EXECUTIVE SUMMARY

This paper discusses the circumstances under which a borrower of federal education loans can have an interest-only or negatively amortized repayment plan. Interest-only and negatively-amortized repayment plans, along with deferments, forbearances, delinquencies and defaults, affect a college’s loan repayment rate. This paper demonstrates that the impact of these repayment plans on loan repayment rates is minimal, with less than 10% of borrowers repaying their loans in an interest-only or negatively amortized repayment plan. Moreover, most of these borrowers are in repayment plans designed for borrowers who are financially distressed, such as income-based repayment, income-contingent repayment and alternative repayment, and not in graduated repayment or level amortization repayment plans. Loan repayment rates are dominated by the exclusion of borrowers who are delinquent, in default, in an economic hardship deferment or in a forbearance and not by the exclusion of borrowers in interest-only or negatively amortized repayment plans.

The Higher Education Act of 1965 specifies that the monthly payment under several of the repayment plans must be at least the new interest that accrues. Except for the income-based repayment plan in the FFEL and Direct Loan programs, and the income-contingent repayment and alternate repayment plans in the Direct Loan program, Congress did not want to permit negative amortization. They specified that the monthly payments be at least the new interest that accrues between scheduled payments in order to ensure that these repayment plans were not negatively amortized. Such a requirement does not necessarily mean that the monthly payment can be interest-only. The statutory and parallel regulatory language, however, has been misinterpreted by some people as indicating that a borrower might have an interest-only repayment plan. However, it is mathematically impossible for level amortization, such as is used in standard repayment and extended repayment, to yield an interest-only monthly payment. The monthly payment under graduated repayment may, in certain rare circumstances, be interest-only during just the first two years.

Therefore the loan repayment rates appear to exclude borrowers who mostly are in financial distress and not due to artifacts of the graduated repayment, standard repayment and extended repayment plans. The main exception is students who graduated from professional degree programs, such as medical school graduates, where borrowers routinely defer repayment for a few years after graduation and ultimately repay their student loans.
STATUTORY REQUIREMENTS

The Higher Education Act of 1965 specifies that several of the education loan repayment plans must involve payments that equal at least the new interest that accrues. Section 427(c) specifies that all FFELP repayment plans except income-sensitive and graduated repayment\(^1\) must have payments that equal at least the new interest that accrues:

427(c) SPECIAL REPAYMENT RULES. – Except as provided in subsection (a)(2)(H), the total of the payments by a borrower during any year of any repayment period with respect to the aggregate amount of all loans to that borrower which are insured under this part shall not, unless the borrower and the lender otherwise agree, be less than $600 or the balance of all such loans (together with interest thereon), whichever amount is less (but in no instance less than the amount of interest due and payable).

Section 428(b)(1)(L) includes a similar clause as part of the insurance agreement requirements for FFELP loans to be guaranteed against default:

428(b)(1)(L) provides that the total of the payments by a borrower – (i) except as otherwise provided by a repayment plan selected by the borrower under clause (ii) or (iii) of paragraph (9)(A), during any year of any repayment period with respect to the aggregate amount of all loans to that borrower which are insured under this part shall not, unless the borrower and the lender otherwise agree, be less than $600 or the balance of all such loans (together with interest thereon), whichever amount is less (but in no instance less than the amount of interest due and payable, notwithstanding any payment plan under paragraph (9)(A)); and (ii) for a monthly or other similar payment period with respect to the aggregate of all loans held by the lender may, when the amount of a monthly or other similar payment is not a multiple of $5, be rounded to the next highest whole dollar amount that is a multiple of $5;

The reference to paragraph 428(b)(9)(A) in section 428(b)(1)(L) effectively precludes income-sensitive and graduated repayment plans from having monthly payments that are negatively amortized. The language at 428(b)(9)(A)(iii) also explicitly requires payments under an income-sensitive repayment plan to be at least the new interest that accrues. The reference to 428(b)(1)(L) in section 428(b)(9)(A)(iv) also requires payments under the $30,000 non-consolidation extended repayment plan to be equal to at least the new interest that accrues.

428(b)(9)(A) REPAYMENT PLANS. –

(A) DESIGN AND SELECTION. – In accordance with regulations promulgated by the Secretary, the lender shall offer a borrower of a loan made under this part the plans described in this subparagraph for repayment of such loan, including principal and interest thereon. No plan may require a borrower to repay a loan in less than 5 years unless the borrower, during the 6 months immediately preceding the start of the repayment period, specifically requests that repayment be made over of a shorter period. The borrower may choose from –

(i) a standard repayment plan, with a fixed annual repayment amount paid over a fixed period of time, not to exceed 10 years;

(ii) a graduated repayment plan paid over a fixed period of time, not to exceed 10 years;

\(^1\) Income-sensitive and graduated repayment plans are listed as options in section 427(a)(2)(H) of the Higher Education Act of 1965, but that paragraph does not speak to any requirements that the monthly payment be at least the new interest that accrues.
(iii) an income-sensitive repayment plan, with income-sensitive repayment amounts paid over a fixed period of time, not to exceed 10 years, except that the borrower’s scheduled payments shall not be less than the amount of interest due; and

(iv) for new borrowers on or after the date of enactment of the Higher Education Amendments of 1998 who accumulate (after such date) outstanding loans under this part totaling more than $30,000, an extended repayment plan, with a fixed annual or graduated repayment amount paid over an extended period of time, not to exceed 25 years, except that the borrower shall repay annually a minimum amount determined in accordance with paragraph (1)(L)(i).

Section 428C(c)(3) specifies that the repayment plans for consolidation loans, including graduated repayment, income-sensitive repayment and extended repayment, involve payments that equal at least the new interest that accrues.

428C(c)(3) ADDITIONAL REPAYMENT REQUIREMENTS. – Notwithstanding paragraph (2) –

(A) a repayment schedule established with respect to a consolidation loan shall require that the minimum installment payment be an amount equal to not less than the accrued unpaid interest; and

Section 455(d) specifies that the extended repayment plan under the Direct Loan program involve payments that are at least the new interest that accrues through a reference to section 428(b)(1)(L).

455(d) REPAYMENT PLANS. –

(1) DESIGN AND SELECTION. – Consistent with criteria established by the Secretary, the Secretary shall offer a borrower of a loan made under this part a variety of plans for repayment of such loan, including principal and interest on the loan. The borrower shall be entitled to accelerate, without penalty, repayment on the borrower’s loans under this part. The borrower may choose –

(A) a standard repayment plan, with a fixed annual repayment amount paid over a fixed period of time, consistent with subsection (a)(1) of this section;

(B) an extended repayment plan, with a fixed annual repayment amount paid over an extended period of time, except that the borrower shall annually repay a minimum amount determined by the Secretary in accordance with section 428(b)(1)(L);

(C) a graduated repayment plan, with annual repayment amounts established at 2 or more graduated levels and paid over a fixed or extended period of time, except that the borrower’s scheduled payments shall not be less than 50 percent, nor more than 150 percent, of what the amortized payment on the amount owed would be if the loan were repaid under the standard repayment plan; and

(D) an income contingent repayment plan, with varying annual repayment amounts based on the income of the borrower, paid over an extended period of time prescribed by the Secretary, not to exceed 25 years, except that the plan described in this subparagraph shall not be available to the borrower of a Federal Direct PLUS loan.

The regulations for the FFEL program at 34 CFR 682.209(a)(6)(iv) specify that only the income-based repayment plan may involve payments that are less than the interest that accrues:

34 CFR 682.209(a)(6)(iv) Except in the case of an income-based repayment schedule, the repayment schedule must require that each payment equal at least the interest that accrues during the interval between scheduled payments.
The regulations for the Direct Loan program at 34 CFR 685.208(a)(2)(iv) specify that only the income-based repayment plan, income-contingent repayment plan or the alternative repayment plan may involve payments that are less than the interest that accrues:

685.208(a)(2)(iv) No scheduled payment may be less than the amount of interest accrued on the loan between monthly payments, except under the income contingent repayment plan, the income-based repayment plan, or an alternative repayment plan.

The regulations for the graduated repayment plan at 34 CFR 685.208(f)(3) also specify that the monthly payments must be at least the interest that accrues:

34 CFR 685.208(f)(3) No scheduled payment under this repayment plan may be less than the amount of interest accrued on the loan between monthly payments, less than 50 percent of the payment amount that would be required under the standard repayment plan described in paragraph (b) of this section, or more than 150 percent of the payment amount that would be required under the standard repayment plan described in paragraph (b) of this section.

The regulations at 34 CFR 685.208(l) allow the US Department of Education to provide an alternative repayment plan in the Direct Loan program in exceptional circumstances. The regulations specify that the borrower must repay the debt in full within 30 years, but permit the loan to be negatively amortized.²

34 CFR 685.208(l) Alternative repayment.

(1) The Secretary may provide an alternative repayment plan for a borrower who demonstrates to the Secretary's satisfaction that the terms and conditions of the repayment plans specified in paragraphs (b) through (h) of this section are not adequate to accommodate the borrower's exceptional circumstances.

(2) The Secretary may require a borrower to provide evidence of the borrower's exceptional circumstances before permitting the borrower to repay a loan under an alternative repayment plan.

(3) If the Secretary agrees to permit a borrower to repay a loan under an alternative repayment plan, the Secretary notifies the borrower in writing of the terms of the plan. After the borrower receives notification of the terms of the plan, the borrower may accept the plan or choose another repayment plan.

(4) A borrower must repay a loan under an alternative repayment plan within 30 years of the date the loan entered repayment, not including periods of deferment and forbearance.

(5) If the amount of a borrower's monthly payment under an alternative repayment plan is less than the accrued interest on the loan, the unpaid interest is capitalized until the outstanding principal amount is 10 percent greater than the original principal amount. After the outstanding principal amount is 10 percent greater than the original principal amount, interest continues to accrue but is not capitalized. For purposes of this paragraph, the original principal amount is the amount owed by the borrower when the borrower enters repayment.

² Clearly, an alternative repayment plan cannot be negatively amortized for the full duration of the 30-year repayment term. In practice the alternative repayment plans seem to be structured similarly to the income-contingent and income-based repayment plans, but do vary somewhat borrower-by-borrower.
STANDARD AND EXTENDED REPAYMENT PLANS

The standard and extended repayment plans use level amortization, where the same monthly payment is charged each month for a specified number of years. Clearly, if the monthly payment does not exceed the new interest that accrues, the loan will never be repaid since the principal balance will never decrease. It is also possible to prove this mathematically.

Let \( B \) be the initial loan balance, \( i \) the interest rate, and \( n \) the loan term in years. Then the monthly payment \( P \) under level amortization is specified by the formula

\[
P = B \cdot \frac{i}{12} \cdot \frac{(1 + \frac{i}{12})^{12n}}{(1 + \frac{i}{12})^{12n} - 1}
\]

The initial interest during the first month is \( B \cdot \frac{i}{12} \). Since

\[
(1 + \frac{i}{12})^{12n} > (1 + \frac{i}{12})^{12n} - 1
\]

it follows that

\[
\frac{(1 + \frac{i}{12})^{12n}}{(1 + \frac{i}{12})^{12n} - 1} > 1
\]

and from there that \( P > B \cdot \frac{i}{12} \). This demonstrates that the monthly payment under level amortization is more than the interest that accrues during the first month. Since the interest is based on the loan balance, which decreases during the first month because the payment exceeds the interest, this means that the interest in the second month is less than the interest during the first month. Accordingly, the monthly payment is also greater than the interest that accrues during the second month. Repeating this argument by a process of induction, one may conclude that the monthly payment is greater than the interest that accrues during every month of the repayment period.

Empirically one can verify that level amortization on federal education loans results in more than $1 in payments to principal during the first monthly payment, regardless of the amount of student loan debt, the repayment term or the interest rate. For example, on a $20,000 unsubsidized Stafford loan with 6.8% interest and a 10-year repayment term, the monthly payment is $230.16, of which $116.83 is paid to principal in the first month. With a 20-year repayment term, $39.34 of the first monthly payment of $152.67 is paid to principal. The smallest payment to principal on any unsubsidized Stafford loan under standard or extended repayment is $25.38 on a $4,345 loan. The smallest payment to principal on any PLUS loan under standard or extended repayment is $22.75 on a $4,139 loan at 7.9% interest (DL) and $21.44 on a $4,033 loan at 8.5% interest (FFEL).

A smaller loan balance might yield less than $1 in payments to principal for a long repayment term and a high interest rate. However, small loan balances are not eligible for longer repayment terms and the $50 minimum payment ensures that the monthly payment exceeds the interest that accrues by more than $1.
GRADUATED REPAYMENT PLAN

The graduated repayment plan starts off with a small monthly payment that is increased every two years. The monthly payment must also be at least the interest that accrues. The question arises as to whether the monthly payment can be interest-only during the first two years.

As noted in Section 455(d)(1)(C) as excerpted above, the monthly payment under graduated repayment “shall not be less than 50 percent, nor more than 150 percent, of what the amortized payment on the amount owed would be if the loan were repaid under the standard repayment plan.” Thus the smallest monthly payment under graduated repayment is equal to half the standard repayment plan’s monthly payment. If we assume that this is equal to the new interest that accrues, then

\[
\frac{1}{2} \cdot P(B, i, 10) = B \cdot \frac{i}{12}
\]

This is equivalent to

\[
\frac{1}{2} \cdot B \cdot \frac{i}{12} \cdot \frac{(1 + \frac{i}{12})^{12 \cdot 10}}{(1 + \frac{i}{12})^{12 \cdot 10} - 1} = B \cdot \frac{i}{12}
\]

Simplifying yields

\[
\frac{1}{2} \cdot \frac{(1 + \frac{i}{12})^{120}}{(1 + \frac{i}{12})^{120} - 1} = 1
\]

from which

\[
\frac{1}{2} \cdot (1 + \frac{i}{12})^{120} = (1 + \frac{i}{12})^{120} - 1
\]

or

\[
(1 + \frac{i}{12})^{120} = 2
\]

Solving for \(i\) yields \(i = 6.95\%\). Interest rates below this threshold will yield monthly payments that exceed the new interest that accrues. Interest rates above this threshold will yield monthly payments that equal the new interest that accrues.

---

Graduated repayment on a $10,000 loan with a 6.95% interest rate reduces the principal balance by one cent during the first year. At 6.93% the principal balance is reduced by more than $1 during the first year. A slightly higher interest rate will be required to yield a $1 reduction in the principal balance on a loan with a larger principal balance. For example, the maximum interest rate to reduce the principal balance by $1 on a $20,000 loan is 6.94%.
The following table illustrates the monthly payment during the first two years under graduated repayment on a $10,000 loan.

<table>
<thead>
<tr>
<th>Loan Program</th>
<th>Interest Rate</th>
<th>Monthly Payment</th>
<th>New Interest</th>
<th>Interest Only?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsubsidized Stafford</td>
<td>6.8%</td>
<td>$57.54</td>
<td>$56.67</td>
<td>No</td>
</tr>
<tr>
<td>PLUS (DL)</td>
<td>7.9%</td>
<td>$65.83</td>
<td>$65.83</td>
<td>Yes</td>
</tr>
<tr>
<td>PLUS (FFEL)</td>
<td>8.5%</td>
<td>$70.83</td>
<td>$70.83</td>
<td>Yes</td>
</tr>
</tbody>
</table>

This demonstrates that only a PLUS loan yields an interest-only monthly payment during the first two years of graduated repayment.

Undergraduate students are extremely unlikely to have loans with interest rates over 6.8%. All Stafford loans since July 1, 2006 have had fixed interest rates of 6.8% or less. Even undergraduate students with variable rate loans have had interest rates under 6.8% since July 1, 2001. Parent PLUS loans are excluded from the loan repayment rate calculation.

It is possible, however, for a graduate or professional student to have a mix of Stafford and Grad PLUS loans with a consolidation loan interest rate over 6.95%. The interest rate on a consolidation loan is the weighted average of the interest rates on the loans being consolidated, rounded up to the nearest 1/8th of a point. The weighted average would have to be 6.88% or higher for the consolidation loan’s interest rate round up to a rate that exceeds 6.95%. The US Department of Education requires graduate and professional students to exhaust the Stafford loan limits before borrowing from the Grad PLUS loan program. A back-of-the-envelope calculation, however, shows that even a few thousand dollars of Grad PLUS loan are sufficient to yield a consolidation loan interest rate for a graduate or professional student greater than 6.95%. So from a practical perspective the question is how many students have Grad PLUS loans.

Data from the 2007-08 National Postsecondary Student Aid Study (NPSAS) suggests that 2.0% of all undergraduate and graduate student borrowers of federal student loans borrowed from the Grad PLUS program and 12.5% of just the graduate student borrowers of federal student loans borrowed from the Grad PLUS program. The NPSAS has inadequate data on graduate student borrowers at for-profit colleges to yield statistically significant results for just undergraduate and graduate students at for-profit colleges. However, one can adjust the overall statistics by the proportion of undergraduate and graduate student enrollments at for-profit colleges to estimate that about 1.4% of students at for-profit colleges will have consolidation loan interest rates over 6.95%. For-profit colleges currently enroll proportionately more undergraduate students than graduate students as compared with traditional colleges.

Note also that the monthly payment must be at least $50, so most loans with smaller principal balances cannot be interest-only.

5 Except for borrowers who consolidated their variable rate loans in 2000-2001, borrowers since 1994-95 have not had Stafford loan interest rates over 6.8%.
6 The annual limit on the unsubsidized Stafford loan is $20,500 for a graduate student and $40,500 for a medical school student.
7 168,700 of 8,561,600 borrowers.
8 168,700 of 1,347,300 borrowers.
9 Undergraduate student enrollment of 1,995,300 and graduate/professional student enrollment of 252,800.
Thus, while it is possible for graduated repayment to have interest-only payments during the first two years, no undergraduate students and at most 12.5% of graduate and professional students will have interest-only payments during the first two years of graduated repayment. Overall, this represents less than 1.4% of students with federal student loans at for-profit colleges.

BORROWERS IN NEGATIVELY-AMORTIZED AND INTEREST-ONLY REPAYMENT PLANS

The income-based, income-contingent and alternate repayment plans are the only repayment plans that can be negatively amortized.

Very little data is available concerning how many borrowers are negatively amortized in these plans. Of the 631,272 Direct Loan program borrowers in income-contingent repayment in February 2009, 56% were negatively amortized (46% had a zero monthly loan payment).

A US Department of Education PowerPoint presentation\(^\text{10}\) indicates that 57% of borrowers in the Direct Loan program were in standard repayment, 8% in extended repayment, 18% in graduated repayment, 13% in income-contingent repayment and 4% in alternative repayment plans as of July 2008.

A review of the prospectuses for the 2007-1 through 2007-8 Sallie Mae securitizations of FFEL program loans\(^\text{11}\) demonstrates that 89.8% of the loans and 76.1% of the dollar loan volume are in level amortization repayment plans. 10.2% of the loans and 23.9% of the dollar loan volume are in other repayment plans, such as income-sensitive repayment and graduated repayment. Very few of these borrowers are in an in-school or grace period status.

Previously, about a quarter of student loan volume was in the Direct Loan program and three-quarters in the FFEL program. This suggests that overall about 4% of all borrowers were in an income-contingent repayment plan and 1% in an alternative repayment plan. About three-quarters to seven-eighths of borrowers are in level amortization repayment plans. Let’s conservatively assume that 10% of borrowers will be in an income-contingent or income-based repayment plan, 2% in an alternative repayment plan, 13% in a graduated repayment plan and 75% in a standard or extended repayment plan. Let’s also assume that half of borrowers in income-contingent and income-based repayment and all borrowers in alternative repayment plans are not making payments that exceed the new interest that accrues. Then less than 10% of borrowers are in a negatively amortized or interest-only repayment plan, and most of those borrowers are in repayment plans designed for borrowers who are financially distressed.

As noted in a previous paper,\(^\text{12}\) about one quarter to one third of borrowers who have entered repayment are in an economic hardship deferment or forbearance, and about one sixth of borrowers in repayment (but not in a deferment or forbearance) are delinquent. Overall this suggests that about two-fifths of borrowers who are in repayment are delinquent, in an economic hardship deferment or in a forbearance.


\(^{11}\) $18.5 billion in 3.0 million loans.

Thus about half of all borrowers in repayment are not making payments that reduce the principal balance, consistent with the 51.3% overall loan repayment rate for all colleges.\textsuperscript{13} Most of those borrowers are delinquent, in default, in an economic hardship deferment, in a forbearance or in a repayment plan designed for borrowers who are financially distressed. Very few are in a graduated repayment plan with interest-only repayment during the first two years.

These statistics are for all borrowers, not just borrowers who have recently entered repayment. The distribution of borrowers among repayment options may differ during the first few years after entering repayment. The distribution may also vary among colleges based on the nature of the educational program (e.g., medical school graduates are more likely to defer repayment during a post-graduation internship or residency) or demographic differences (e.g., colleges with a greater percentage of Pell Grant recipients or minority student enrollments are likely to have more borrowers in financial distress). However, it seems unlikely that interest-only payments during the first two years of a graduated repayment plan have more than a negligible impact on loan repayment rates.

Thus consolidation loans do not somehow cause lower loan repayment rates by shifting otherwise performing borrowers into interest-only and negatively amortized repayment plans.

The reason why consolidation loans contribute to a lower loan repayment rate has to do mainly with adverse selection, not the choice of a graduated or extended repayment plan. Borrowers who are experiencing financial distress are more likely to consolidate for a variety of reasons:

- Some borrowers may believe that consolidation reduces the interest rate on their loans. The interest rate on a consolidation loan is based on the weighted average of the interest rates on the loans being consolidated, rounded up to the nearest 1/8\textsuperscript{th} of a point. This weighted average is between the high and low rates on the loans being consolidated, but it isn’t reducing the interest rate the same way a refinance does. Consolidation more or less preserves the current cost of the underlying set of loans.

- Some borrowers may believe that consolidation saves money. Before July 1, 2006, federal education loans had variable interest rates. Consolidation loans could save borrowers money by allowing them to lock in the current low rate on their loans. For example, in 2004-2005 many students were able to lock in rates as low as 2.88\% on their Stafford loans. But with the switch to fixed rates on new Stafford and PLUS loans on July 1, 2006, consolidation no longer has this financial benefit on new loans. Still, the idea that consolidation saves money seems to have persisted.

- Some borrowers may want to switch to another repayment plan to obtain a lower monthly payment. For example, FFEL program borrowers had to consolidate their loans into the Direct Loan program to obtain income-contingent repayment. Income-based repayment is available in both the FFEL and Direct Loan programs without needing consolidation, but it first became available on July 1, 2009. Similarly, borrowers could obtain extended repayment up to 25 years without consolidating if they had $30,000 or more in debt with a single lender, but this option

\textsuperscript{13} Mark Kantrowitz, Summary and Analysis of Gainful Employment NPRM, page 18, August 15, 2010.  
\url{www.finaid.org/educators/20100815gainfulemploymentanalysis.pdf}
was not well-publicized until the start of the credit crisis. Moreover, if a borrower with $60,000 or more in federal education debt wanted a 30-year extended repayment plan, they had to consolidate.

- Some borrowers may blame the lender for their financial difficulty and use consolidation to switch to another lender. The repeal of the single holder rule effective June 15, 2006 made it possible for more borrowers to use consolidation to switch their loans from one lender to another.

Adverse selection means that borrowers with consolidation loans tend to be experiencing more financial distress than borrowers who do not consolidate. Borrowers who experience financial distress are more likely to be in a deferment or forbearance, to be delinquent or to be in default. The President’s FY2011 budget, for example, shows FY2009 projected lifetime default rates of 22.24% for consolidation loans in the Direct Loan program, compared with an overall default rate of 17.05%. Similarly, projected lifetime default rates are 16.16% for consolidation loans in the FFEL program, compared with an overall default rate of 14.96%.¹⁴

¹⁴ Lifetime default rates in the Direct Loan program are higher than in the FFEL program in part because of default aversion provisions that forced high risk borrowers to repay their loans using the income-contingent repayment plan and in part because of a practice called “dumping” in which FFEL program borrowers who were about to default were encouraged to consolidate into the Direct Loan program. If a borrower defaults, the FFEL program guarantee pays 97% of the outstanding principal and accrued but unpaid interest. If the lender convinces the borrower to consolidate into the Direct Loan program, the lender gets 100% of the outstanding principal and accrued but unpaid interest. Thus FFEL program lenders tend to encourage borrowers to use deferments and forbearances to avoid default, and when these options are exhausted, to consolidate the loans into the Direct Loan program. This maximizes the lender’s interest income by delaying the default as long as possible. The lender receives the accrued but unpaid interest when the borrower either defaults or consolidates into the Direct Loan program.