



FEDERAL RESERVE BANK *of* KANSAS CITY

Student Loan Update: Borrower and Fiscal Impact of Student Loan Repayment Relief Programs

National Council of Higher Education Resources

Clearwater, FL

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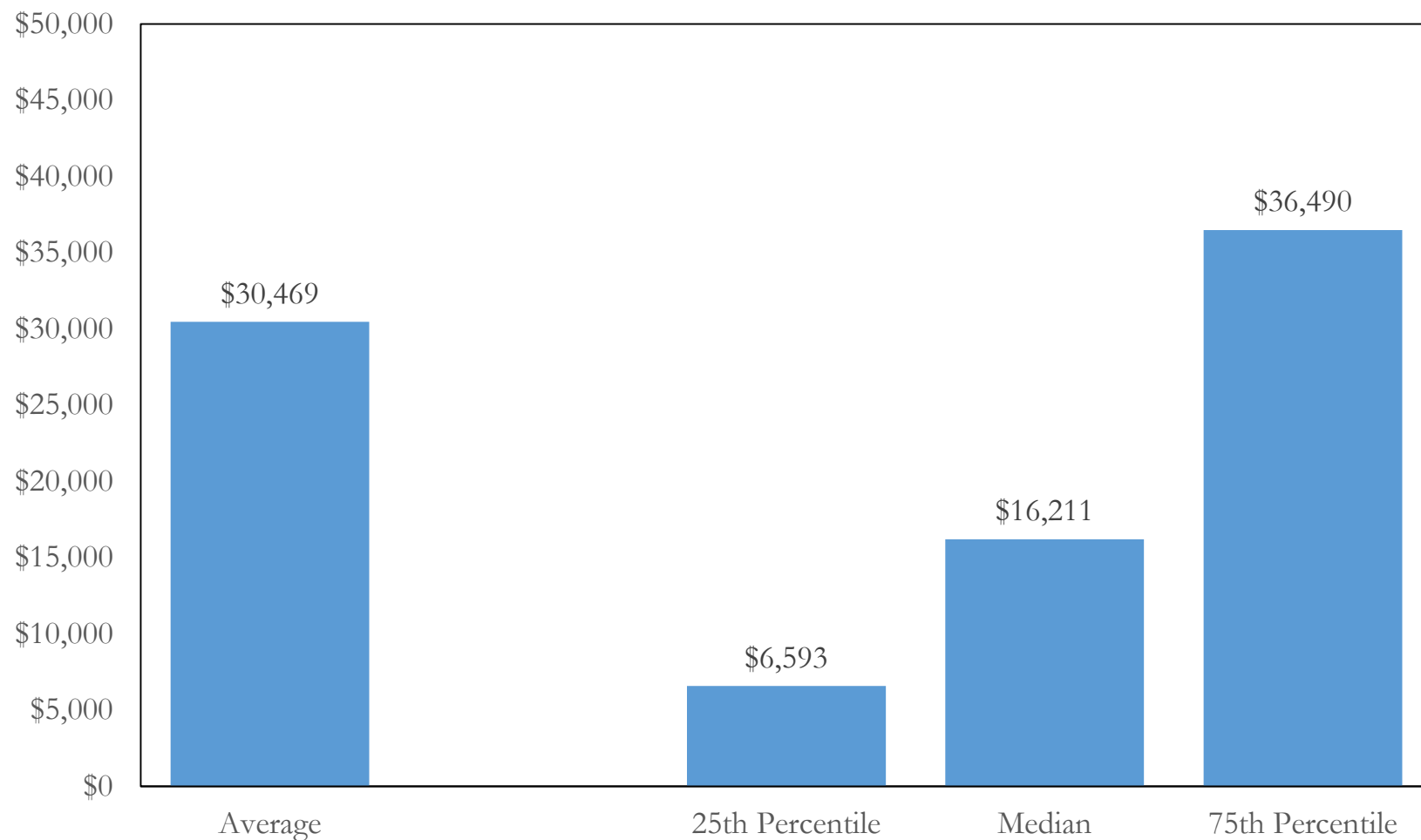
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The views in this presentation are those of the speaker and do not necessarily represent the views of the Federal Reserve Bank of Kansas City or the Federal Reserve System.

Resources

- Di, Wenhua and Kelly D. Edmiston (2017). “Student Loan Relief Programs: Implications for Borrowers and the Federal Government,” *Annals of the American Academy of Political and Social Science*, 671, 224-248.
- Di, Wenhua and Kelly D. Edmiston (2015). “State Variation of Student Loan Debt and Performance,” *Suffolk Law Review*, 48(3), 661-688.
- Kelly D. Edmiston, et al. (2012). “Student Loans: Overview and Issues,” *Federal Reserve Bank of Kansas City Research Working Paper 12-05* (updated April, 2013) [**“Is There a Student Loan Crisis?”**]
- Kelly D. Edmiston and Daniel Perez (2017). *Tenth District Consumer Credit Report*, June. (special topic: delinquency rates for student loans in repayment) Available at <https://www.kansascityfed.org/research/community>

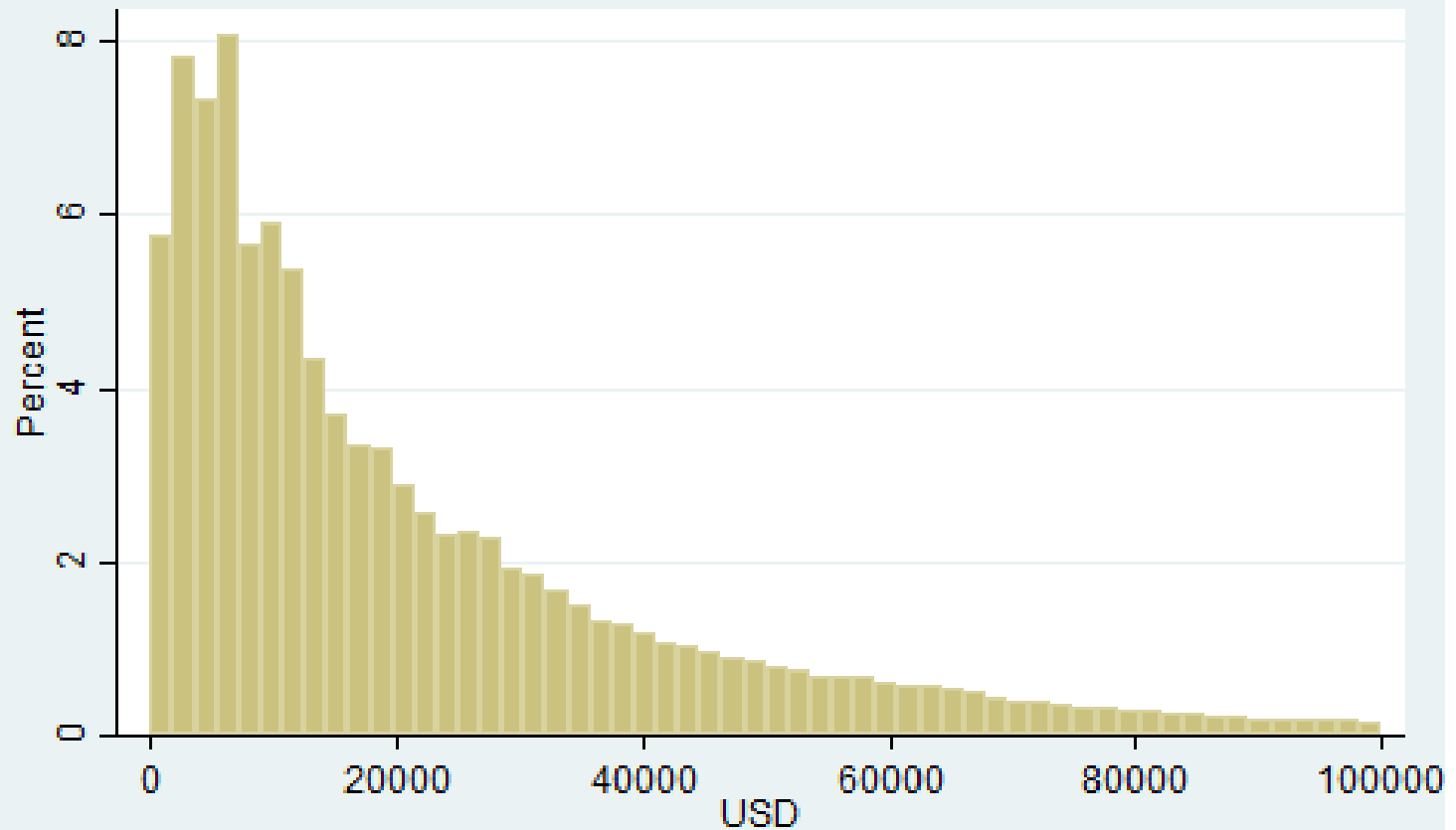
Student Loan Debt, March 2017



Source: Authors' calculations using data from the Federal Reserve Bank of New York Consumer Credit Panel / Equifax

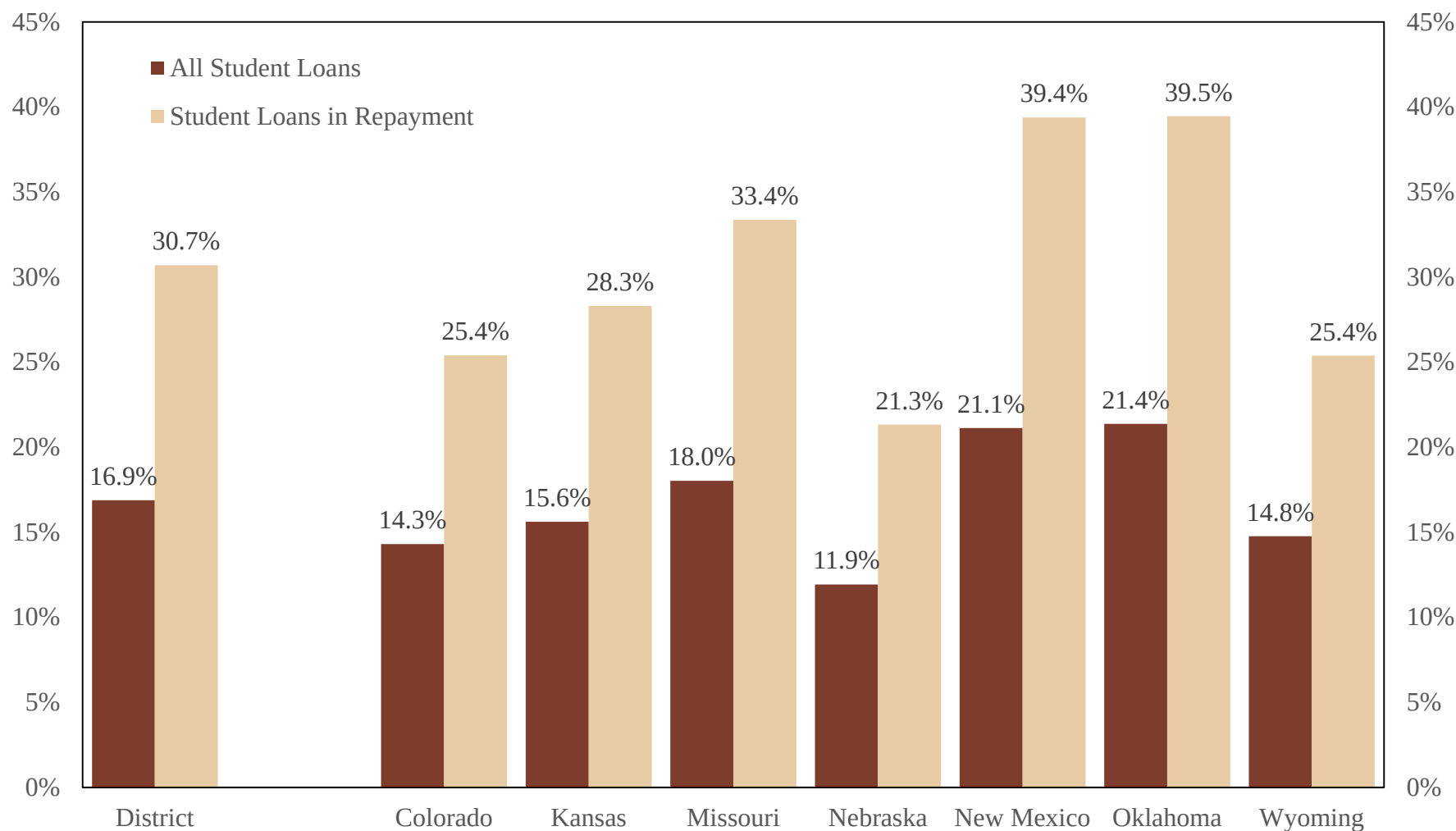
Distribution of Student Loan Balance

First Quarter, 2016



SOURCE: Federal Reserve Bank of New York Consumer Credit Panel/Equifax

Recent Trends in Student Loans: Delinquency & Default



Source: Authors' calculations using data from the Federal Reserve Bank of New York Consumer Credit Panel / Equifax

Notes: These data represent the share of individuals with student loan debt who have any past due balance. Some repayment relief programs could result in a zero payment and capitalizing interest specifically, the denominator in the calculation would be artificially low. This situation is rare.

Motivation

- The consequences of being unable (or unwilling) to repay student loans can be severe for debtors and has been shown to have a broader economic impact.
 - Delayed household formation
 - Delayed marriage
 - Delayed home purchase
- For many families, student loans are the only financial tool to bridge the gap between college costs and funds from family savings and other sources of aid.

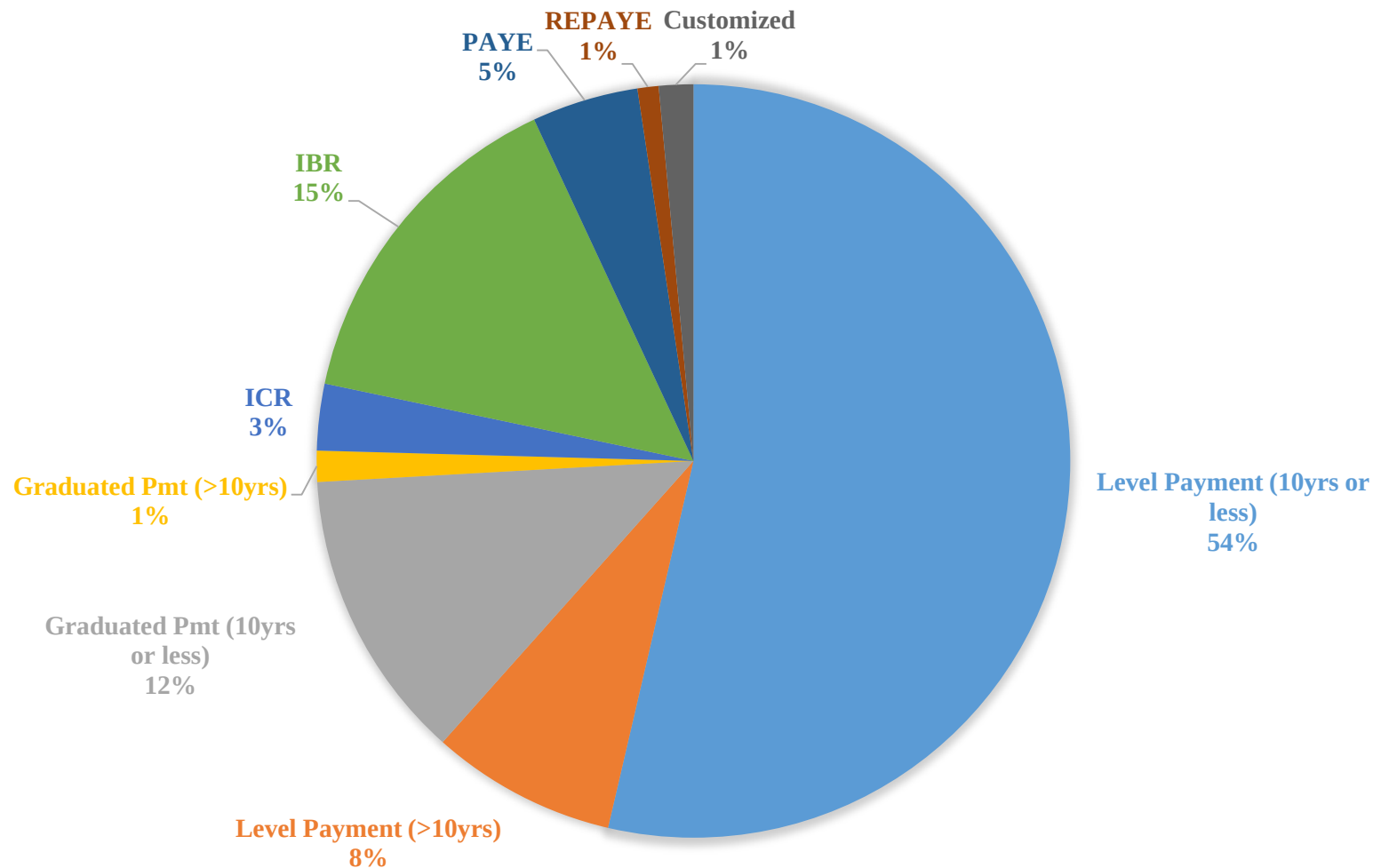
Motivation

- In light of these concerns, considerable political attention has been focused on providing financial relief to student loan debtors
 - deferment and forbearance
 - extending repayment terms
 - graduating payments
 - tying required payments to discretionary income.
- Participation in income-driven plans significantly reduce defaults—but participation often comes at significant long-term cost to the borrower

Motivation

- The majority of borrowers of federal student loans are qualified for a relief program, but only about 25 percent participate (GAO)
- Take-up rates depend largely on borrowers' understanding of the programs
- Student debt relief programs can provide a safety net for distressed borrowers and possibly diffuse the fear of debt for some borrowers—but they have substantial fiscal implications.
- A consequence of student debt relief programs for borrowers and the federal budget are not well-understood.

ED Loan Portfolio by Repayment Program



Source: National Student Loan Data System (NSLDS) and U.S. Department of Education

Student Loan Repayment Programs

- Deferment and forbearance
- Standard (default) repayment plan – full amortization with level payments over ten years
- Extended repayment plan – full amortization with level payments over a term of up to 25 years
- Graduated repayment – full payment; payments start low and increase every two years at a constant rate; terms up to 30 years
- Income-Driven-Repayment Programs
 - Income-Contingent Repayment (ICR)
 - Income-Based Repayment (IBR)
 - Income-Based Repayment (IBR) for new borrowers
 - Pay-As-You-Earn (PAYE)
 - Revised Pay-As-You-Earn (REPAYE)

Characteristics of Alternative Income-Driven Repayment Plans for Federal Student Loan Debt

Program	Income-Based Repayment (old)	Income-Based Repayment (new)	Income-Contingent Repayment	Pay-As-You-Earn	Revised Pay-As-You-Earn
Abbreviation	IBR	IBR (new)	ICR	PAYE	REPAYE
Eligibility	FFEL; DL with no loans after Jul 14 2014	DL with loans after Jul 14 2014 “new borrowers”	DL; Direct Consolidated FFEL and FFELP; PLUS	DL disbursed on/after Oct 1 2011; Direct Consolidated loans in some cases	DL; Direct Consolidated FFEL and FFELP
Hardship Requirement (PFH)	Yes	Yes	No	Yes	No
Discretionary Income	AGI – 1.5 (Poverty)	AGI – 1.5 (Poverty)	AGI – Poverty	AGI – 1.5 (Poverty)	AGI – 1.5 (Poverty)
Income-Driven Payment (share of discretionary income)	Lesser of 15% or 10-yr level payment	Lesser of 10%; or 10-yr level payment	Lesser of 20% or adjusted payment on 12-yr level payment plan	Lesser of 10% or 10-yr level payment	10%; no limit on payment
Interest Capitalization	If no longer PFH (incl. not recertifying); no maximum	If no longer PFH (incl. not recertifying); no maximum	No limit	If no longer PFH, fail to recertify, or voluntarily leave PAYE; Limit of 10% of original debt amount	If fail to recertify or voluntarily leave REPAYE
Subsidy of Interest (if capitalized)	100% for 3 years if subsidized loan, else none	100% for 3 years if subsidized loan, else none	None	100% for 3 years if subsidized loan, else none	100% for 3 years if subsidized loan, else 50% life of repayment term
Repayment Term	300 payments over at least 25 years	240 payments over at least 20 years	300 payments over at least 25 years	240 payments over at least 20 years	240 payments over at least 20 years; 300 payments over at least 25 years if debt financed graduate or professional education

Sources: National Council of Higher Education Resources, “Income Driven Repayment Comparison Chart; U.S. Department of Education, Office of Federal Student Aid, “Income-Driven Repayment Plans for Federal Student Loans” and “Income-Driven Repayment Plans: Questions and Answers.

Computing Monthly Payment Amount ICR: Really?

- [Step 1] Determine the total monthly payment amount based on 12 years using standard amortization.
- [Step 2] Multiply the result of Step 1 by the income percentage factor (IPF) shown in the income percentage factors table that corresponds to the borrowers' AGI
 - Must interpolate from “Chart E,” similar to tax tables
 - Compute Income Interval = (closest greater value in Chart E) – (closest lesser value in Chart E)
 - Find the IPFs and do a similar calculation to get the IPF Interval
 - Subtract closest lesser value in Chart E from income and divide the result by the Income Interval
 - Multiply this result by the IPF interval
 - Add this result to the IPF associated with the closest lesser value in Chart E
- [Step 3] Determine 20 percent of the borrower's discretionary income and divide by 12 (discretionary income is AGI minus the HHS Poverty Guideline amount for a borrower's family size and State of residence).
- [Step 4] Compare the amount from Step 2 with the amount from Step 3. The lower of the two will be the monthly ICR payment amount.

Source: Federal Register, Volume 78, Number 107 (Tuesday, June 4, 2013), pp. 33395-33398

“Note that I decided not to bother describing the deal with Income-Contingent Repayment; a’int nobody [sic] got time for that.”

-- Heather Jarvis

<http://askheatherjarvis.com/blog/what-triggers-student-loan-interest-capitalization>

U.S. Department of Education Advice on Choosing an Income-Driven Repayment Plan

How do I decide which income-driven repayment plan to choose?

If you've decided that an income-driven repayment plan is right for you, **you'll want to choose the plan that provides the most benefit to you based on your individual circumstances.** Although all four income-driven plans allow you to make a monthly payment based on your income, the plans differ in terms of who qualifies, how much you have to pay each month, the length of the repayment period, and the types of loans that can be repaid under the plan.

If you have only Direct Loans, you can choose from all four income-driven repayment plans. **If you're not sure which plan to choose, you have the option of requesting the income-driven plan that provides the lowest payment amount.** Your servicer will determine which plans you qualify for and will then place you on the plan with the lowest monthly payment.

Source: U.S. Department of Education, Office of Federal Student Aid, "Income-Driven Repayment Plans for Federal Student Loans"

Government Accounting for Student Loans

- Accrual-based budgeting
 - NPV (incl disbursements, subsidies, payments)
 - Federal Credit Reporting Act (FCRA, 1990) method
 - Federal Government Costs using FCRA
 - FY 2016: -\$2.547B
 - FY 2017: \$37.619 (est.)(upcharges, esp. collection, IDR participation)
 - FY 2018: -\$11.106b
 - Updates
 - *vs.* fair-value

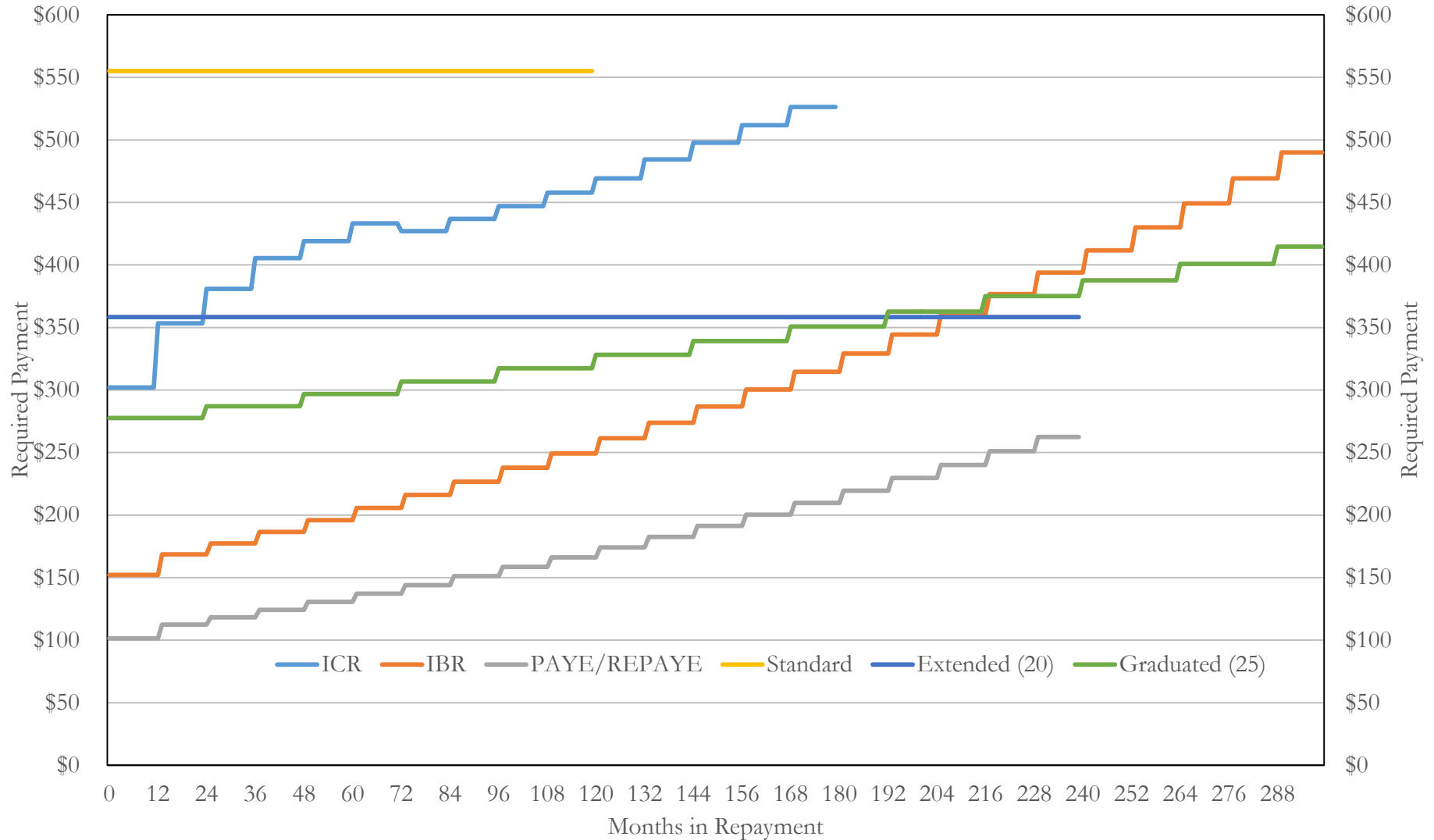
Government Accounting for Student Loans

- Accrual-based budgeting (cont)
 - Fair-value estimates
 - CBO: 11 percent of disbursements
- Indirect
 - Greater income → tax revenues; lower costs
 - Interest deductions
- Outlook
 - Not expected to see much higher default rates
 - Could see continued rapid increases in borrowing
 - Reform options

Assumptions Underlying the Calculations

- Borrower is single with no dependents
- The interest rate on the student debt is 6 percent, the average for outstanding student loans according to the ED
- The poverty threshold grows at 2.14 percent, compounded annually
 - Based on CAGR between 2000 and 2016 (HHS)
- Income grows at 3.4 percent annually
 - Based on CAGR in employee compensation, 2000-2015
 - Note: 4.0 percent for personal income
- SL repayments are discounted at a rate of 2.8 percent
 - Based on index of investment-grade U.S. corporate bonds
- Loans are paid as agreed

Payment Schedules Under Alternative Repayment Programs (Initial AGI = \$30,000; Initial Student Debt = \$50,000)



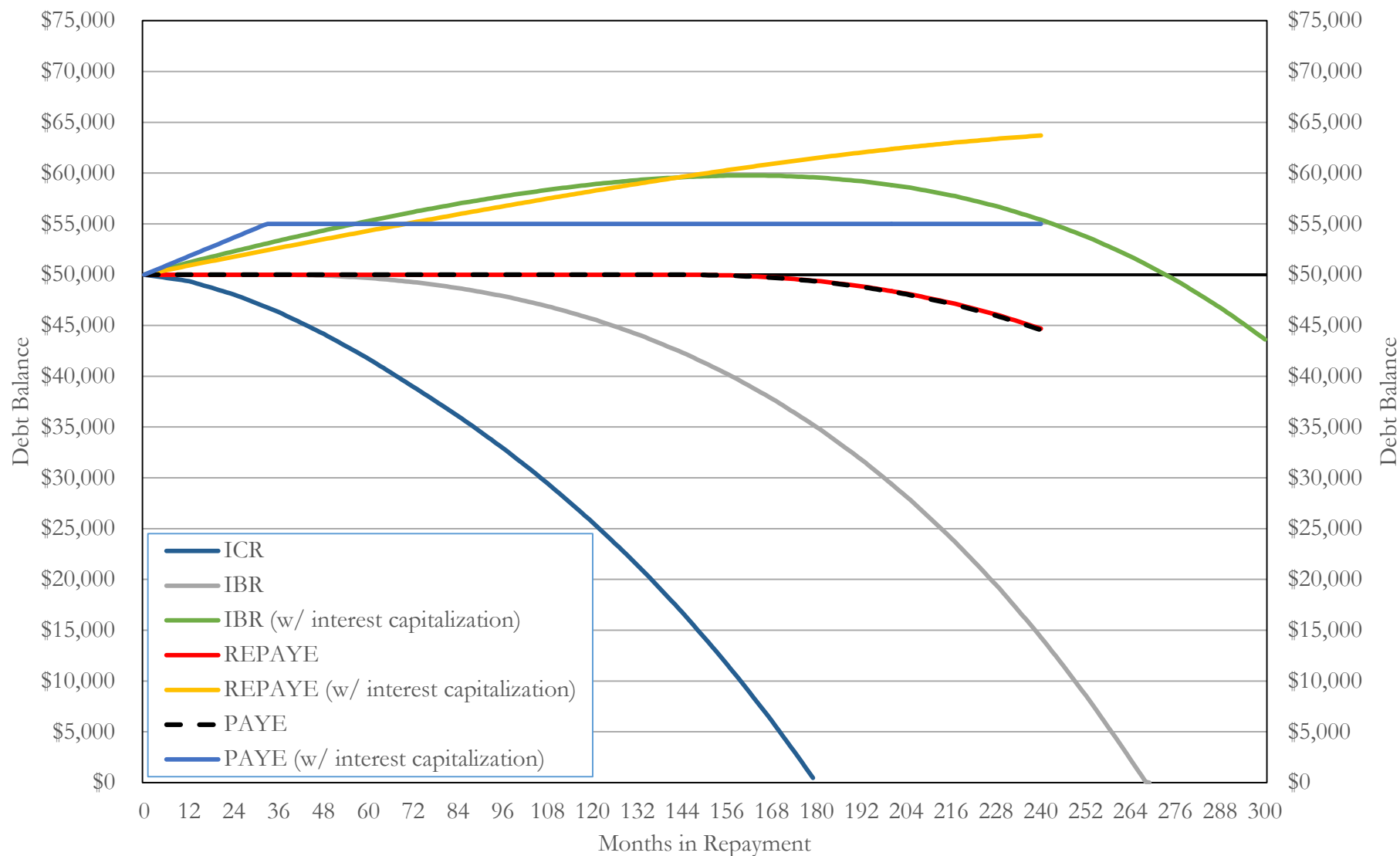
Borrower Impact, REPAYE

Initial AGI	Initial Debt	Payments	Interest PD	Principal PD	Loan Forgiveness	Total Interest	Unpaid Interest
\$25,000	\$20,000	\$27,459	\$20,464	\$6,996	\$13,004	\$22,520	\$2,056
\$25,000	\$30,000	\$27,459	\$26,543	\$916	\$29,084	\$35,927	\$9,384
\$25,000	\$50,000	\$27,459	\$27,459	\$0	\$50,000	\$60,000	\$32,541
\$25,000	\$75,000	\$27,459	\$27,459	\$0	\$75,000	\$90,000	\$62,541
\$25,000	\$100,000	\$27,459	\$27,459	\$0	\$100,000	\$120,000	\$92,541
\$30,000	\$20,000	\$35,141	\$15,141	\$20,000	\$0	\$15,141	\$0
\$30,000	\$30,000	\$41,900	\$31,423	\$10,477	\$19,523	\$33,652	\$2,229
\$30,000	\$50,000	\$41,900	\$41,744	\$156	\$49,844	\$59,995	\$18,251
\$30,000	\$75,000	\$41,900	\$41,900	\$0	\$75,000	\$90,000	\$48,100
\$30,000	\$100,000	\$41,900	\$41,900	\$0	\$100,000	\$120,000	\$78,100
\$35,000	\$20,000	\$29,592	\$9,592	\$20,000	\$0	\$9,592	\$0
\$35,000	\$30,000	\$55,960	\$25,960	\$30,000	\$0	\$26,049	\$89
\$35,000	\$50,000	\$56,340	\$51,019	\$5,321	\$44,679	\$59,216	\$8,197
\$35,000	\$75,000	\$56,340	\$56,340	\$0	\$75,000	\$90,000	\$33,660
\$35,000	\$100,000	\$56,340	\$56,340	\$0	\$100,000	\$120,000	\$63,660
\$40,000	\$20,000	\$24,483	\$4,483	\$20,000	\$0	\$4,483	\$0
\$40,000	\$30,000	\$48,101	\$18,101	\$30,000	\$0	\$18,101	\$0
\$40,000	\$50,000	\$70,781	\$53,172	\$17,608	\$32,392	\$55,827	\$2,655
\$40,000	\$75,000	\$70,781	\$69,492	\$1,288	\$73,712	\$89,913	\$20,421
\$40,000	\$100,000	\$70,781	\$70,781	\$0	\$100,000	\$120,000	\$49,219
\$50,000	\$20,000	\$24,483	\$4,483	\$20,000	\$0	\$4,483	\$0
\$50,000	\$30,000	\$41,049	\$11,049	\$30,000	\$0	\$11,049	\$0
\$50,000	\$50,000	\$88,319	\$38,319	\$50,000	\$0	\$38,319	\$0
\$50,000	\$75,000	\$99,661	\$80,607	\$19,055	\$55,945	\$85,883	\$5,276
\$50,000	\$100,000	\$99,661	\$96,731	\$2,931	\$97,069	\$119,740	\$23,010

(Potentially) Capitalized Interest

Initial AGI	Initial Debt	IBR	PAYE	REPAYE
\$25,000	\$20,000	(\$133)	(\$2,000)	(\$1,028)
\$25,000	\$30,000	(\$4,635)	(\$3,000)	(\$4,692)
\$25,000	\$50,000	(\$19,147)	(\$5,000)	(\$16,270)
\$25,000	\$75,000	(\$52,512)	(\$7,500)	(\$31,270)
\$25,000	\$100,000	(\$90,012)	(\$10,000)	(\$46,270)
\$30,000	\$20,000	\$0	\$0	\$0
\$30,000	\$30,000	\$0	(\$2,229)	(\$1,114)
\$30,000	\$50,000	(\$5,902)	(\$5,000)	(\$9,126)
\$30,000	\$75,000	(\$27,377)	(\$7,500)	(\$24,050)
\$30,000	\$100,000	(\$60,245)	(\$10,000)	(\$39,050)
\$35,000	\$20,000	\$0	\$0	\$0
\$35,000	\$30,000	\$0	(\$82)	(\$44)
\$35,000	\$50,000	(\$674)	(\$5,000)	(\$4,099)
\$35,000	\$75,000	(\$12,296)	(\$7,500)	(\$16,830)
\$35,000	\$100,000	(\$35,667)	(\$10,000)	(\$31,830)

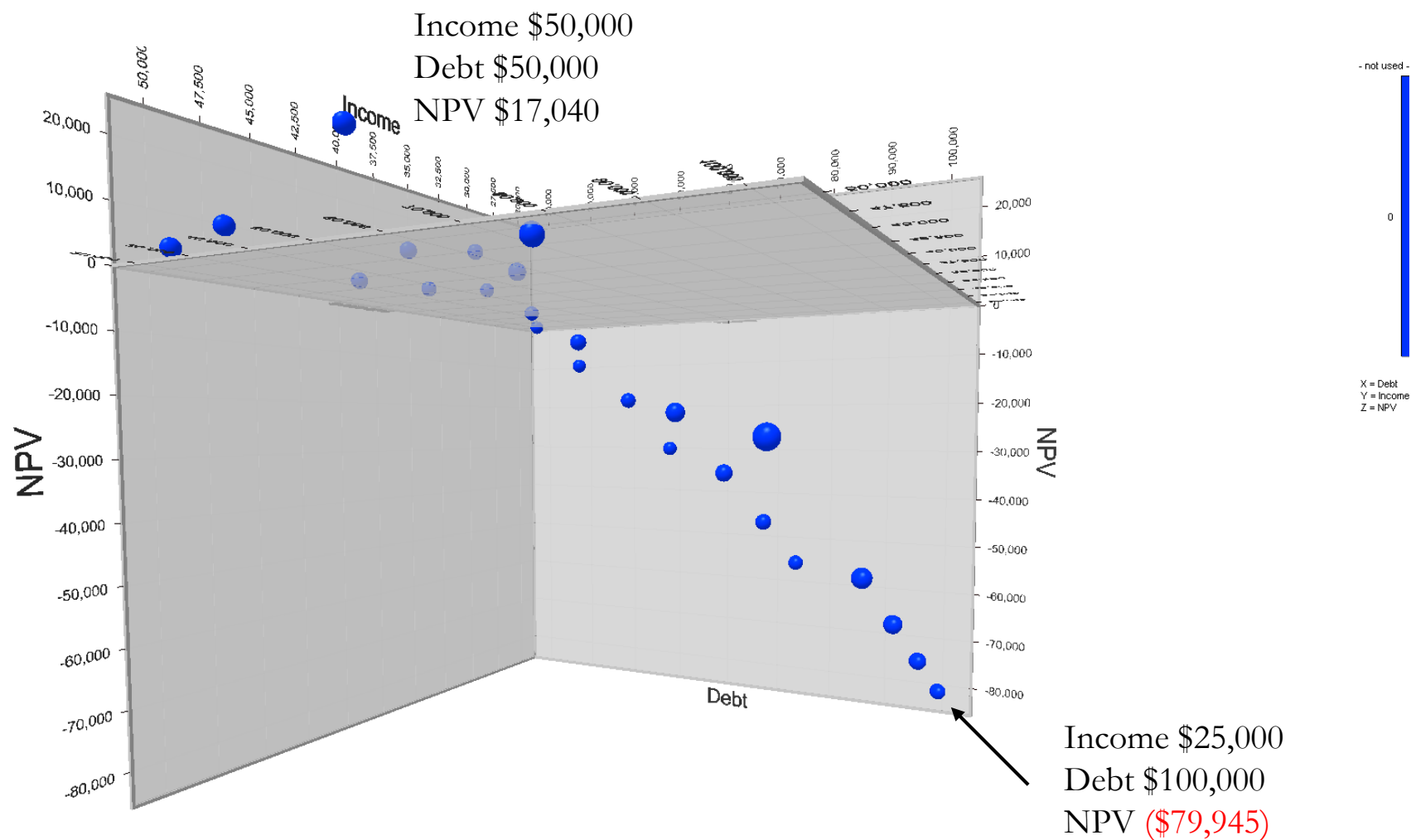
“Payoff” of Debt Balance by Program (Initial AGI = \$30,000; Initial Student Debt = \$50,000)



Forgiveness of Principal and Interest

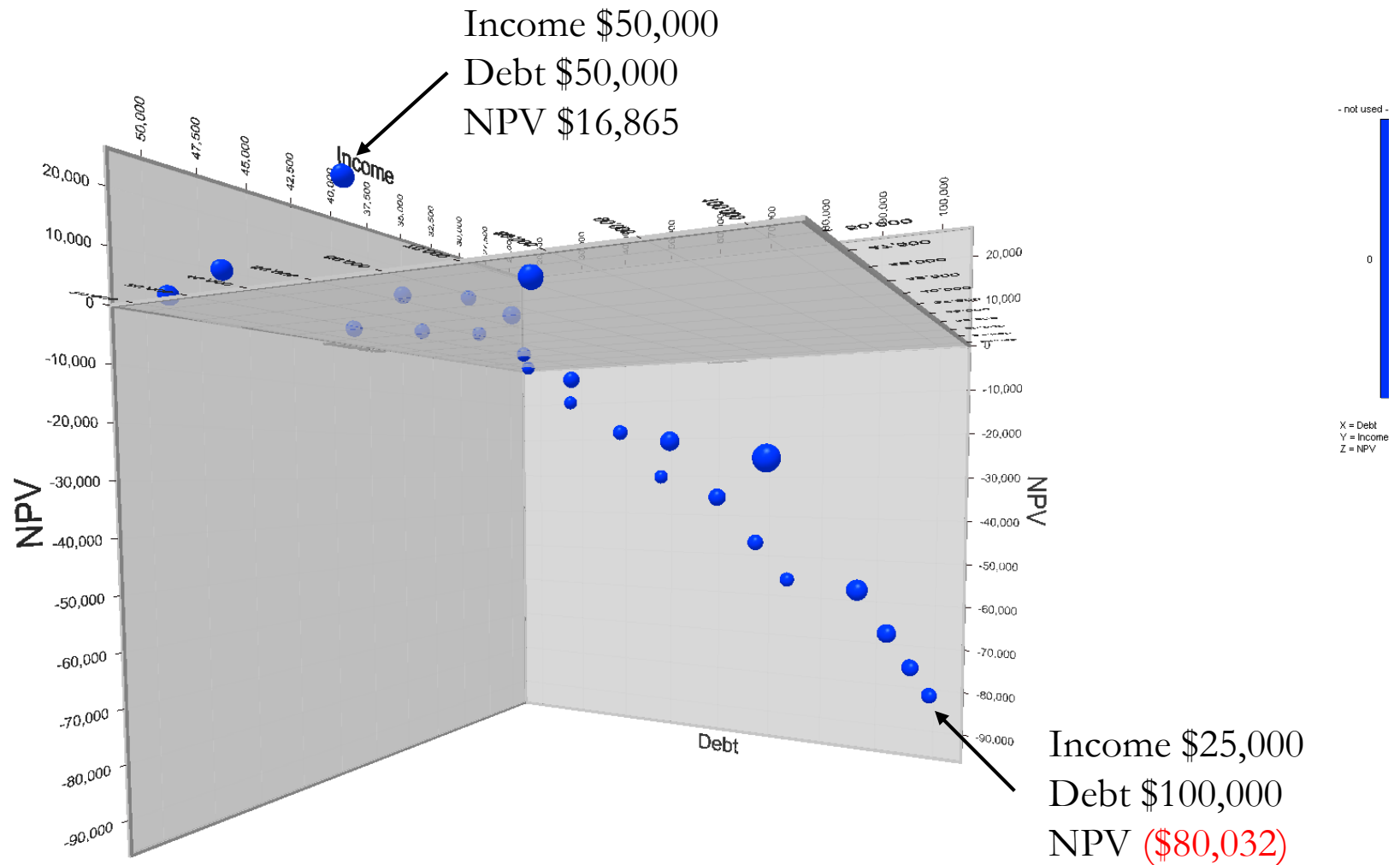
Initial AGI	Initial Debt	IBR			REPAYE		
		Unpaid Interest	Principal Forgiveness	Total Forgiveness	Unpaid Interest	Principal Forgiveness	Total Forgiveness
\$25,000	\$20,000	\$133	\$0	\$133	\$2,056	\$13,004	\$15,060
\$25,000	\$30,000	\$4,635	\$11,797	\$16,432	\$9,384	\$29,084	\$38,468
\$25,000	\$50,000	\$19,147	\$45,237	\$64,384	\$32,541	\$50,000	\$82,541
\$25,000	\$75,000	\$52,512	\$75,000	\$127,512	\$62,541	\$75,000	\$137,541
\$25,000	\$100,000	\$90,012	\$100,000	\$190,012	\$92,541	\$100,000	\$192,541
\$30,000	\$20,000	\$0	\$81	\$81	\$0	\$0	\$0
\$30,000	\$30,000	\$0	\$190	\$190	\$2,229	\$19,523	\$21,752
\$30,000	\$50,000	\$5,902	\$21,790	\$27,692	\$18,251	\$49,844	\$68,096
\$30,000	\$75,000	\$27,377	\$69,728	\$97,105	\$48,100	\$75,000	\$123,100
\$30,000	\$100,000	\$60,245	\$100,000	\$160,245	\$78,100	\$100,000	\$178,100
\$35,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0
\$35,000	\$30,000	\$0	\$0	\$0	\$89	\$0	\$89
\$35,000	\$50,000	\$674	\$0	\$674	\$8,197	\$44,679	\$52,876
\$35,000	\$75,000	\$12,296	\$49,888	\$62,184	\$33,660	\$75,000	\$108,660
\$35,000	\$100,000	\$35,667	\$94,131	\$129,798	\$63,660	\$100,000	\$163,660
\$40,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0
\$40,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0
\$40,000	\$50,000	\$0	\$0	\$0	\$2,655	\$32,392	\$35,047
\$40,000	\$75,000	\$3,982	\$15,640	\$19,623	\$20,421	\$73,712	\$94,132
\$40,000	\$100,000	\$19,348	\$76,531	\$95,880	\$49,219	\$100,000	\$149,219
\$50,000	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0
\$50,000	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0
\$50,000	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0
\$50,000	\$75,000	\$0	\$0	\$0	\$5,276	\$55,945	\$61,221
\$50,000	\$100,000	\$3,023	\$6,682	\$9,705	\$23,010	\$97,069	\$120,079

Fiscal Impact (NPV), PAYE



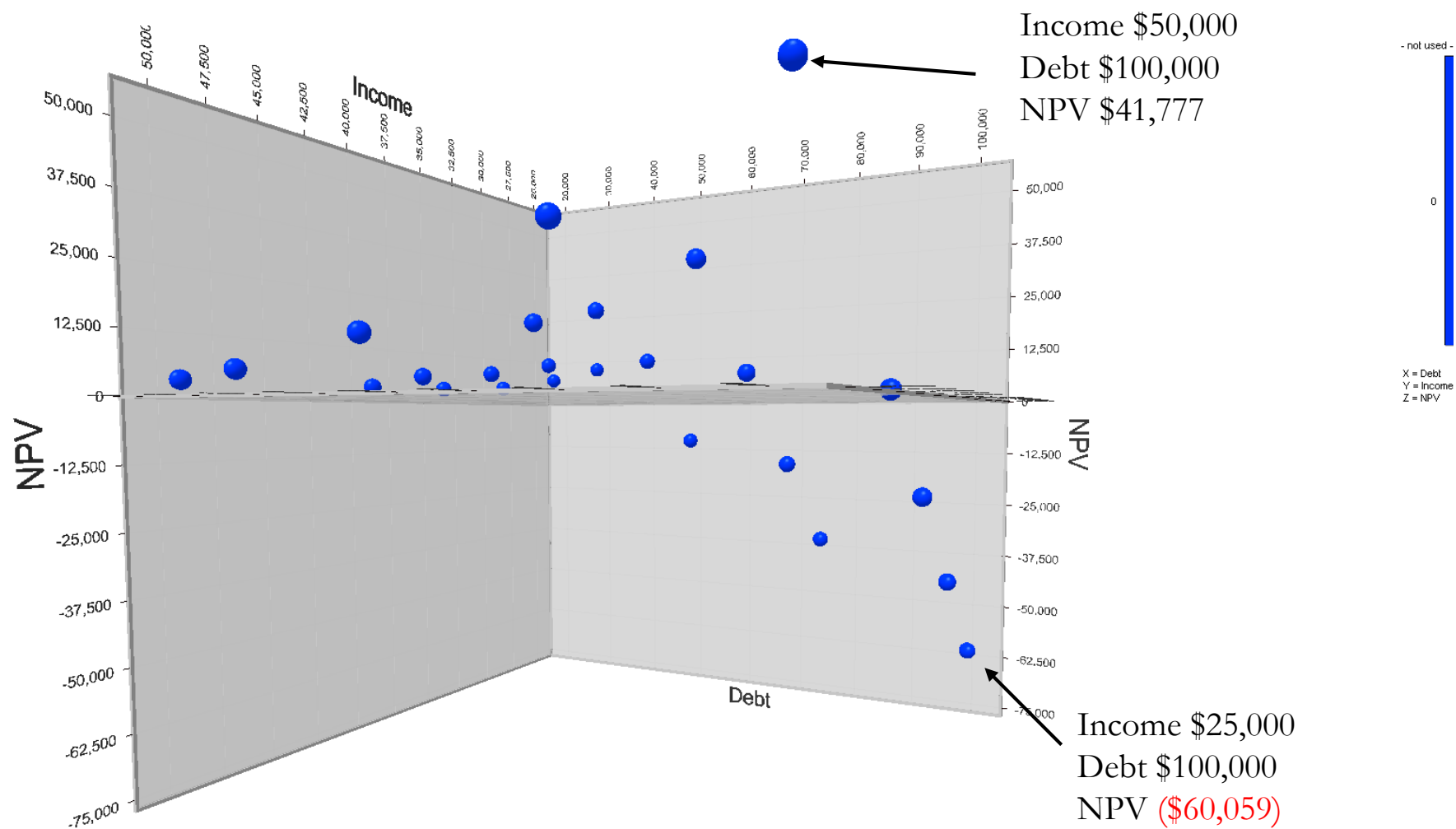
Note: Author's calculations; Made with XLSTAT, 3D-Plot

Fiscal Impact (NPV), REPAYE



Note: Author's calculations; Made with *XLSTAT*, 3D-Plot

Fiscal Impact (NPV), IBR



Note: Author's calculations; Made with XLSTAT, 3D-Plot

Moral Hazard: Borrowing more at no cost to student but great cost to federal budget

Initial AGI	Initial Debt	IBR	NPV (IBR)	PAYE	NPV (PAYE)	REPAYE	NPV (REPAYE)
\$25,000	\$20,000	\$36,125	\$6,986	\$27,459	\$56	\$27,459	(\$32)
\$25,000	\$30,000	\$59,854	\$9,873	\$27,459	(\$9,944)	\$27,459	(\$10,032)
\$25,000	\$50,000	\$59,988	(\$10,059)	\$27,459	(\$29,944)	\$27,459	(\$30,032)
\$25,000	\$75,000	\$59,988	(\$35,059)	\$27,459	(\$54,944)	\$27,459	(\$55,032)
\$25,000	\$100,000	\$59,988	(\$60,059)	\$27,459	(\$79,944)	\$27,459	(\$80,032)
\$30,000	\$20,000	\$28,660	\$4,080	\$35,152	\$6,798	\$35,141	\$6,694
\$30,000	\$30,000	\$52,537	\$9,930	\$41,900	\$804	\$41,900	\$672
\$30,000	\$50,000	\$89,755	\$10,308	\$41,900	(\$19,196)	\$41,900	(\$19,328)
\$30,000	\$75,000	\$89,755	(\$14,692)	\$42,061	(\$44,076)	\$41,900	(\$44,328)
\$30,000	\$100,000	\$89,755	(\$39,692)	\$42,061	(\$69,076)	\$41,900	(\$69,328)
\$35,000	\$20,000	\$26,718	\$3,249	\$29,592	\$4,561	\$29,592	\$4,498
\$35,000	\$30,000	\$44,464	\$6,776	\$55,820	\$11,286	\$55,960	\$11,159
\$35,000	\$50,000	\$99,887	\$20,559	\$56,541	(\$8,298)	\$56,340	(\$8,623)
\$35,000	\$75,000	\$119,522	\$5,675	\$56,541	(\$33,298)	\$56,340	(\$33,623)
\$35,000	\$100,000	\$119,522	(\$19,325)	\$56,541	(\$58,298)	\$56,340	(\$58,623)
\$40,000	\$20,000	\$26,645	\$3,216	\$27,267	\$3,545	\$24,483	\$2,240
\$40,000	\$30,000	\$40,939	\$5,261	\$48,010	\$8,336	\$48,101	\$8,252
\$40,000	\$50,000	\$85,363	\$15,767	\$71,021	\$2,480	\$70,781	\$2,081
\$40,000	\$75,000	\$149,289	\$26,042	\$71,021	(\$22,520)	\$70,781	(\$22,919)
\$40,000	\$100,000	\$149,289	\$1,042	\$71,021	(\$47,520)	\$70,781	(\$47,919)
\$50,000	\$20,000	\$26,645	\$3,216	\$26,645	\$3,261	\$24,483	\$2,240
\$50,000	\$30,000	\$39,967	\$4,824	\$41,316	\$5,503	\$41,049	\$5,318
\$50,000	\$50,000	\$71,337	\$10,119	\$88,105	\$17,040	\$88,319	\$16,865
\$50,000	\$75,000	\$132,479	\$25,297	\$99,982	(\$963)	\$99,661	(\$1,511)
\$50,000	\$100,000	\$208,824	\$41,777	\$99,982	(\$25,963)	\$99,661	(\$26,511)

Conclusions

- The student loan relief program options are extraordinarily complex – nearly incomprehensible
- Different programs may lead to very different repayment schedules and payoff curves
- Forgiveness and unpaid interest can be significant, especially for low-income, high-debt borrowers
- Moderate to high-income borrowers with high debt loads are most favorable to the federal budget
- Lower-income borrowers with high debt loads are very costly to the federal budget
- Restrictions on monthly payments in tandem with debt (and interest) forgiveness, creates significant moral hazard, incenting students to borrow more at high fiscal cost



FEDERAL RESERVE BANK *of* KANSAS CITY

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