Annex

Estimating the lifetime contributions of example borrowers

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Summary

Six example loan borrowers are used, and their student loans and estimated repayments calculated using average earnings profiles, in order to illustrate the effects of changing the current student finance system according to the Post-18 Review Panel's recommendations. These loan borrowers are simplified illustrations, based on earnings data used by the Department for Education, and have been created to serve as a tool for understanding the effects of the Panel's recommendations. This analysis has been provided by the Department for Education to support the work of the Review.

Introduction

This note compares and contrasts the effects of changing the current Higher Education (HE) student finance system on six different examples of loan borrowers. The key features of the two student finance systems to be compared are set out below:

1. **Current system:** a system of means-tested maintenance loans for all students; tuition fee loans set at a maximum fee cap of £9,250 per year for full-time undergraduates, frozen in 2018/19 and 2019/20 and rising by RPIX in subsequent years. Loans are repaid at a rate of 9% of earnings above the repayment threshold (£25,000 in 2018-19, rising by average earnings to £29,600 in 2024-25), and with interest accrued at a rate of RPI+3% while students are in study. Once a borrower has entered repayment, their earnings determine how interest is accrued: whilst their earnings are below the repayment threshold (also termed the lower interest threshold) interest is accrued at a rate of RPI; a rate of RPI+3% is applied whilst their earnings are above the higher interest threshold (£45,000 in 2018-19, rising by average earnings to £53,300 in 2024-25); whilst their earnings sit between the two thresholds, the interest rate rises linearly from RPI to RPI+3%. All debt is written off at 30 years following the statutory repayment due date (SRDD[1]);

2. **Post-18 Review Panel's (P18R) recommended system:** a system of means-tested maintenance loans and grants for all students; tuition fee loans set at a maximum fee cap of £7,500 per year for full-time undergraduates, frozen in all years up to 2022/23 and rising by RPIX in subsequent years. The drop in the fee cap is replaced by a top-up teaching grant in cash terms. Loans are repaid at a rate of 9% of earnings about the repayment threshold (set at median non-graduate earnings of around £25,000 in 2021-22, rising by average earnings in subsequent years), and with interest accrued at a rate of RPI while students are in study, and at a rate of between RPI and RPI+3% depending on earnings once a borrower has entered repayment, with the interest thresholds rising in line with the repayment threshold;

[1] The SRDD occurs the April after the loan borrower has finished their course of study, and represents the point at which they are liable to start making repayments on their student loan.

all debt is written off at 40 years after their SRDD or when cumulative real term repayments of the borrower exceed 20% of their debt at SRDD;

We create six example borrowers in order to highlight how these two different systems will change student loan repayment profiles. These examples are based on the forecasted distribution of annual earnings for employed loan borrowers in repayment for each year following SRDD, and are taken directly from the DfE student loan forecasts publication[2]. The six example borrowers are described below:

1. **10th percentile borrower**: this loan borrower has initial earnings of around one third the repayment threshold (currently £25,000) and does not ever see their earnings rise above this threshold;
2. **25th percentile borrower**: this loan borrower has initial earnings of around half the repayment threshold (currently £25,000) and does not ever see their earnings rise above this current threshold;
3. **50th percentile borrower**: this loan borrower has initial earnings at around £5,000 below the repayment threshold (currently £25,000) and sees their earnings rise above that threshold within five years, subsequently settling at around two thirds of the upper threshold (currently £45,000);
4. **75th percentile borrower:** this loan borrower has initial earnings at around the repayment threshold (currently £25,000) and sees their earnings rise above the upper interest threshold (currently £45,000) within twelve years, remaining relatively fixed at that level over the thirty years of repayment;
5. **90th percentile borrower:** this loan borrower has initial earnings at around £10,000 higher than the repayment threshold (currently £25,000) and sees their earnings rise above the upper interest threshold (currently £45,000) within five years. In current day prices, their earnings reach around £15,000 higher than the upper interest threshold within the thirty years of repayment;
6. **95th percentile borrower:** this loan borrower has initial earnings at around £16,000 higher than the repayment threshold (currently £25,000) and sees their earnings rise above the upper interest threshold (currently £45,000) within two years. In current day prices, their earnings reach around £30,000 higher than the upper interest threshold within the thirty years of repayment;

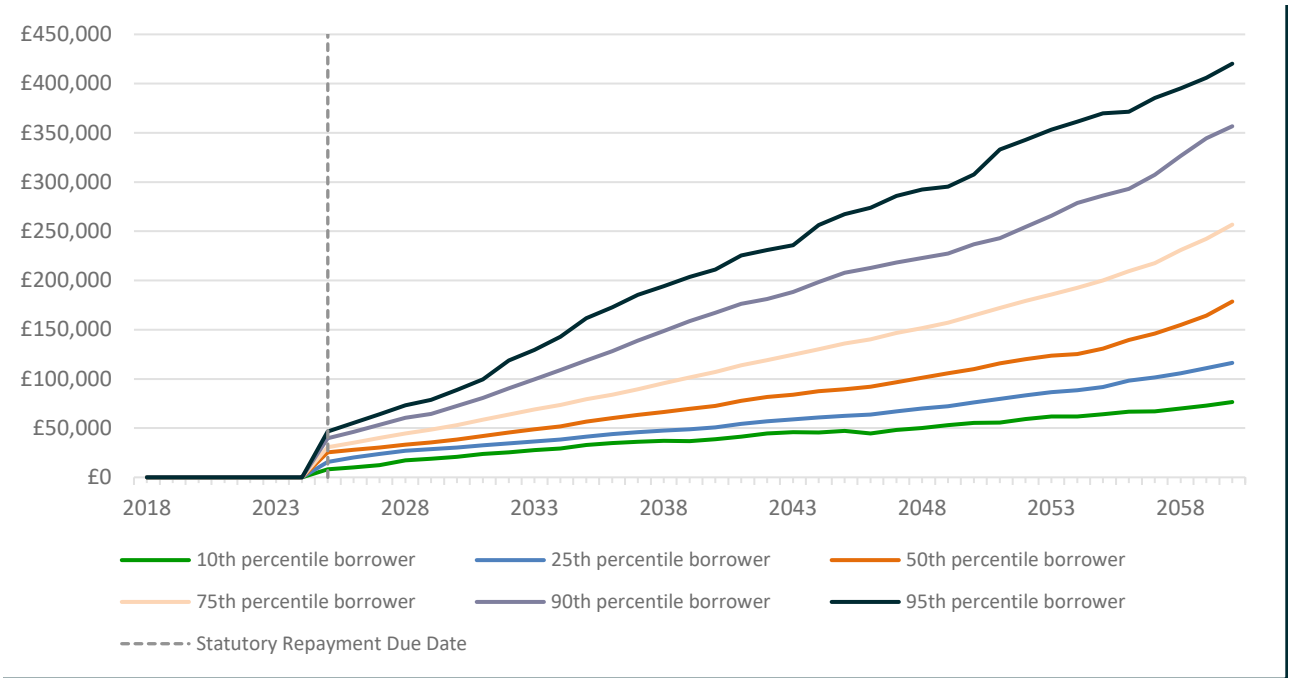
The earnings profiles described above are a result of averaging over the forecast earnings of all employed loan borrowers of a given age, to find the percentiles of the earnings distribution. The earnings profiles of these example borrowers therefore reflect theoretical earnings trajectories at different points in the earnings distribution based on the earnings data held in the repayment model. In reality, actual earnings trajectories for individuals will

[2] DfE (2018) Student Loan Forecasts, England: 2017 to 2018.

be varied and numerous in possibility. Figure 1 below shows these annual earnings in 2014-15 prices and Figure 2 illustrates how they vary in nominal terms.

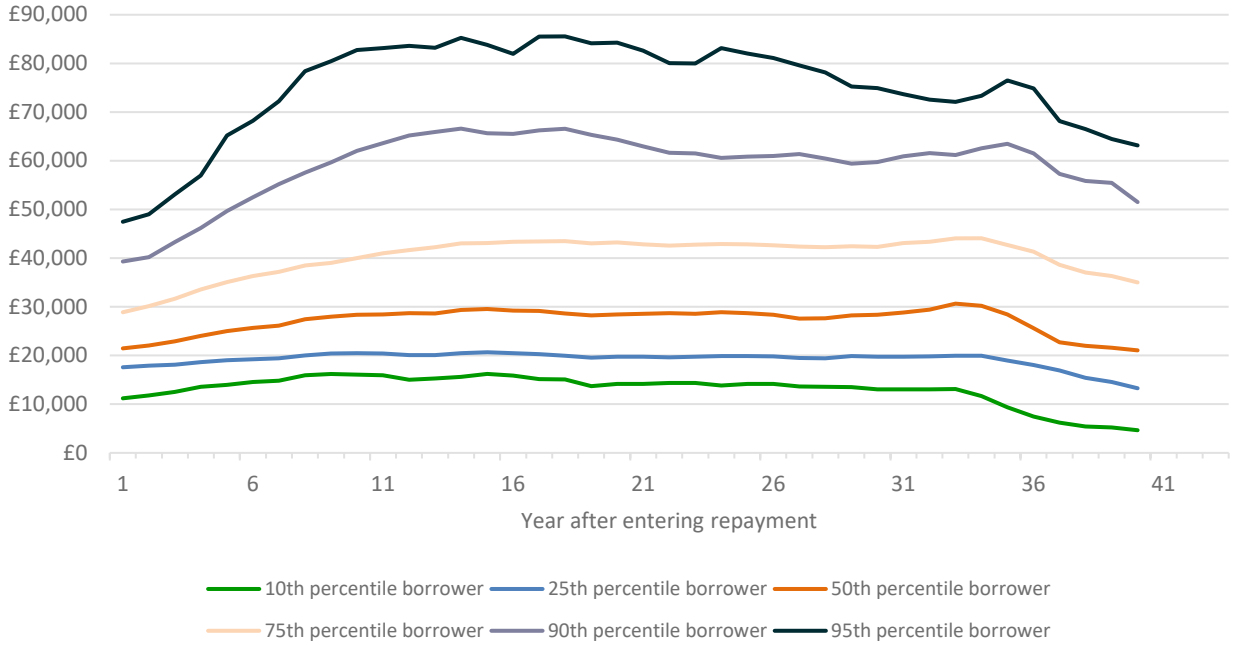
Other than the earnings distributions used for these loan borrowers, all their other loan borrowing characteristics are identical. We assume that they all attended a three year course beginning in 2021, with an average maintenance (£6,230) and fee (£8,380) loan amount per annum as published by the Student Loans Company[3] for the current system. For the P18R recommended system, we assign average maintenance (£4,400) and full fee (£7,500) loans according to our modelled estimates of what these values could be (note the P18R recommended system also has a significant grant component for maintenance support which is not included here as it is grant not loan, and therefore will not be repaid). These values are inflated by RPIX from 2017-18 prices to the relevant years' prices. We assume that none of these loan borrowers experience any breaks in their earnings (which may be unrealistic for many) up until the end of their repayment period.

Figure 1 – Nominal (Cash) Annual Earnings (£) for the example borrowers



[3] Student support for higher education in England 2018: full year 2017/18 and early in year 2018/19

Figure 2 –Annual Earnings (£) in 2014-15 prices for the example borrowers



Methodology

The repayments made by each example borrower are calculated according to the rules of the two student finance systems. Interest is generated year-on-year according to their assigned earnings to estimate their debt at the end of each year. Repayments are removed from their debt, with the size of the repayment varying according to their yearly earnings. This is a simplified version of the Department for Education's student loan repayment model[4], as it does not include additional repayments such as voluntary or direct debit repayments.

When these calculations are complete for each of our example borrowers, we are able to estimate their debt and interest profiles over their repayment periods, as well as their repayments year-on-year and their cumulative repayments over time. We are also able to calculate the RAB charge (see text box) and the real terms proportion of debt repaid for these example borrowers. These both provide an indicator of the level of taxpayer subsidy received.

In the calculation for the interest accrued and repayments over time, we considered what the most relevant metric is in order to gauge the full impact of these two different systems. These included:

- the HM Treasury discount rate, which will illustrate the sustainability of each system from a HM Treasury point of view and is the approach taken in the calculation of the RAB;

[4] A more technical overview: DfE HE Student loans forecast model

- total nominal repayments will highlight where a system is causing certain example borrowers to have very high repayments later in life.

We find it most relevant to deflate nominal repayments by average earnings, to provide an indicator of total affordability of these repayments. All figures shown in Table 1 below are deflated in this way.

The RAB charge

The RAB charge is the estimated cost to Government of borrowing to support the student finance system. It measures the proportion of student loan outlay that is expected not to be repaid within borrowers' repayment terms, when future repayments are valued in present terms (using the HM Treasury discount rate – currently RPI+0.7%).

For the purposes of this analysis, the RAB charge is calculated on a simplified basis for each illustrated example borrower, by dividing the net present value of their total repayments by their loan outlay, and subtracting this value from 100%.

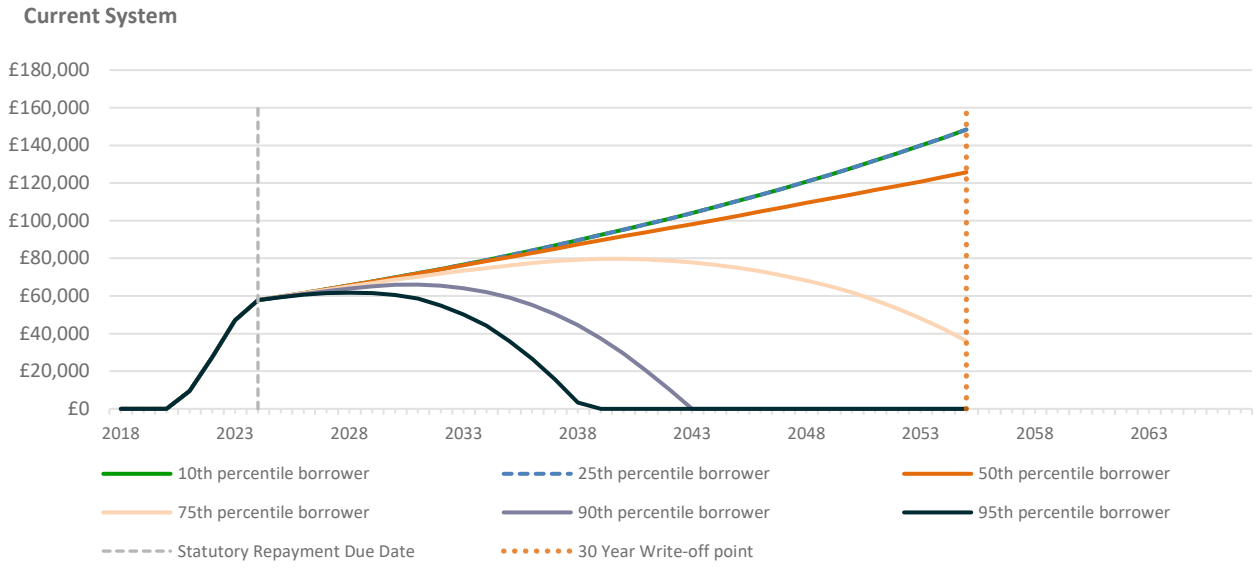
Results

Based on the methodology described above, we present the results of these calculations as charts to easily highlight how the two systems affect our example borrowers.

The charts in Figure 3 show how the example borrowers' debt changes over time (in cash terms at that point in time i.e. nominal terms). When they take out the loan in 2021 and throughout the period of their education, their debt rises, due to additional loan outlay over three years plus the accrued interest. When they reach SRDD in April 2025, they are able to start making repayments, and what happens to their debt from that point and whether they fully repay their loan depends on whether the repayment levels are sufficient to offset the interest accrued. In the current system, we see that for earners at the 50th percentile and below, repayments are never high enough to offset the interest accrued and thus loan balances continue to rise throughout the repayment term. Earners at the 75th percentile initially see rising loan balances but then go onto make repayments exceeding the interest accrued and thus see falling loan balances. They do not, however, ever fully repay their loan. As a consequence, we see that only it is only the highest earners in this example set who are able to repay in full.

In the P18R recommended system, we see more of our example borrowers reach the point where repayments exceed the interest, which also results in borrowers above the 75th percentile fully repaying. Loan balances for the 50th percentile borrower stay lower in the P18R system but reach higher levels for the lowest earners due to the longer repayment term. However, these borrowers do not earn enough to pay any of this debt back.

Figure 3 – Debt (nominal terms / £) at Financial Year End



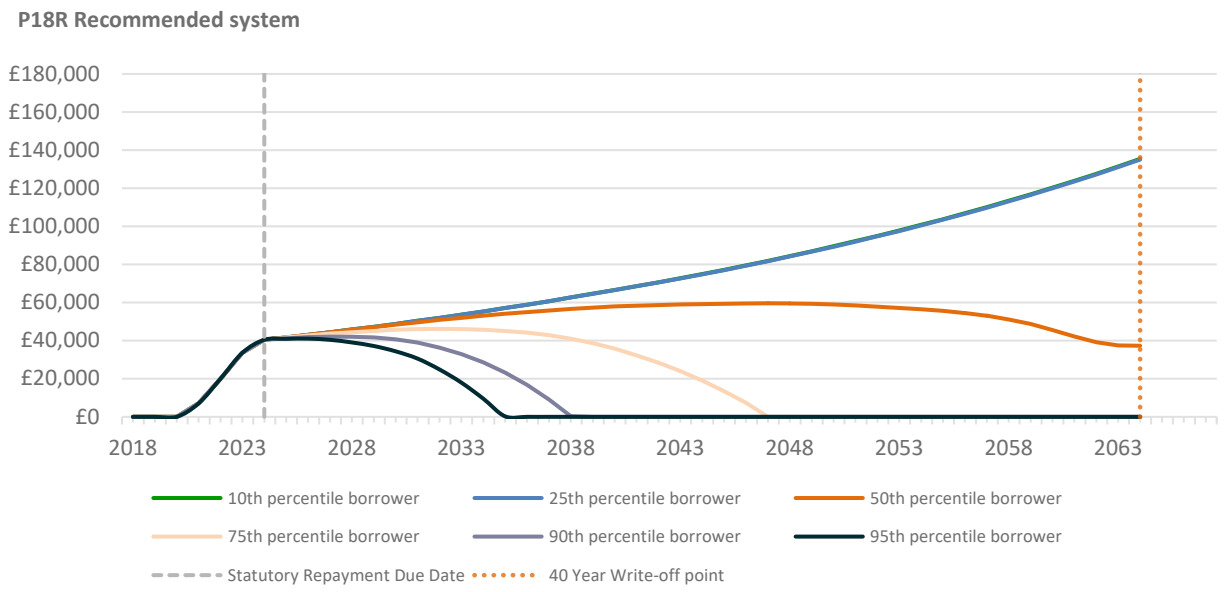


Table 1 shows the impacts of the two systems on all of the borrowers. The borrowers all have the same debt at SRDD, as per the intention of this illustration, and as captured in Table 1. The difference in the debt between the two systems at this point in time is the combined effect of lower loan outlay being paid out due to lower fees and the availability of a maintenance grant, and lower interest being accrued during the period of study (see Figure 4).

From Table 1, it is apparent that earners in and above the 75th percentile benefit from the P18R recommended system, as they repay less overall and in quicker time. Higher percentile earners, but not the highest percentile earners, also benefit from the repayment cap, which should write-off around £4,000 (2018-19 prices) of debt around 22 years into the repayment period for earners similar to our 75th percentile example. The total amount of repayments remains broadly in line with earnings: the highest earners repay the most as intended by the progressive design of the system.

Table 1 – Key metrics for each example borrower, under both systems

	Current System				P18R Recommended System			
Debt at SRDD (2025-26 prices)	£57,849				£40,459			
Example Borrower	**Total Repayments (2018-19 prices, deflated by average earnings)**	**Time to fully repay (years)**	**Amount Written Off (2018-19 prices, deflated by average earnings)**	**Proportion of original debt repaid (real terms, at point of full repayment / write-off)**	**Total Repayments (2018-19 prices, deflated by average earnings)**	**Time to fully repay (years)**	**Amount Written Off (2018-19 prices, deflated by average earnings)**	**Proportion of original debt repaid (real terms, at point of full repayment / write-off)**
10th percentile borrower	£0	N/A	£33,817	0.00	£0	N/A	£21,228	0.00
25th percentile borrower	£0	N/A	£33,817	0.00	£145	N/A	£21,171	0.00
50th percentile borrower	£14,844	N/A	£28,636	0.40	£26,667	N/A	£5,845	1.05
75th percentile borrower	£50,443	N/A	£8,220	1.31	£35,890	22	£2,446*	1.20
90th percentile borrower	£56,815	18	N/A	1.36	£37,883	14	£159*	1.20
95th percentile borrower	£55,452	14	N/A	1.29	£37,323	11	£131*	1.20

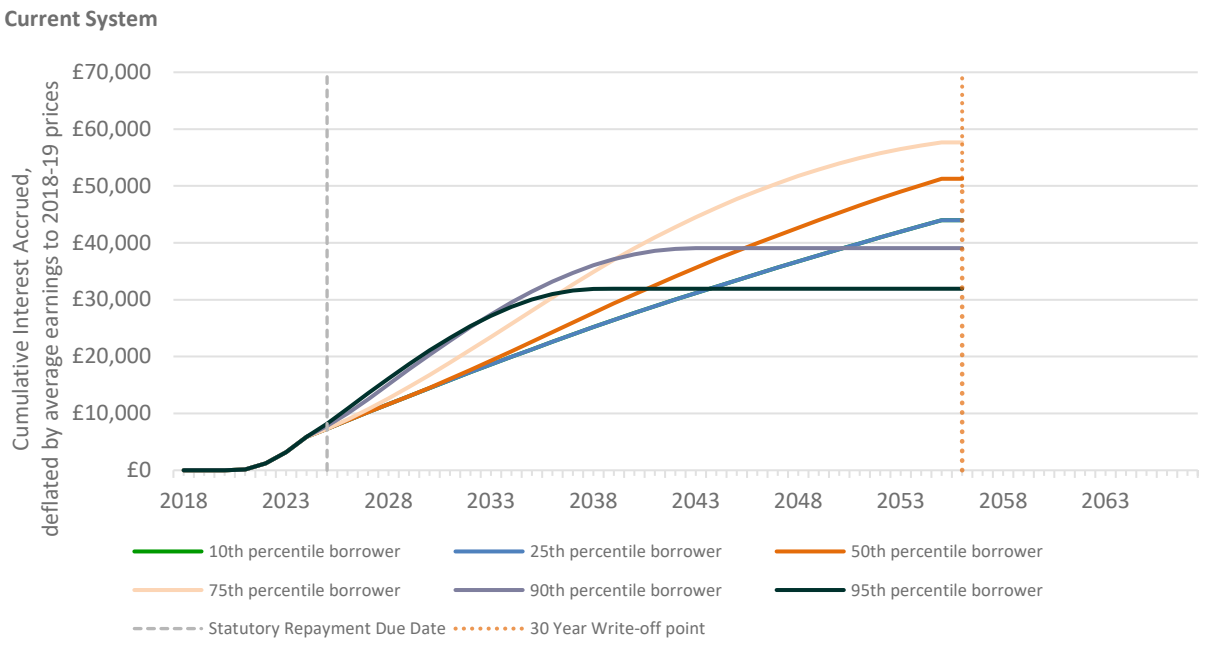
**Debt written off due to the repayment cap, not end of repayment period.*

Earners below the 25th percentile will not really see much (if any) of an impact from the P18R recommended system, as they make almost no repayments under either system. However it is the middle earners (see 50th percentile borrower) whose repayments increase the most under the P18R recommended system. However, they still pay considerably less than the higher earners and will still not fully repay their student loan, nor pay back enough to hit the repayment cap of 1.2x their original loan. Extra contributions amount to £15 per month due to the threshold changes, and thus most of this additional repayment is due to repayments continuing for longer.

Table 1 includes a column showing the proportion of the original debt borrowed that is repaid, in real terms at the point of repayment or write-off. Part of the P18R recommended system is that past borrowers will also be subject to a repayment cap. This column shows that borrowers in the current system with earnings in at least the 75th percentile will meet this repayment cap, resulting in the write-off of some of their student loan and a reduction in their overall repayments. This ensures the system is not regressive at the top end of earnings.

Figures 4 and 5 provide more detail on the effects of changing the student finance system on accrued interest and on repayments over time. Figure 4 in particular highlights how interest accrued on the debt balance is much lower in the P18R recommended system for all the example borrowers, and this will be true for all loan borrowers due to the lower level of loan resulting from fee reduction, maintenance grants and removal of real interest during study which goes on to compound in the current system. Figure 5 highlights how the extension of the repayment period affects the number and size of future repayments over time.

Figure 4 - Cumulative interest accrued (£), deflated to 2018-19 prices by average earnings



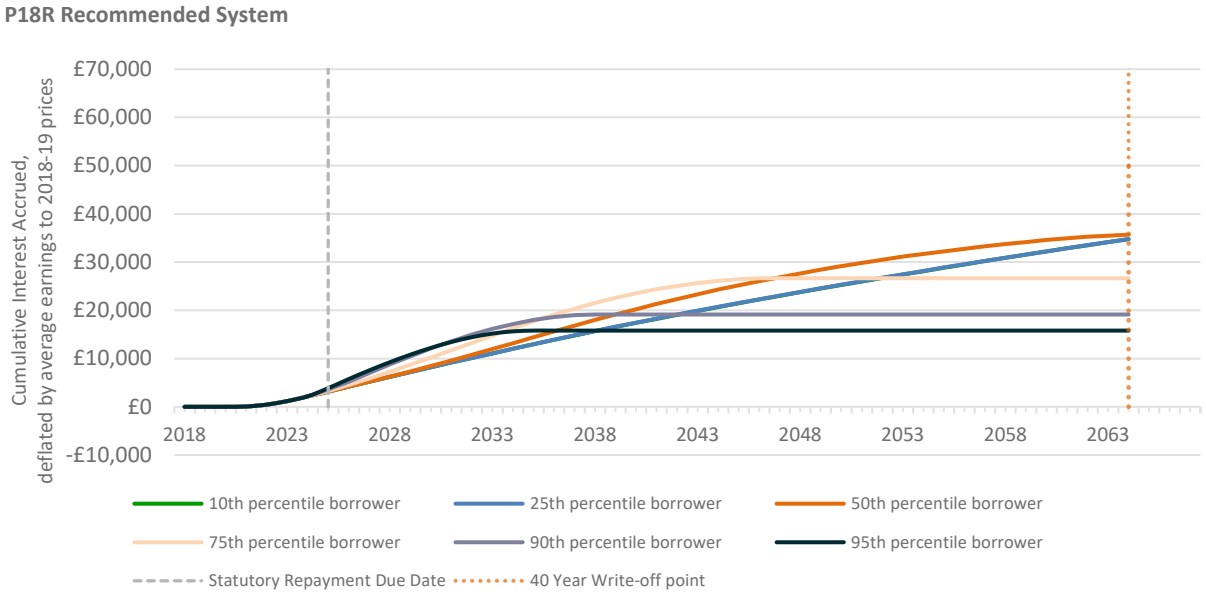
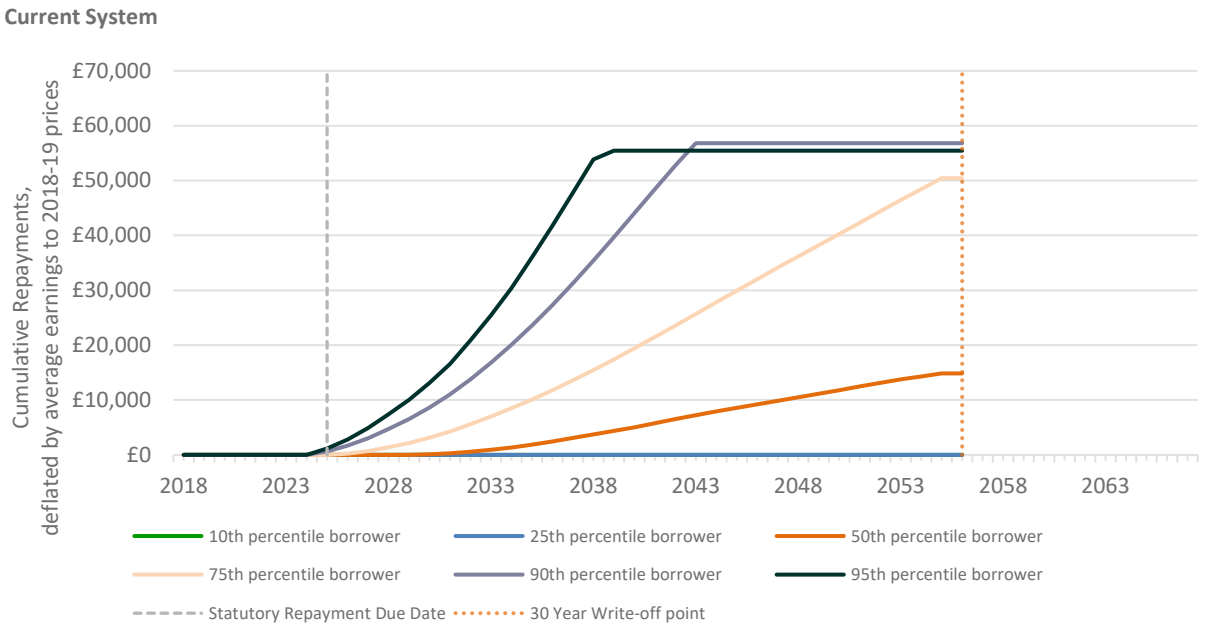
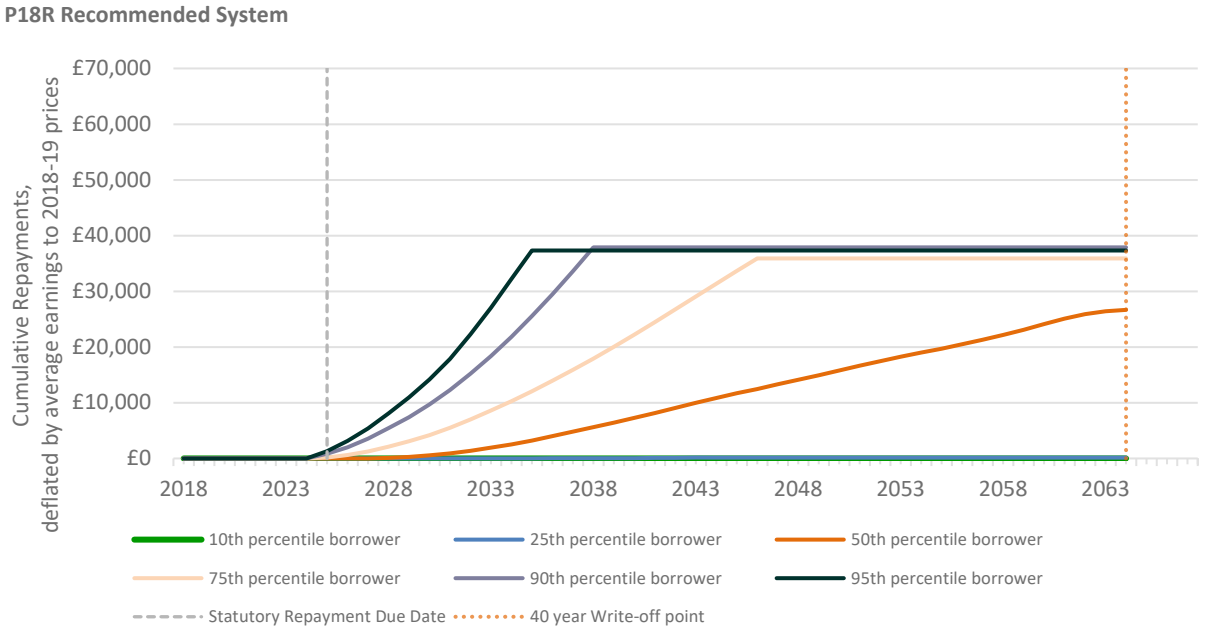



Figure 5 – Cumulative repayments (£), deflated to 2018-19 prices by average earnings