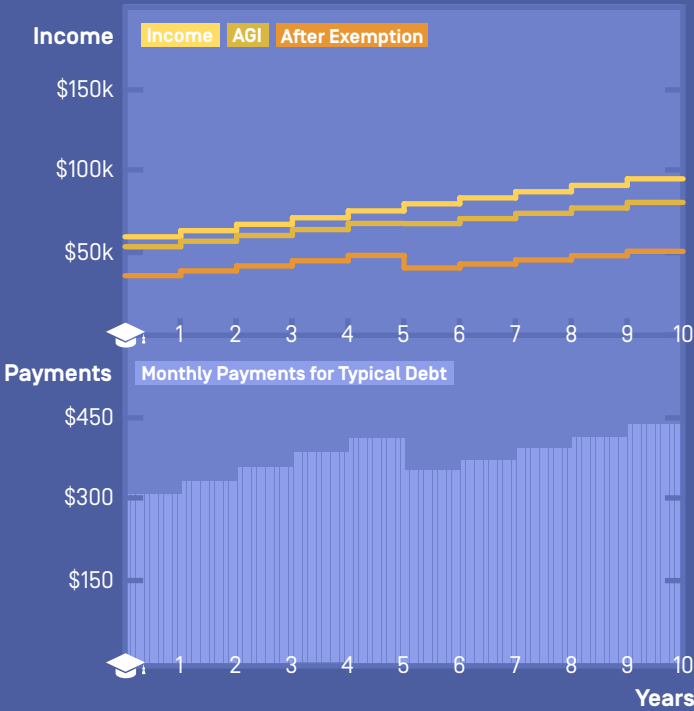
Also note on the ‘Repaid/Debt’ chart where borrowers’ actual debt levels are in relation to the ZMCT. In some cases the ZMCT occurs at a debt level below the debt level borrowers typically accumulate. In those cases, New IBR and PSLF may have more pronounced effects on borrower and school behavior. In other cases, the ZMCT occurs at only very high debt levels, suggesting the effect the ZMCT has on borrowers and schools will be smaller.

Thus, the Debt/Repaid chart provides some indication of the proportion of individuals who borrow beyond the ZMCT in a given degree–profession category at a particular income level.

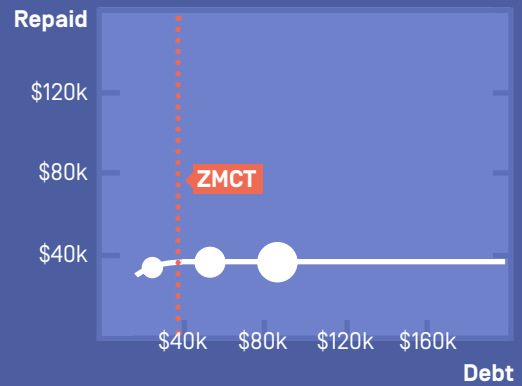
Lastly, it is important to bear in mind that for borrowers with incomes below the 50th percentile, the ZMCT is also lower because the borrower’s New IBR payments will be consistently lower. For example, for graduates whom one could reasonably expect to earn below the 50th percentile (e.g., teachers who plan to teach in a rural area, or graduates from the lowest-ranked law schools), the ZMCT is lower than the figures we state.

Accountant with Typical Income

Income of \$59k in Year 1, reaching \$94k by Year 10

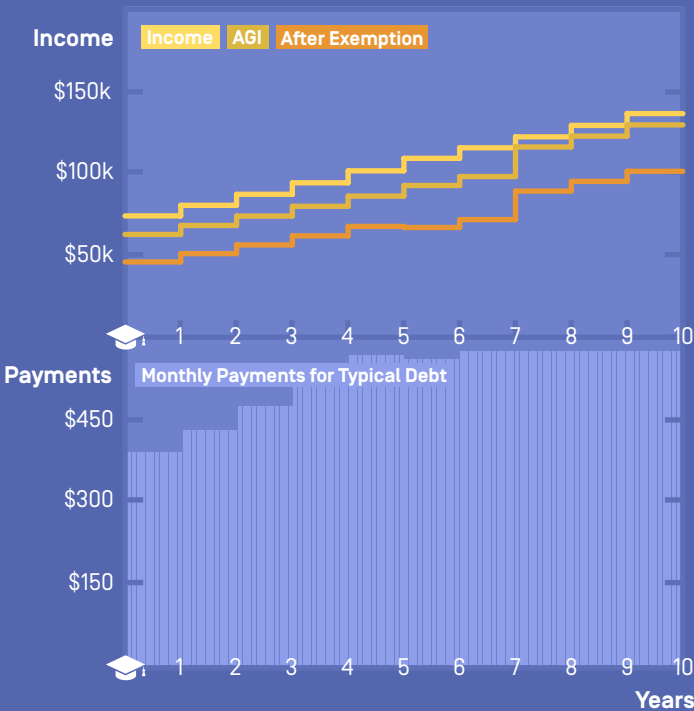


	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$29k	\$38k	\$49k	\$85k
Repaid	\$35k	\$39k	\$39k	\$39k
Forgiven	\$1k	\$10k	\$28k	\$80k

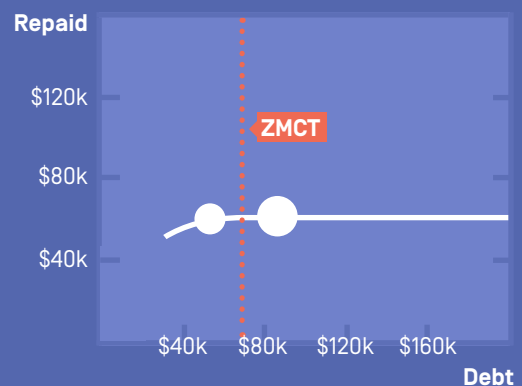


Accountant with Income at 75th Percentile

Income of \$74k in Year 1, reaching \$134k by Year 10



	Low Debt	Typical Debt	ZMCT	High Debt
Debt	\$29k	\$49k	\$72k	\$85k
Repaid	Inelig.	\$54k	\$60k	\$60k
Forgiven	Inelig.	\$10k	\$39k	\$60k

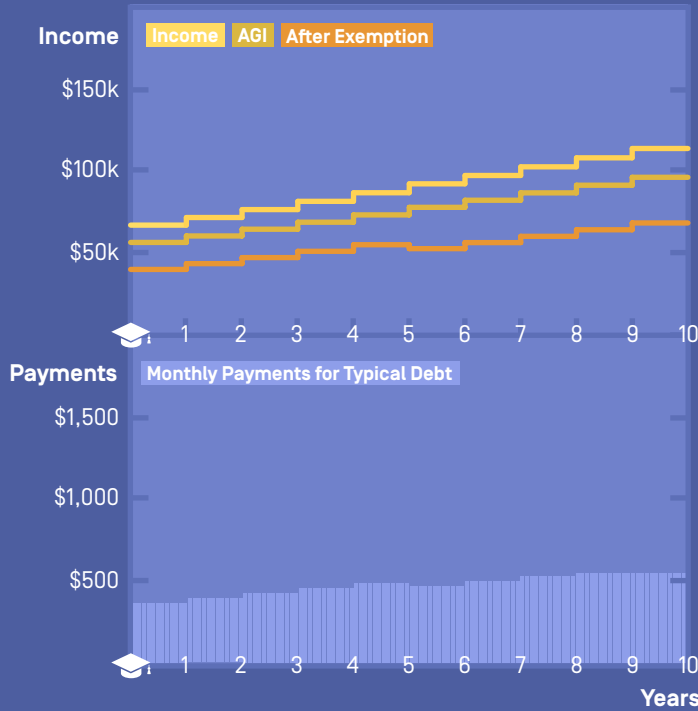


Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

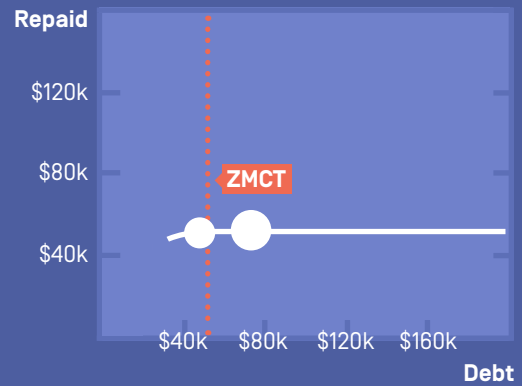


Engineer with Typical Income

Income of \$70k in Year 1, reaching \$116k by Year 10

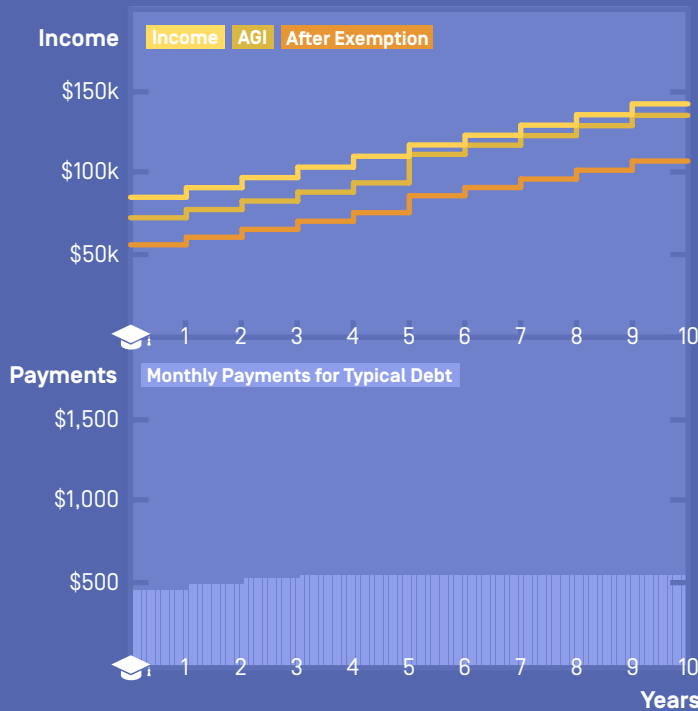


	Low Debt	Typical Debt	ZMCT	High Debt
Debt	\$23k	\$47k	\$52k	\$75k
Repaid	Inelig.	\$49k	\$49k	\$49k
Forgiven	Inelig.	\$13k	\$20k	\$57k

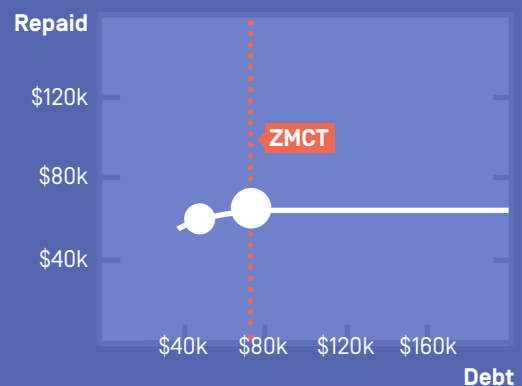


Engineer with Income at 75th Percentile

Income of \$82k in Year 1, reaching \$139k by Year 10



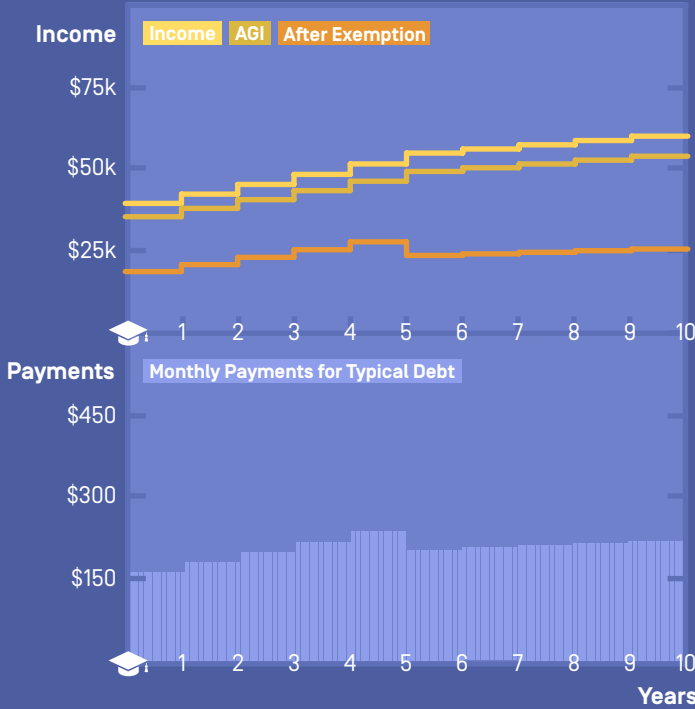
	Low Debt	Typical Debt	ZMCT	High Debt
Debt	\$23k	\$47k	\$75k	\$75k
Repaid	Inelig.	\$55k	\$68k	\$68k
Forgiven	Inelig.	\$4k	\$35k	\$36k



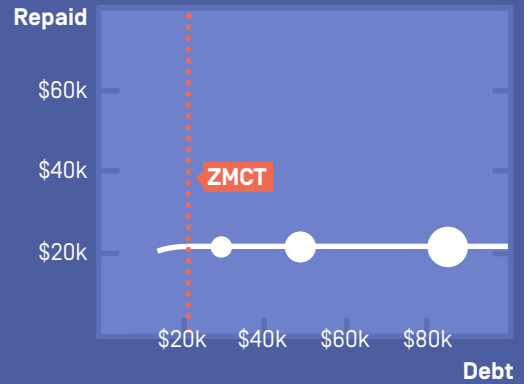
Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

Journalist with Typical Income

Income of \$40k in Year 1, reaching \$60k by Year 10

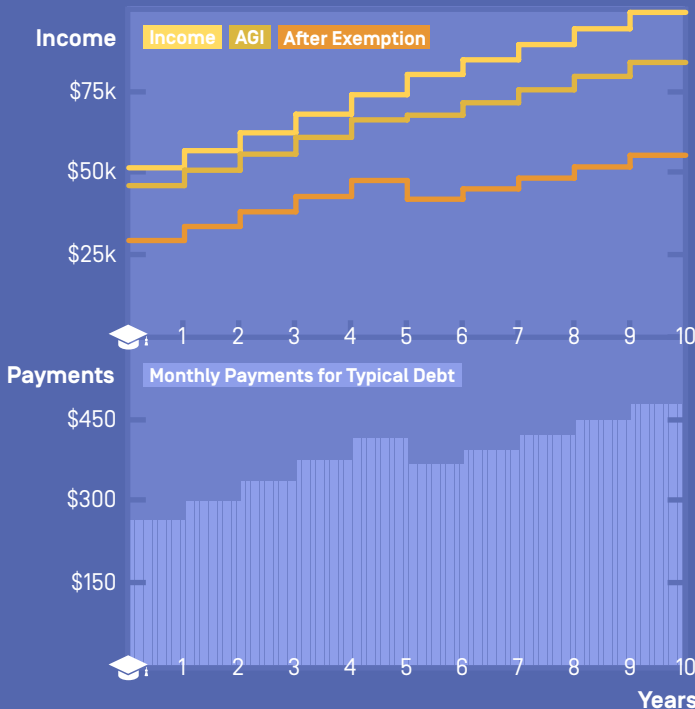


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$21k	\$29k	\$49k	\$85k
Repaid	\$21k	\$21k	\$21k	\$21k
Forgiven	\$5k	\$18k	\$46k	\$96k

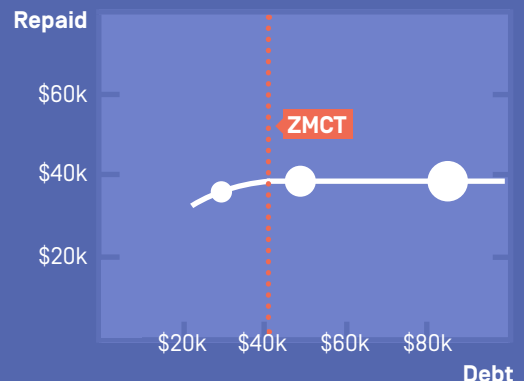


Journalist with Income at 75th Percentile

Income of \$53k in Year 1, reaching \$99k by Year 10



	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$29k	\$41k	\$49k	\$85k
Repaid	\$34k	\$39k	\$39k	\$39k
Forgiven	\$3k	\$15k	\$28k	\$80k

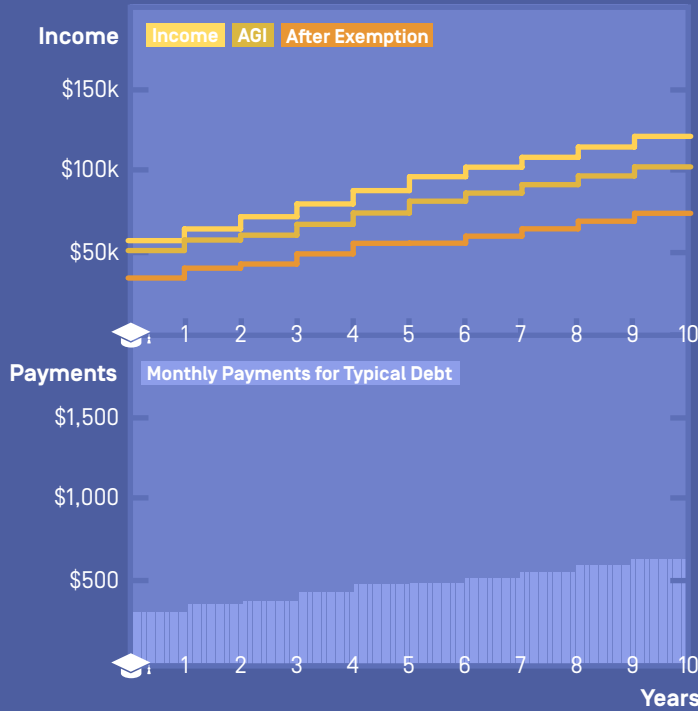


'Income' and 'Payment' tables show non-inflation adjusted amounts. 'Repaid' and 'Forgiven' figures are discounted to present value.

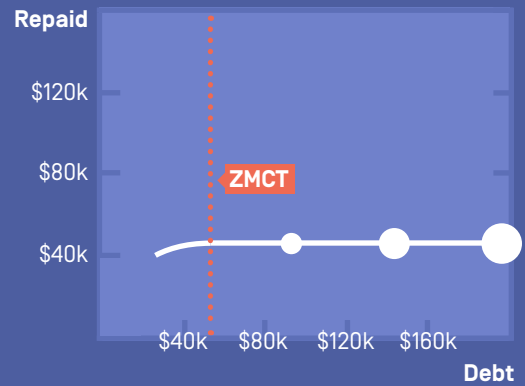


Lawyer with Typical Income

Income of \$59k in Year 1, reaching \$121k by Year 10

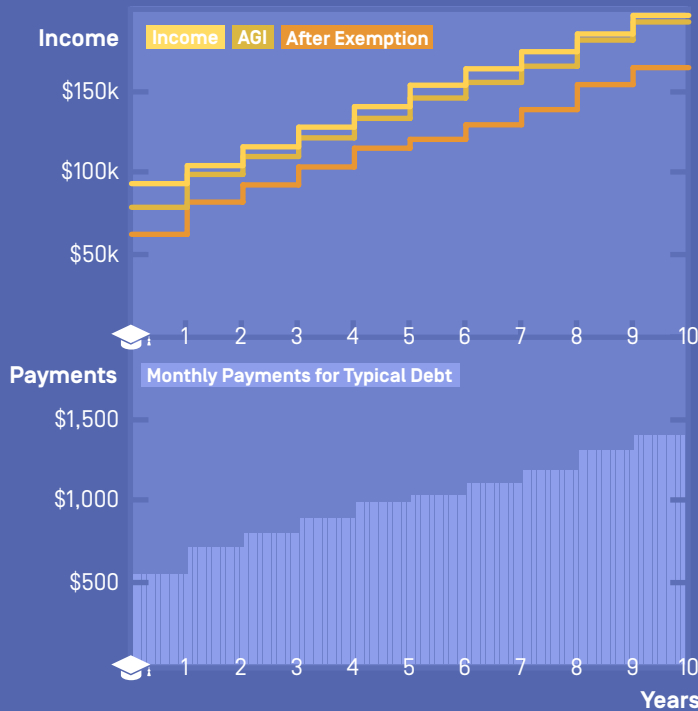


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$55k	\$86k	\$140k	\$191k
Repaid	\$49k	\$49k	\$49k	\$49k
Forgiven	\$25k	\$71k	\$147k	\$219k

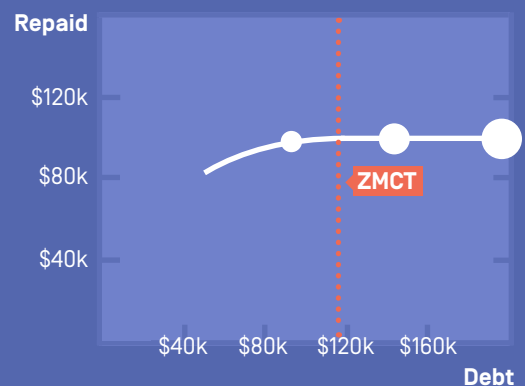


Lawyer with Income at 75th Percentile

Income of \$95k in Year 1, reaching \$197k by Year 10



	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$86k	\$117k	\$140k	\$191k
Repaid	\$92k	\$101k	\$101k	\$101k
Forgiven	\$21k	\$63k	\$99k	\$171k

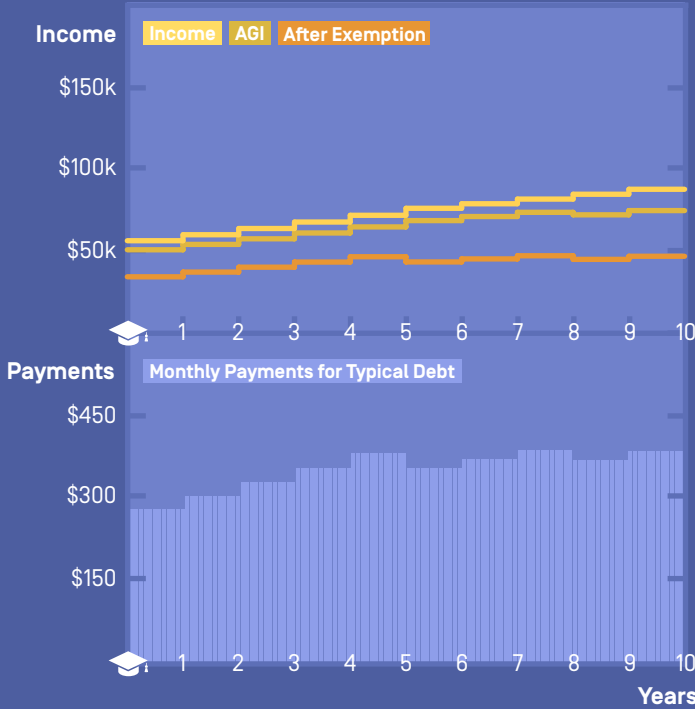


Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

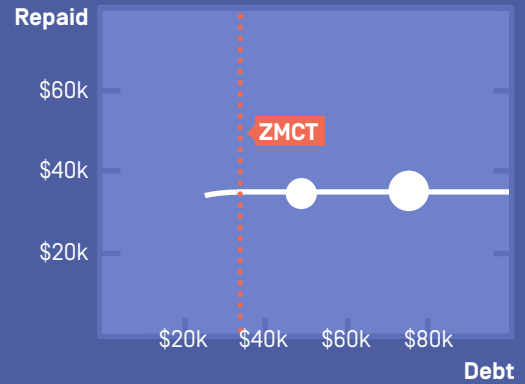


Nurse with Typical Income

Income of \$55k in Year 1, reaching \$86k by Year 10

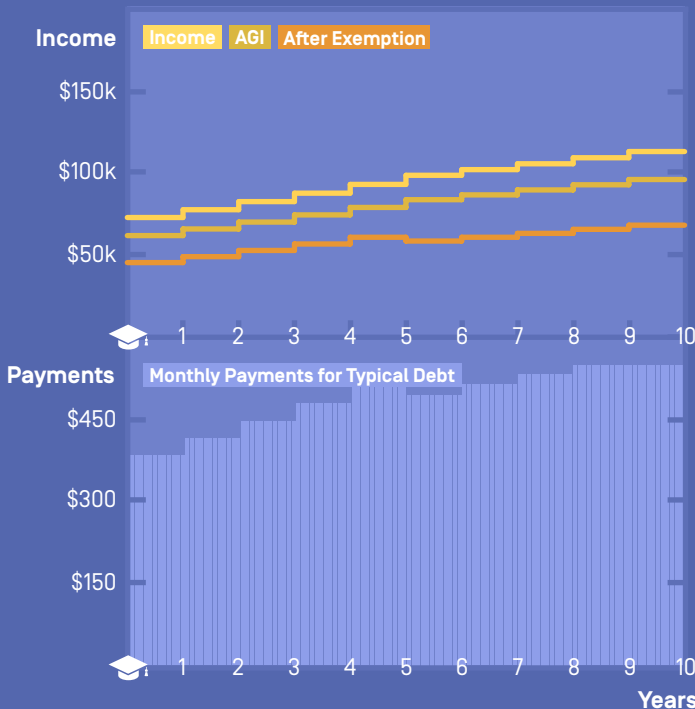


	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$23k	\$34k	\$47k	\$75k
Repaid	Inelig.	\$36k	\$36k	\$36k
Forgiven	Inelig.	\$7k	\$28k	\$67k

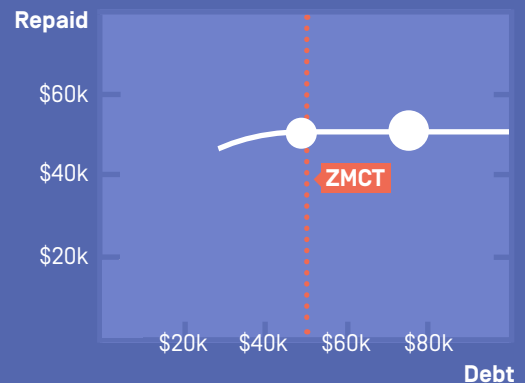


Nurse with Income at 75th Percentile

Income of \$73k in Year 1, reaching \$113k by Year 10



	Low Debt	Typical Debt	ZMCT	High Debt
Debt	\$23k	\$47k	\$50k	\$75k
Repaid	Inelig.	\$50k	\$51k	\$51k
Forgiven	Inelig.	\$11k	\$14k	\$54k

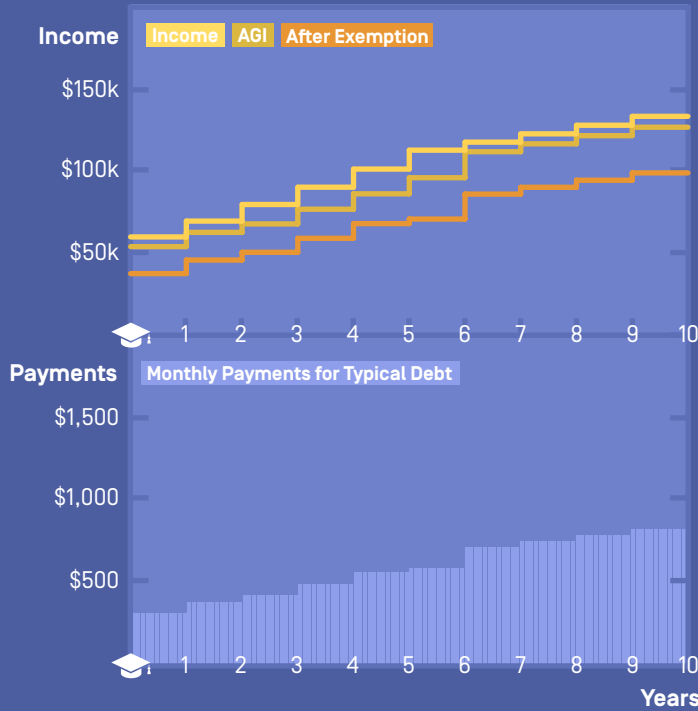


Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

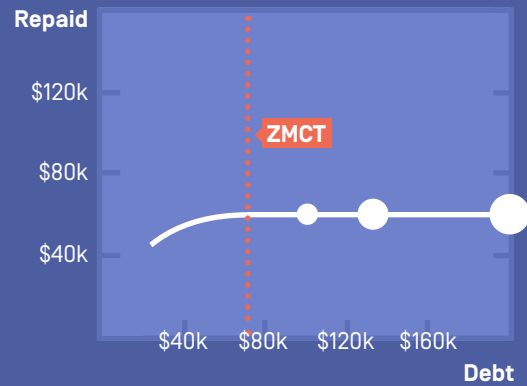


Pharmacist with Typical Income

Income of \$59k in Year 1, reaching \$132k by Year 10

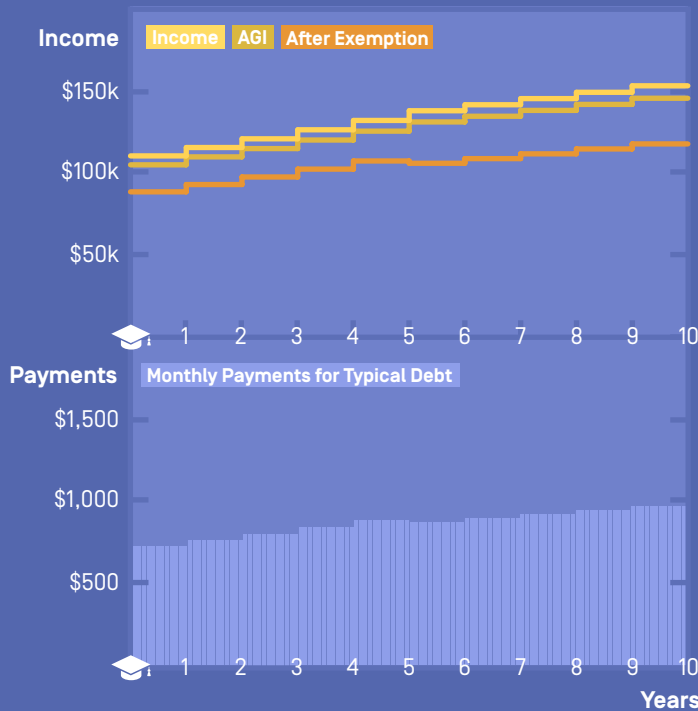


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$70k	\$98k	\$132k	\$199k
Repaid	\$59k	\$59k	\$59k	\$59k
Forgiven	\$37k	\$79k	\$125k	\$220k

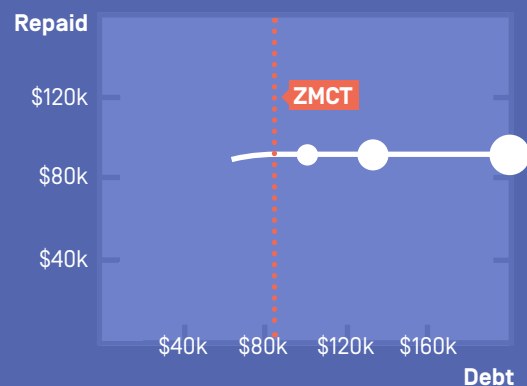


Pharmacist with Income at 75th Percentile

Income of \$108k in Year 1, reaching \$150k by Year 10



	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$83k	\$98k	\$132k	\$199k
Repaid	\$89k	\$89k	\$89k	\$89k
Forgiven	\$19k	\$44k	\$99k	\$194k

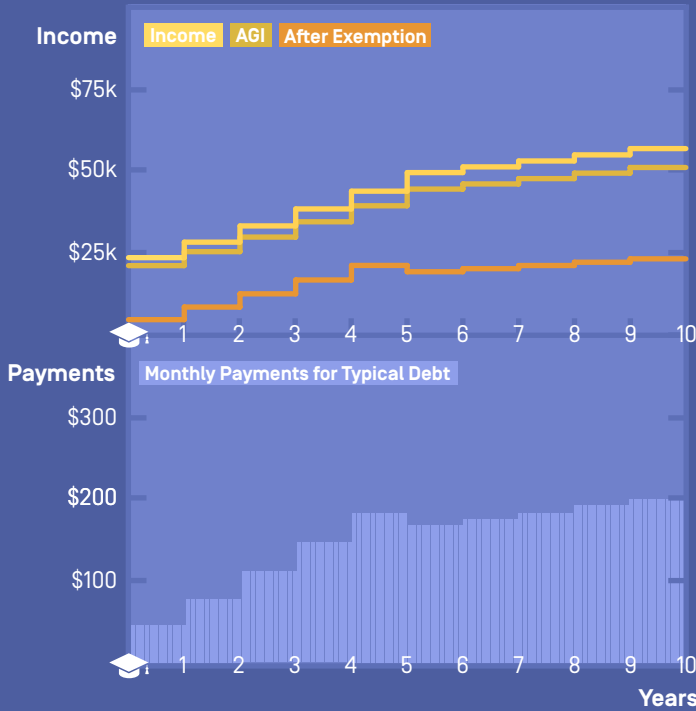


'Income' and 'Payment' tables show non-inflation adjusted amounts. 'Repaid' and 'Forgiven' figures are discounted to present value.

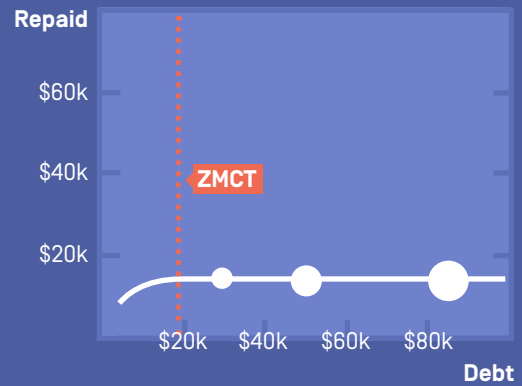


Social Worker with Typical Income

Income of \$24k in Year 1, reaching \$57k by Year 10

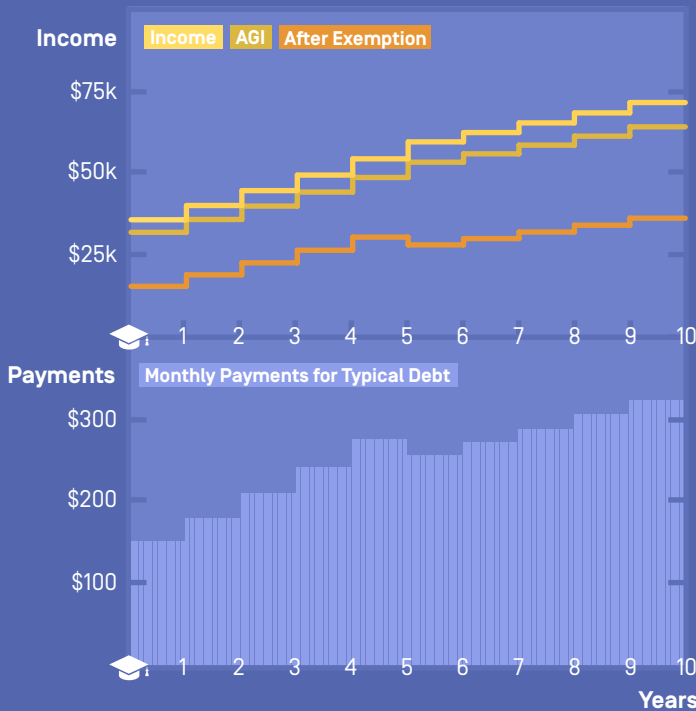


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$18k	\$29k	\$49k	\$85k
Repaid	\$15k	\$15k	\$15k	\$15k
Forgiven	\$9k	\$24k	\$51k	\$102k

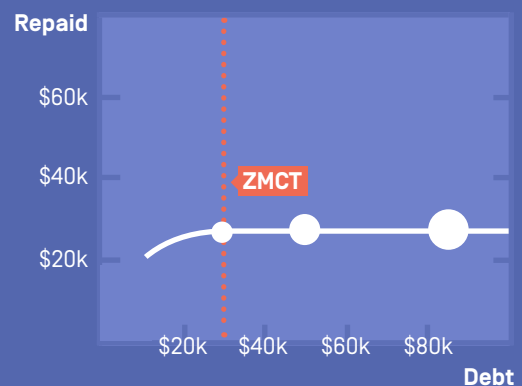


Social Worker with Income at 75th Percentile

Income of \$38k in Year 1, reaching \$73k by Year 10



	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$28k	\$29k	\$49k	\$85k
Repaid	\$26k	\$26k	\$26k	\$26k
Forgiven	\$12k	\$13k	\$42k	\$92k

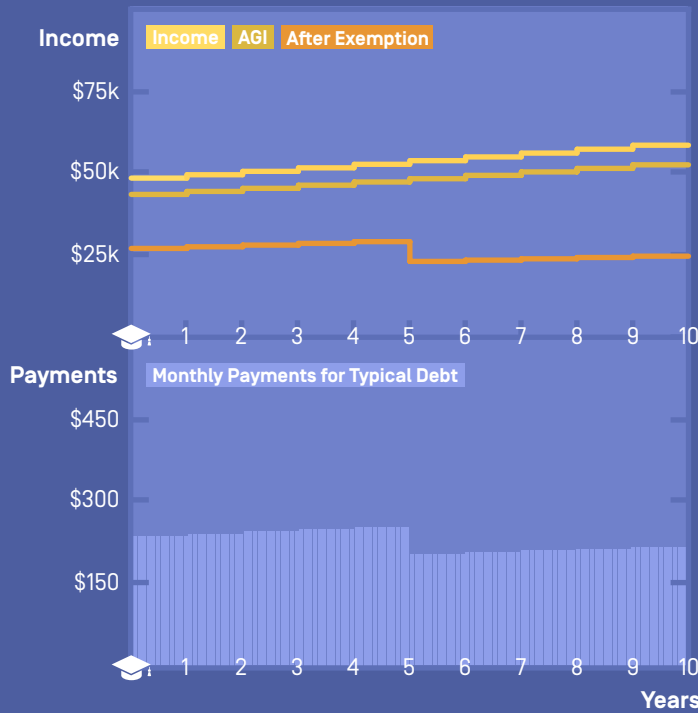


Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

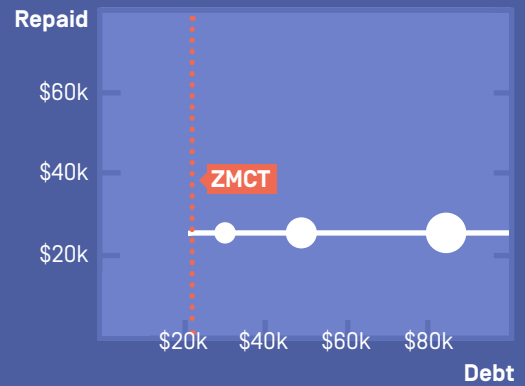


Speech Pathologist with Typical Income

Income of \$49k in Year 1, reaching \$59k by Year 10

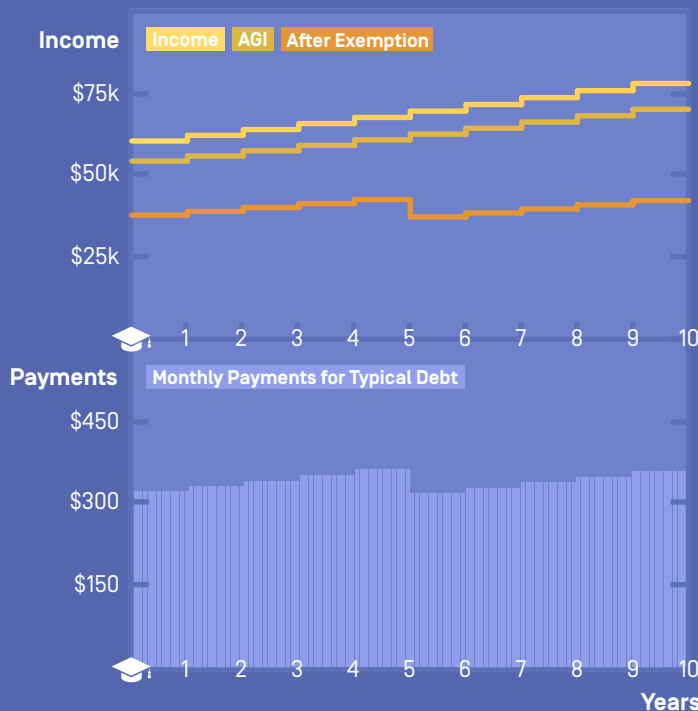


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$22k	\$29k	\$49k	\$85k
Repaid	\$24k	\$24k	\$24k	\$24k
Forgiven	\$4k	\$15k	\$44k	\$94k

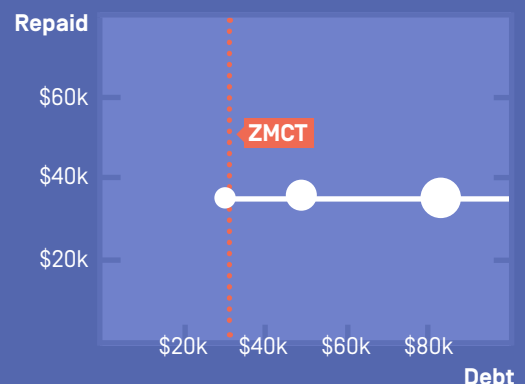


Speech Pathologist with Income at 75th Percentile

Income of \$61k in Year 1, reaching \$78k by Year 10



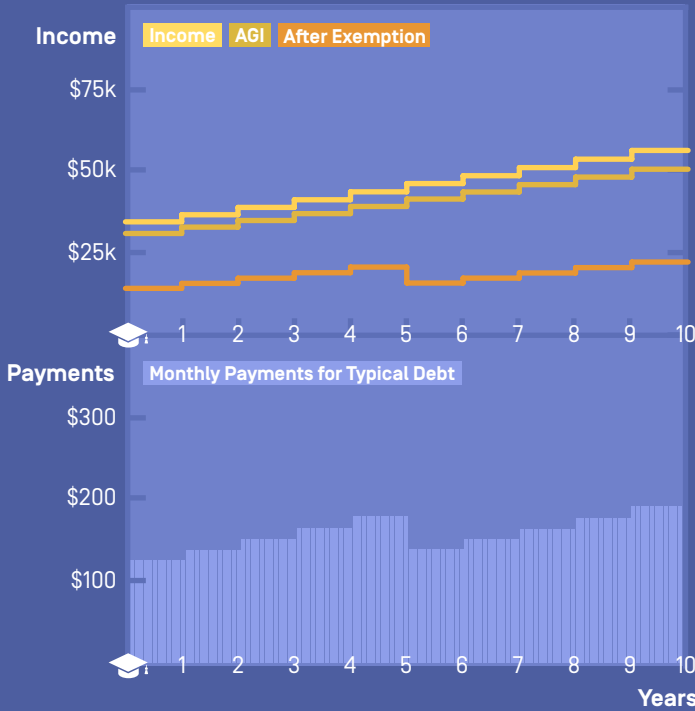
	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$29k	\$32k	\$49k	\$85k
Repaid	\$35k	\$35k	\$35k	\$35k
Forgiven	\$2k	\$5k	\$32k	\$84k



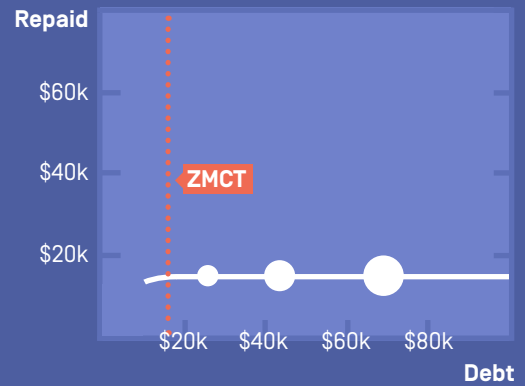
Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

Teacher with Typical Income

Income of \$35k in Year 1, reaching \$56k by Year 10

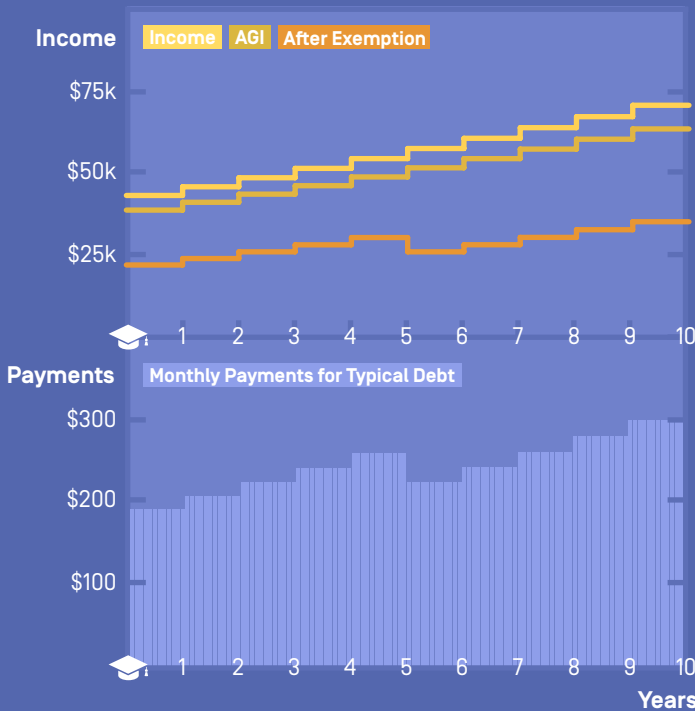


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$17k	\$23k	\$42k	\$69k
Repaid	\$16k	\$16k	\$16k	\$16k
Forgiven	\$5k	\$15k	\$41k	\$78k

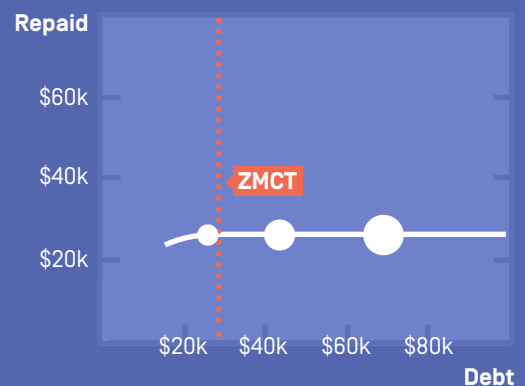


Teacher with Income at 75th Percentile

Income of \$44k in Year 1, reaching \$70k by Year 10



	Low Debt	ZMCT	Typical Debt	High Debt
Debt	\$23k	\$26k	\$42k	\$69k
Repaid	\$25k	\$25k	\$25k	\$25k
Forgiven	\$5k	\$9k	\$33k	\$70k

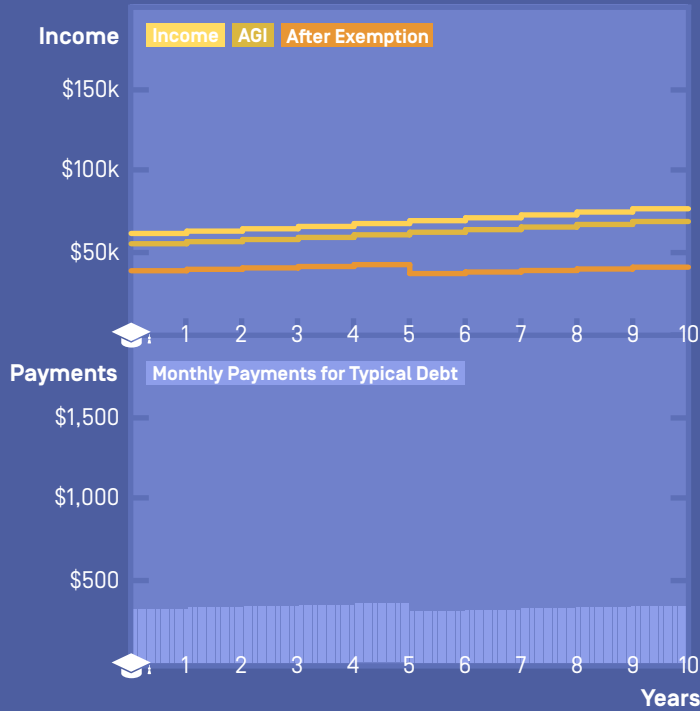


Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

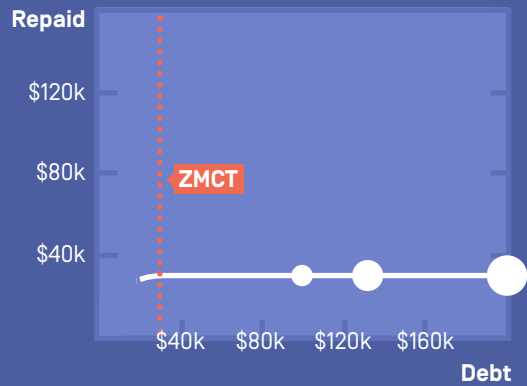


V Veterinarian with Typical Income

Income of \$62k in Year 1, reaching \$77k by Year 10

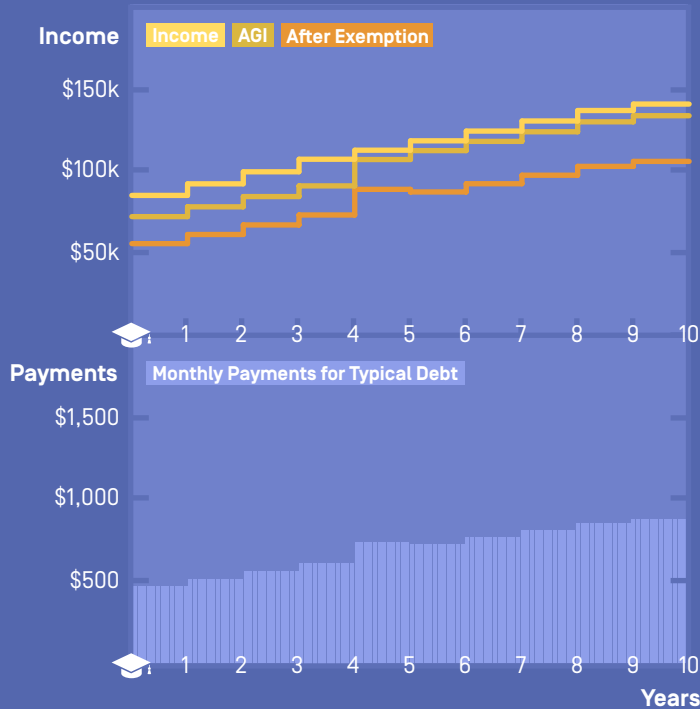


	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$32k	\$98k	\$132k	\$199k
Repaid	\$36k	\$36k	\$36k	\$36k
Forgiven	\$4k	\$100k	\$147k	\$242k

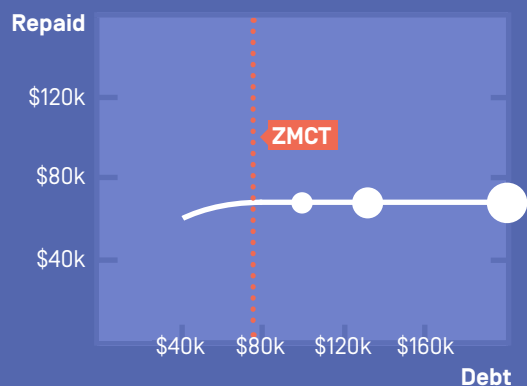


V Veterinarian with Income at 75th Percentile

Income of \$86k in Year 1, reaching \$141k by Year 10



	ZMCT	Low Debt	Typical Debt	High Debt
Debt	\$77k	\$98k	\$132k	\$199k
Repaid	\$72k	\$72k	\$72k	\$72k
Forgiven	\$31k	\$66k	\$114k	\$209k



Income and *Payment* tables show non-inflation adjusted amounts. *Repaid* and *Forgiven* figures are discounted to present value.

KEY FINDINGS AND DISCUSSION

The results of the analysis suggest that through New IBR and PSLF, the federal government now provides a very large source of tuition assistance for graduate and professional students who work in the public or not-for-profit sectors. Specifically, the debt levels at which borrowers with graduate and professional credentials who use PSLF bear no incremental cost in borrowing more is low relative to what many graduate and professional degrees cost. It is also low relative to how much debt students accumulate today after completing a graduate or professional degree.

For example, teachers, social workers, and speech pathologists who go on to earn at the 75th percentile of their peer groups reach the ZMCT before they have accumulated \$32,000 in federal loans. That is well below the median amount of debt students accumulate when pursuing master's degrees for those fields (of those who borrow). For most of these borrowers, then, the marginal \$5,000 or even \$20,000 they borrow beyond a \$32,000 balance is effectively grant aid. Similarly, lawyers who earn median wages for their age cease to incur incremental costs in borrowing once their loan balances hit \$54,500. Well over three-quarters of law school graduates who borrow accumulate more than \$54,500 in federal debt by the time they leave school. More importantly, the ZMCT equates to only about *one year's* tuition and living expenses for law school, implying that the remaining two years of costs could be borne completely by the government through loan forgiveness.

Our results show that students have a large incentive to borrow more and be less price sensitive in their graduate and professional education choices if they intend to work in PSLF-eligible fields. In response, New IBR and PSLF should weigh on schools' pricing decisions for graduate programs, especially those that are likely to lead to employment in those fields. Schools also have an incentive to expand and develop graduate programs that lead to those jobs regardless of the needs and demands of the labor market.

Another of our findings is surprising. New IBR and PSLF provide substantial benefits to borrowers with typical debt loads who earn median or even high incomes for their professions. This stands in contrast to the widespread belief that borrowers collecting large benefits under the programs will be rare. In fact, for many of the degree–profession categories we profiled,

median federal debt levels for graduate students result in substantial amounts of loan forgiveness even for borrowers earning more than most of their peers.

For example, a teacher with a master's degree who borrows typically leaves school with \$42,000 in federal debt from undergraduate and graduate studies combined. If he earns at the 75th percentile for his age over his first 10 years of repayment, he will have \$32,711 forgiven. In other words, a teacher with a master's degree who has a *typical* debt load, who earns an *above average* income, has over \$30,000 forgiven under New IBR and PSLF. Put another way, having at least \$30,000 forgiven if you are a teacher with a master's degree stands to become the norm, if you make use of New IBR and PSLF.

Replace that example with a lawyer who has median debt for law graduates (\$140,000) and earnings at the 75th percentile for all lawyers, not just those working in PSLF-qualified jobs, and the amount forgiven jumps to \$98,751. A lawyer earning at the 75th percentile has some of the highest earnings among all professions, yet New IBR and PSLF provide benefits large enough that high earnings still result in nearly \$100,000 in loan forgiveness for *typical levels of debt* for law school graduates. A lawyer earning at the 50th percentile with that debt level stands to have \$147,282 forgiven, which is more than he borrowed, due to interest accrual, even after discounting to a present value.

Our analysis suggests that these levels of loan forgiveness under New IBR and PSLF will be anything but atypical. The tuition assistance that New IBR and PSLF provide is in fact large enough that it could become common for the government to pay for a student's entire graduate education via loan forgiveness under PSLF, especially in some professions. Moreover, certain

categories of students will pursue graduate degrees knowing that they will *only* work in PSLF-qualified employment, such as teachers and social workers. That has significant implications for pricing practices for certain graduate programs and students' decisions to borrow. An example using the social worker profile illustrates this point.

Imagine a student who has already accumulated a loan balance of \$29,000 during his undergraduate studies, a typical amount of debt for an undergraduate who borrows and completes a four-year degree. He pursues a master of social work and borrows the entire cost of the education, including living expenses. Assume he earns at the 75th percentile for a social worker with a master's degree by age for his first 10 years after graduate school. Because he began the program with debt already in excess of the ZMCT (\$28,000), every dollar he borrows for graduate school—and the interest it accrues—will be forgiven by the federal government. More debt will not increase his payments beyond those he would make on the debt he accumulated as an undergraduate. His graduate education is therefore financed completely by federal loans and loan forgiveness, at no cost to him.

This borrower need not earn an income that is unexpectedly low for this to be true. In fact, he can earn a relatively high income for a social worker with a master's degree, as this example reflects an income at the 75th percentile. In this case, New IBR and PSLF should make students insensitive to the price they pay for their tuition and living expenses so long as they use federal loans to finance it, loans that are subject to no limits other than the full cost of a graduate education.

Note that for undergraduate students, the effects of New IBR and PSLF are much different. It would be very difficult for a student to fully finance an undergraduate degree through PSLF. Annual and aggregate loan limits in the federal loan program that apply to dependent undergraduates are generally set below or near the ZMCT for all but the lowest-paid professions we profiled. More importantly, borrowers almost always incur costs for the initial amounts they borrow below the ZMCT, and they will take out their initial loans pursuing an undergraduate degree.

Payments for Median and High Debt Levels

In nearly every case we profile, borrowers make payments under New IBR and PSLF that are identical for both median *and* high debt levels. That is because the ZMCT for most of the cases we profile is close to median federal debt levels for borrowers who complete the specified graduate and professional programs.

For example, a nurse with a master's degree earning at the 50th percentile by age would make the same payments on his loans if he left school with the median (\$47,000) or the 75th percentile level (\$75,000) of federal student loan debt for graduates with a master of science degree who borrow.

This dynamic could have a significant impact on students' decisions about what schools to attend and how much

to borrow. Borrowers will be faced with the fact that attending an average-priced program will carry the same cost as attending a high-priced program, with the difference subsidized completely through loan forgiveness. Alternatively, a student who might consider using his own funds or working part-time to finance his education could decide that on the margin, whatever those choices might save him in future loan payments would simply be forgiven under New IBR and PSLF and he should therefore borrow rather than use his own resources.

Schools also face altered incentives when borrower payments are the same for median and high debts. If a school is aware that the median amount of debt that students graduate with is above the ZMCT for students who earn at the 75th percentile (or even higher), then any incremental price increases will be borne by the government through loan forgiveness, provided the students use federal loans to finance those costs. In such a scenario the school might take steps to inform students about this effect, making them insensitive to prices that exceed the ZMCT, or the effects might simply work their way into the graduate school marketplace as schools raise prices without any drop-off in demand. In other words, if the cost of attendance is already above the ZMCT at a given program or school, then New IBR and PSLF could artificially increase supply and demand for the degrees conferred at that school, irrespective of their labor market value.

Stafford Loans Alone Allow for Significant Loan Forgiveness

In *Safety Net or Windfall*, we showed how high-income borrowers could qualify for loan forgiveness by amassing high-debt balances through the Grad PLUS Program, which allows graduate students to borrow whatever a school charges (plus living costs as determined by the school) once they have exhausted the annual (\$20,500) or aggregate (\$138,500) Stafford loan limit. Some observers may therefore believe that New IBR and PSLF only have implications for graduate students when they use Grad PLUS loans.

This analysis shows, however, that in many of the cases we profile, borrowers will reach the ZMCT and/or qualify for substantial loan forgiveness using Stafford loans alone, well before they would have to access Grad PLUS loans. This is even more the case if a borrower enters graduate school with federal debt from undergraduate studies and repays the combined balance through New IBR.

For example, a dependent student who borrows the maximum in undergraduate loans over five years would enter graduate school with a balance of about \$34,000 (including accrued interest and assuming he did not make any payments). If he attends graduate school for two years and borrows the maximum in Stafford loans, his combined loan balance (including accrued interest from both sets of loans) would total approximately \$80,000 in Stafford loans alone. That figure exceeds the ZMCT for all but the highest-earning degree–profession categories that we profiled. Only two cases we profiled have an ZMCT above that amount.

Implications for Scholarships and School-Provided Financial Aid

Some graduate and professional programs provide financial aid to certain students. Other organizations also offer scholarships for graduate and professional studies. New IBR may change whether, how, and to whom schools and other organizations provide this aid. Schools and scholarship funders may see the aid they are providing as supplanting loans that would have been forgiven by the federal government anyway. They may then put that money to other uses.

For example, a student who borrows \$10,000 more than the ZMCT for his degree–profession profile effectively receives a \$10,000 grant from the federal government to finance his education. His financial situation would be unchanged had he received the same amount from his school or a third party in the form of a scholarship.

Examples of Behavioral Changes in the Market

While student and school familiarity with New IBR and PSLF is likely still in its very early stages, take-up rates in Old and New IBR are not as low as many media reports indicate. The number of borrowers using the programs is growing, and loan volume enrolled now accounts for 22 percent of the entire Direct Loan portfolio in repayment

status and about 11 percent of borrowers.²⁴ Below are a few early examples that illustrate how schools and students are responding to the benefits of New IBR and PSLF.

Financial planners and consultants are helping clients understand the program, how to use it, and how to optimize the benefits it provides. One business that offers such services to both individual borrowers and other financial planners is The Advantage Group. The business describes itself as “an analytics company that provides financial professionals and college graduates with information about Student Loan repayment options and financial products.” The Advantage Group advertises that IBR can “reduce student loan payments and forgive tens, even hundreds of thousands of dollars.”²⁵

Graduate and professional schools are also starting to inform current and prospective students about the benefits of New IBR and PSLF. Many law schools offer special repayment programs for borrowers who use New IBR combined with PSLF, whereby the school pays a portion or all of a former student’s loan payments as long as he earns below a certain income threshold. One such school, Georgetown Law, aggressively markets the benefits of its program to current and prospective students with seminars and other materials. A video recording of one seminar includes testimonials from former students enrolled in the program who say it allows them to take jobs with lower salaries and “ignore” debt balances, which often exceed \$100,000.²⁶

CONCLUSION

Our findings show that the repayment terms for New IBR and PSLF are unlikely to cause many graduate and professional students to fully repay their loans—even if they earn a competitive salary in their chosen careers or a salary that places them among upper-income Americans. This will likely provide an incentive for graduate and professional students to borrow more rather than less, particularly for some professions. It should also make graduate students less sensitive to the price of a graduate or professional degree, allowing institutions to charge higher tuitions, especially for certain programs like healthcare, social work, education, and government, where borrowers would go on to qualify for PSLF.

Policymakers should consider changes to New IBR and PSLF that place greater limits on the benefits and the types of jobs that qualify borrowers for loan forgiveness. If they do not make such changes, the programs are likely to have a very large impact on the graduate education marketplace and borrowing behavior in the coming years as students and schools begin to understand and use these programs. That impact will likely raise alarm among lawmakers and the public and could threaten the viability of PSLF or New IBR.

NOTES

1 U.S. Department of Education, Fiscal Year 2015 Budget Summary and Background Information, accessed April 22, 2014, <http://www2.ed.gov/about/overview/budget/budget15/summary/15summary.pdf>; Jason Delisle and Alex Holt, “Obama Budget Reforms Income-Based Repayment, Reduced Windfall Benefits” (blog), Ed Central, New America, March 4, 2014, <http://www.edcentral.org/obama-administration-announces-major-reforms-income-based-repayment/>.

2 Deficit Reduction Act of 2005, Public Law 109-171, 20 U.S.C. §8005 (2005).

3 Omnibus Budget Reconciliation Act of 1993, Public Law 103-66, 20 U.S.C. 1087a, §4011 (1993).

4 The program, called “Income Contingent Repayment,” requires borrowers to make payments equal to 20 percent of adjusted gross income after an exemption equal to the federal poverty guidelines. Borrowers can often obtain much lower payments under other repayment options that are fully amortizing and not based on income, by extending the duration of the loan and by making payments that slowly increase over time. Moreover, borrowers must have loans under the Direct Loan Program to use Income Contingent Repayment, which up until about 2010 represented at most about 25 percent of loan issuance. The remaining loans were made by private lenders and backed by the federal government but were not eligible for Income Contingent Repayment.

5 The advocates’ most compelling argument for modifying the program was that a borrower who defaulted on his loans and had his wages garnished by the U.S. Department of Education would pay roughly the same share of his income as under the Income Contingent Repayment plan. They also cited research to make the case for payments based on smaller share of income than under the Income Contingent Repayment option. See: Sandy Baum and Saul Schwartz, *How Much Debt Is Too Much? Defining Benchmarks for Manageable Student Debt* (New York: The College Board, 2006), accessed April 22, 2014, <http://research.collegeboard.org/sites/default/files/publications/2012/9/researchinreview-2006-12-benchmarks-manageable-student-debt.pdf>; and Robert Shireman, Lauren Asher, Ajita Talwalker, Shu-Ahn Li, Edie Irons, and Rowan Cota, *Addressing Student Loan Repayment Burdens: Strengths and Weaknesses of the Current System* (Washington, DC: The Project on Student Debt, February 2006), accessed April 22, 2014, http://projectonstudentdebt.org/files/pub/WHITE_PAPER_FINAL_PDF.pdf.

6 For example, if a borrower’s monthly payment based on a 10-year amortization schedule is \$300, but his payments based on the IBR formula would be \$290, he qualifies to enroll in IBR. If his income later increases such that his payments would exceed the amount he would pay on a 10-year amortization, then his payments are capped at \$300 but he may remain enrolled in IBR and still qualifies for loan forgiveness after the required number of payments.

7 When Congress debated legislation to enact Old IBR in 2007, lawmakers focused exclusively on the loan forgiveness benefits of the program for borrowers in public service jobs, PSLF. They viewed that provision as the main legislative change; few mentioned that the program would allow borrowers to make lower monthly payments than the Income Contingent Repayment program in place at the time.

8 Health Care and Education Reconciliation Act of 2010, Public Law 111-152, §2213 (2010).

9 The Obama administration used the authority under a provision added to the Higher Education Act in 1993 that allows the Secretary of Education to offer an income-contingent repayment plan within certain parameters. 20 U.S.C. § 1087e. A “new borrower” for purposes of the plan is someone who takes out a federal student loan for the first time on or after the specified date. For the Pay As You Earn plan, the borrower must also have taken out a loan on October 1, 2011 or after. Someone who borrowed initially prior to that date but repaid the earlier loans in full before borrowing again on or after that date is also considered a new borrower.

10 Unlike Old and New IBR, Pay As You Earn includes a limit on how much interest can be capitalized at a certain point in repayment, but it does not limit how much interest can accrue. This limit is likely to have no effect on most borrowers, and at most a negligible effect on a limited number of borrowers with high debt balances—over \$50,000—who experience prolonged low incomes with sudden, large increases in incomes that are sustained.

11 Jason Delisle and Alex Holt, *Safety Net or Windfall: Examining Changes to Income-Based Repayment* (Washington, DC: New America Foundation, 2012).

12 See: New America, *IBR Calculator*, accessed April 22, 2014, <http://edmoney.newamerica.net/sites/newamerica.net/files/articles/NAF%20IBR%20Calculator%20with%20PSLF%20for%20New%20IBR.xlsx>.

13 Undergraduates face relatively low limits in the federal loan program, thereby limiting the benefits of loan forgiveness. A dependent undergraduate borrower can borrow a maximum of \$5,500 in his first year, \$6,500 in his second, and \$7,500 each year thereafter. The aggregate limit is \$31,000. An independent undergraduate can borrow \$4,000 more in the first two years and \$5,000 more in later years, with an aggregate limit of \$57,500. Borrowers can enter repayment with balances higher than the aggregate limit due to interest accrual. Additionally, a small share of undergraduate borrowers have federal Perkins loans in addition to Stafford loans, which may be repaid through New IBR as a consolidation loan. Perkins loans do not count toward the aggregate loan limit for Stafford loans. If eligible, certain students may therefore borrow \$5,500 annually through the Perkins program, in addition to the Stafford limit, with a separate aggregate limit of \$27,500. Borrowers with persistently low incomes make similar

payments under both the Old and New IBR plans due to the exemption that is the same under both programs. Both Old and New IBR plans calculate a borrower's payments on income after an exemption equal to 150 percent of the federal poverty guidelines, adjusted for household size. If a borrower's income is below that threshold, then his payment is \$0 regardless of which IBR he is using. Borrowers with incomes slightly above the threshold make similar payments because 10 percent and 15 percent of the nonexempt income translates into only slightly different payments.

14 U.S. Department of Education, Office of Federal Student Aid, "Public Service Loan Forgiveness," Fact sheet, accessed April 22, 2014, <http://studentaid.ed.gov/sites/default/files/public-service-loan-forgiveness.pdf>.

15 Public Service & Student Debt: Analysis of Existing Benefits and Options for Public Service Organizations (Washington, DC: Consumer Financial Protection Bureau, 2013), accessed April 22, 2014, http://files.consumerfinance.gov/f/201308_cfpb_public-service-and-student-debt.pdf.

16 IBR calculates a borrower's payments based on his federal income tax return for the prior year, and the program often updates his payments many months after his most recent tax return is filed. Therefore, a borrower will make payments under IBR that reflect his income for a prior year, not his current income. That is, a 27-year-old borrower would make payments based on his income when he was age 25 or 26. Our analysis does not account for this lag and likely overstates the income and loan payments borrowers make.

17 While a longitudinal data set would offer advantages over the ACS for developing our income projections, the available longitudinal data sets, such as the Bureau of Labor Statistics' National Longitudinal Survey of Youth or the Panel Study of Income Dynamics, are limited to broad profession categories or include too few respondents within a specific profession. The ACS data set, on the other hand, includes many individual professions with a larger number of respondents in each and includes an indicator for level of education. This allows us to focus on individual professions and individuals with master's or professional degrees rather than having to use more generic categories.

18 The version of the New America IBR calculator used for this paper is available in Microsoft Excel format at the URL below. Note that the calculator does not display loan payments in discounted present value. It also uses an exemption amount for the year 2013, not the lower 2011 levels used for this study. The analysis in this paper reports loan payments displayed in the calculator in discounted present value using a constant discount rate of 2.5 percent. See: New America, IBR Calculator, accessed April 22, 2014, <http://edmoney.newamerica.net/sites/newamerica.net/files/articles/NAF%20IBR%20Calculator%20with%20PSLF%20for%20New%20IBR.xlsx>.

19 Income levels entered into the calculator that are less than \$68,000 equate to an AGI of 90 percent of total income. Amounts between \$68,001 and \$100,000 equate to an AGI of 85 percent of total income. Income between \$100,001 and \$150,000 equates to an AGI of 95 percent of income. Amounts between \$150,001 and \$200,000 equates to an AGI of 98 percent of income. Income of \$200,000 and above is not reduced. The calculator automatically increases the income brackets by 2.5 percent each successive year. For example, the \$68,000 threshold at which point a borrower's AGI reflects 90

percent of total income increases by 2.5 percent per year so that in the second year it is \$69,700, and so on. The rationale for those brackets is the following: fringe benefits and the student loan interest deduction, even though small on an absolute basis, can easily reduce a borrower's income by a large percentage. The 90 percent threshold is conservative. As borrowers earn more, the threshold increases because these earners are more able to take advantage of fringe benefits, particularly pretax retirement contributions. At high incomes, the reduction is less because we assume that these borrowers have unearned income that partially or fully offsets any pretax fringe benefits or other above-the-line deductions and credits.

20 Borrowers would have to file separate federal income tax returns from their spouses to do this. The reduced loan payments and increase in loan forgiveness far outweigh the slightly more in income taxes they may pay as a result.

21 Under the IBR rules, borrowers may include a spouse in their household size calculation, even if the couple files separate federal income tax returns. Children may be included in a borrower's household size if the borrower provides for more than half of a child's care, regardless of which spouse claims the child as a dependent on his or her return.

22 We assume the first \$45,000 of debt a borrower incurs is unsubsidized Stafford loans, and any above that is Grad PLUS, except for lawyers, pharmacists, registered nurses, and veterinarians, for which we assume the first \$65,000 is unsubsidized Stafford loans, reflecting the fact that borrowers with those degrees likely borrowed for three, rather than two, years for their graduate studies. Unsubsidized Stafford loans have lower interest rates, but those loans are subject to annual and aggregate limits. Students take out Grad PLUS loans once they have reached the annual or aggregate unsubsidized Stafford loan limits, and Grad PLUS loans are not subject to an aggregate limit or an annual limit other than a school's cost of attendance.

23 In 2012, Congress and the president amended the federal loan program such that interest rates on newly issued loans are based on the interest rates on 10-year Treasury notes plus a mark-up. Based on Congressional Budget Office estimates in 2013, interest rates on graduate Stafford loans and Grad PLUS loans will remain lower than rates in effect prior to enactment of the Bipartisan Student Loan Certainty Act only through 2015, after which they will remain above those rates. Bipartisan Student Loan Certainty Act of 2013, Public L. No. 113-28, 127 Stat. 506 (2013).

24 U.S. Department of Education, Office of Federal Student Aid, "Direct Loan Portfolio By Repayment Plan," accessed August 6, 2014, <https://studentaid.ed.gov/sites/default/files/fsawg/datacenter/library/DLPortfolioByRepaymentPlan.xls>.

25 The Advantage Group, "About Us," accessed April 22, 2014, <http://ibrloan.com/about-us/who-we-are.html>.

26 Georgetown removed this video from its website after we published a post on the Higher Ed Watch blog regarding the Georgetown Law loan repayment program. The referenced footage can still be viewed at: Federal Education Budget Project, "Georgetown LRAP: In Their Own Words." Ed Money Watch (blog), 2013, accessed April 22, 2014, http://edmoney.newamerica.net/blogposts/2013/georgetown_lrap_in_their_own_words-89258.



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