The public expenditure and distributional implications of reforming student loans and grants

A project for Universities UK

Contents

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Project details

- UUK asked us to look at various ways to reduce the public contribution to student/graduate support
- We have evaluated a number of possible scenarios, looking at
  - impact to the exchequer
  - the distributional impact on different types of graduate
  - Possible behavioural responses (necessarily more speculative)
- Our analysis focuses only on full-time undergraduates studying for a first degree

SIMULATING GRADUATES' LIFETIME EARNINGS

Distribution of Lifetime Earnings Paths

- Features of current HE funding system
  - income contingent repayments
  - interest rate subsidy on loans
  - eventual debt forgiveness

- Distribution of lifetime earnings paths is crucial to assess
  - government subsidy on loan
  - cost of interest rate subsidy
  - implicit redistribution across graduates

- ‘Average’ graduates may give misleading results:
  - 18% public subsidy for average earnings
  - 23% average public subsidy from full distribution

Simulating Lifetime Earnings Paths

- Do not observe graduate's lifetime earnings paths in data
  - LFS large cross-sectional data: can observe distribution of annual earnings for graduates of a given age in a given year
  - BHPS small panel data: track earnings/employment paths for individuals for up to 16 years

- Use simulation to combine information from both
  - construct an artificial economy, populated with a single cohort of graduates that have earnings paths with the same statistical properties as the data.
  - for each simulated graduate, we explicitly calculate loan repayments and the value of the government subsidy

How are the simulations constructed?

- Stage 1 (BHPS): adjust annual earnings to control for year, age, region, ethnicity effects
- Stage 2 (BHPS): specify rich statistical model for residual earnings dynamics and estimate its parameters
- Stage 3 (BHPS): estimate a statistical model for employment– probability of starting work, stopping work, and earnings losses upon re-employment
- Stage 4 (Simulations): simulate graduate earnings-employment paths, randomly assigning region and ethnicity
- Stage 5 (LFS): re-scale earnings at each age so that simulated earnings distributions are consistent with data
- Stage 6 (Forecasting): Adjust simulated earnings for assumed economy-wide future earnings growth

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ASSUMPTIONS

Modelling assumptions

The results in this presentation are based on a particular sample of the population:

- Graduates of first degrees
  - Full-time degrees
  - Not including foundation degrees or postgraduate degrees
  - Three year degree courses
- Year of entry 2011
- Year of graduation 2014
- Graduation at age 22

Further assumptions

- All figures are expressed as average for a 3 year course
- Debt at end of 3yrs = £20,900
  - This is the average fee and maintenance loan debt of those who borrow[1]
  - We assume full take-up of maintenance and fee loans, though it is possible to calculate the average subsidy under different take-up assumptions
    - E.g. If there was 80% take-up of fee and maintenance loans, randomly spread across graduates, then total government spending on the subsidy would be 20% lower than under full take-up.
- Discount rate = 2.2% (RAB charge)[2]
- All monetary values in the model are converted to 2011/12 prices
  - Assuming first changes to HE system will affect 2011/12 cohort

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[1] Source: Student Loans Company Statistical First Release 06/2009, table 4

[2] Source: DIUS Annual Report 2009, Annex 1 Table 11 “the Student Loans RAB charge is based on a discount rate of 2.2%”

Earnings growth assumptions

The results in this presentation are mainly based on a central scenario of earnings level and growth, but we also have results under an optimistic and pessimistic scenario:

- Central Scenario (as used in this presentation):
  - 4.5% fall in earnings over 2007-2010 relative to trend, which implies growth of 1.8% per year between 2008 and 2014
  - Long-term average earnings growth at 2% per year from 2014
- Optimistic:
  - 4.5% fall in earnings over 2007-2010 relative to trend, which implies growth of 1.8% per year between 2008 and 2014
  - Long-term average earnings growth at 2.25% per year from 2014
- Pessimistic
  - 10% fall in earnings over 2007-2010 relative to trend, which implies growth of 0.7% per year between 2008 and 2014
  - Long-term average earnings growth at 1.75% per year from 2014

➢ These are based on the detailed macro-forecasts contained in the IFS Green Budget 2010

THE CURRENT SYSTEM

The current loan repayment system

- Repayment at 9% of earnings above £15,000
- Zero real interest rate
- 25 year write-off period

The cost of the current system: official figures

Cost of the Labour Government system in 2009/10[1]

	Current system £m	IFS estimate £m		
Cost of maintenance loans	610[2]			
Cost of fee loans	722[3]			
Total cost of loan system	1,332			
Cost of maintenance grants	1,050[4]			
Total cost of base system	**2,382**			
Volume of students	**1.11m[5]**	**optimistic**	**pessimistic**	**central**
Subsidy per student per year (loans only)	**£1,200**	**£1,700**	**£1,600**	**£1,500**
Total subsidy per student per year (loans + grants)	**£2, 146**			

[1] All figures in 2009/10 prices (RPI) and include 07/08, 08/09 & 09/10 cohorts unless stated otherwise

[2,3] Source: DIUS Annual Report 2009, Annex 1, Table 11 [4] Source: Student Loans Company SFR, 06/2009, Table 3

[5] Source: HESA Students and Qualifiers, 2007/08, Table 2e

The current system: differences between IFS and Government estimates

- IFS model calculates govt subsidy to be 23% - i.e. for every £1 loaned, the government must pay 23p
- Government figures put this subsidy at around 26%
- There are several key differences between our calculations and the governments'
  1. We use a richer model for simulating graduate earnings and employment profiles, more closely calibrated to earnings levels in the LFS
  2. The government builds much more heterogeneity into the types of students/graduates it considers
     - Undergraduates on all types of courses (Degree, foundation degree, PGCE etc)
     - All types of course lengths (1-7 years)
     - All ages
     - A range of cohorts (2012-2017)
  3. The government also allows for bankruptcies and death

The current system: key statistics

The following slides show key statistics from the current system, under our central, pessimistic and optimistic scenarios:

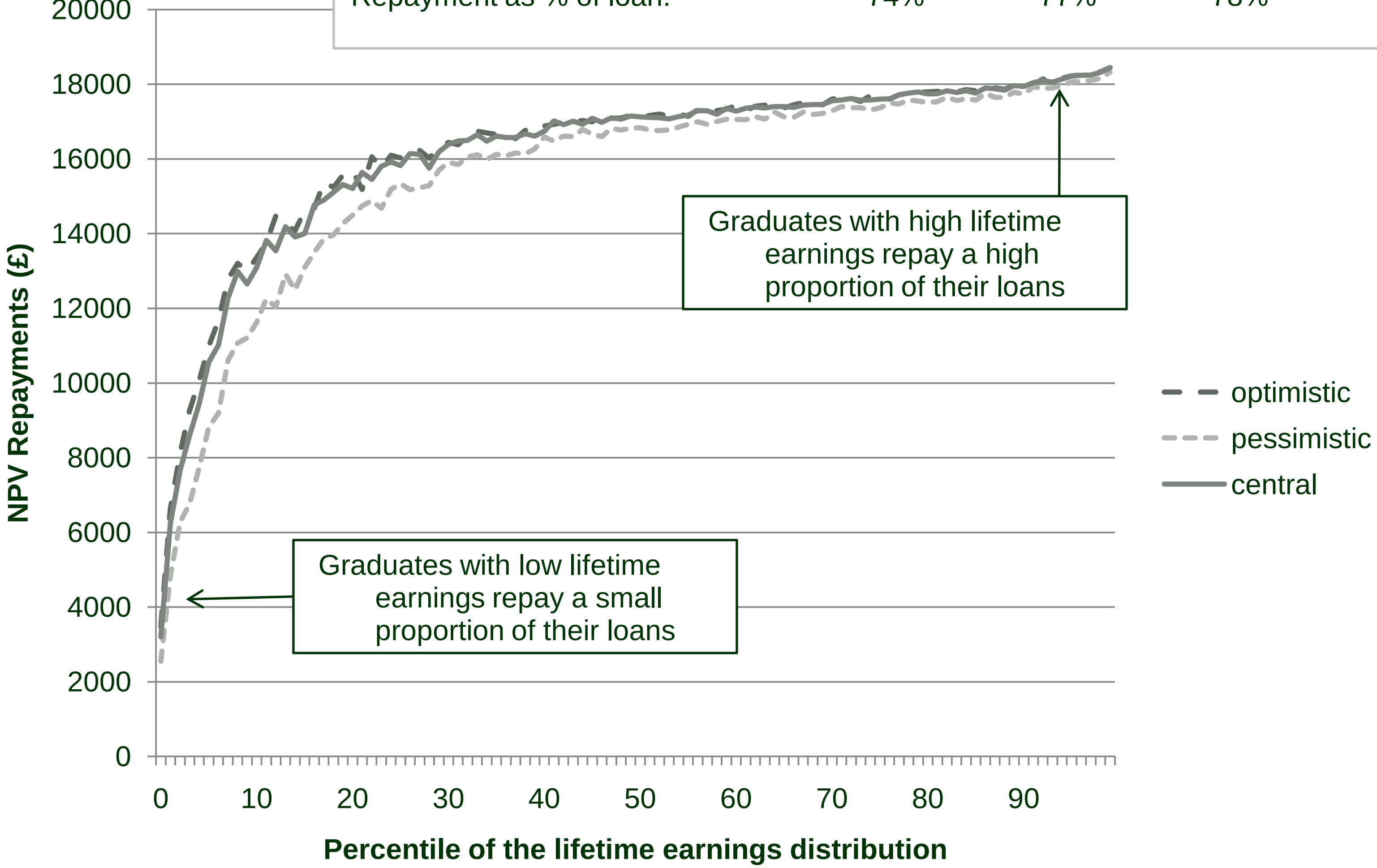
Net Present Value of repayments - sum of the total repayments made by each student in NPV terms

Net Subsidy - total loaned to each student minus total repaid (in NPV terms)

Years to repay loan - total number of years graduate repays loan for (maximum 25)

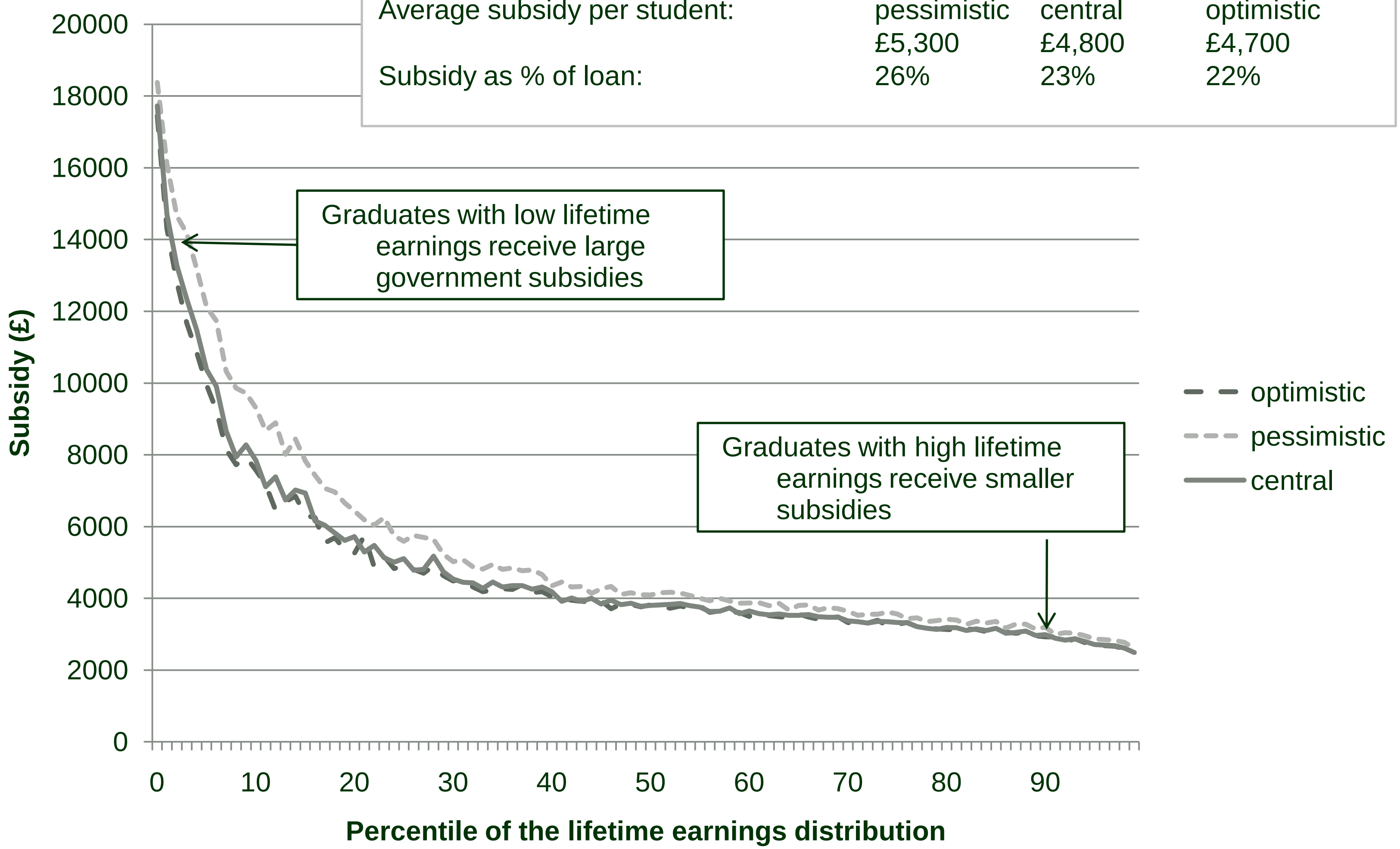
The current system: net present value of repayments

Average repayment per student:	pessimistic	central	optimistic
	£15,600	£16,100	£16,200
Repayment as % of loan:	74%	77%	78%



The current system: Government subsidy

Average subsidy per student:	pessimistic	central	optimistic
	£5,300	£4,800	£4,700
Subsidy as % of loan:	26%	23%	22%



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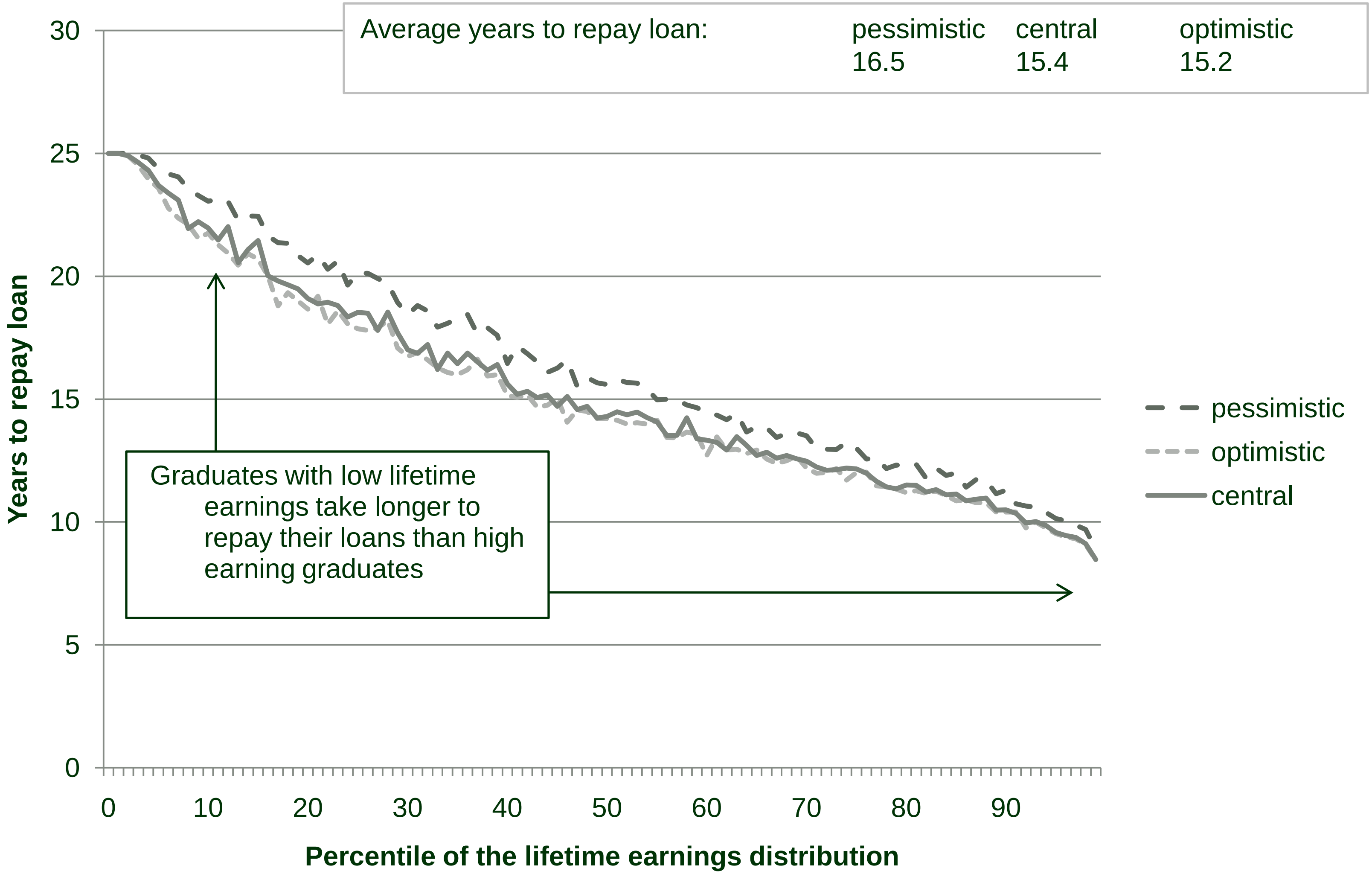
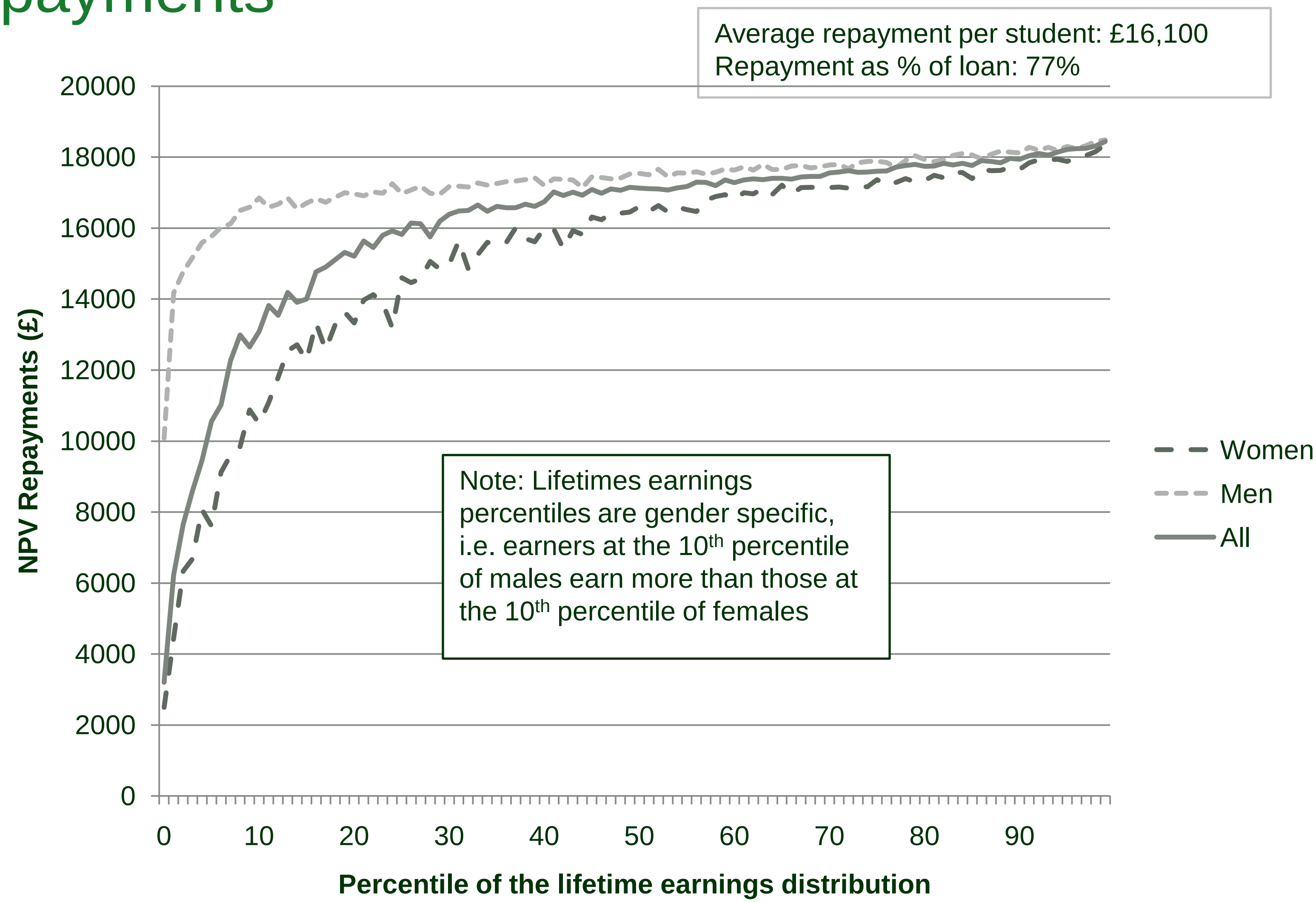
The current system: Years to repay loan



The current system: central scenario

In all the slides that follow, we only show results under our *central earnings growth* scenario

The current system: net present value of repayments



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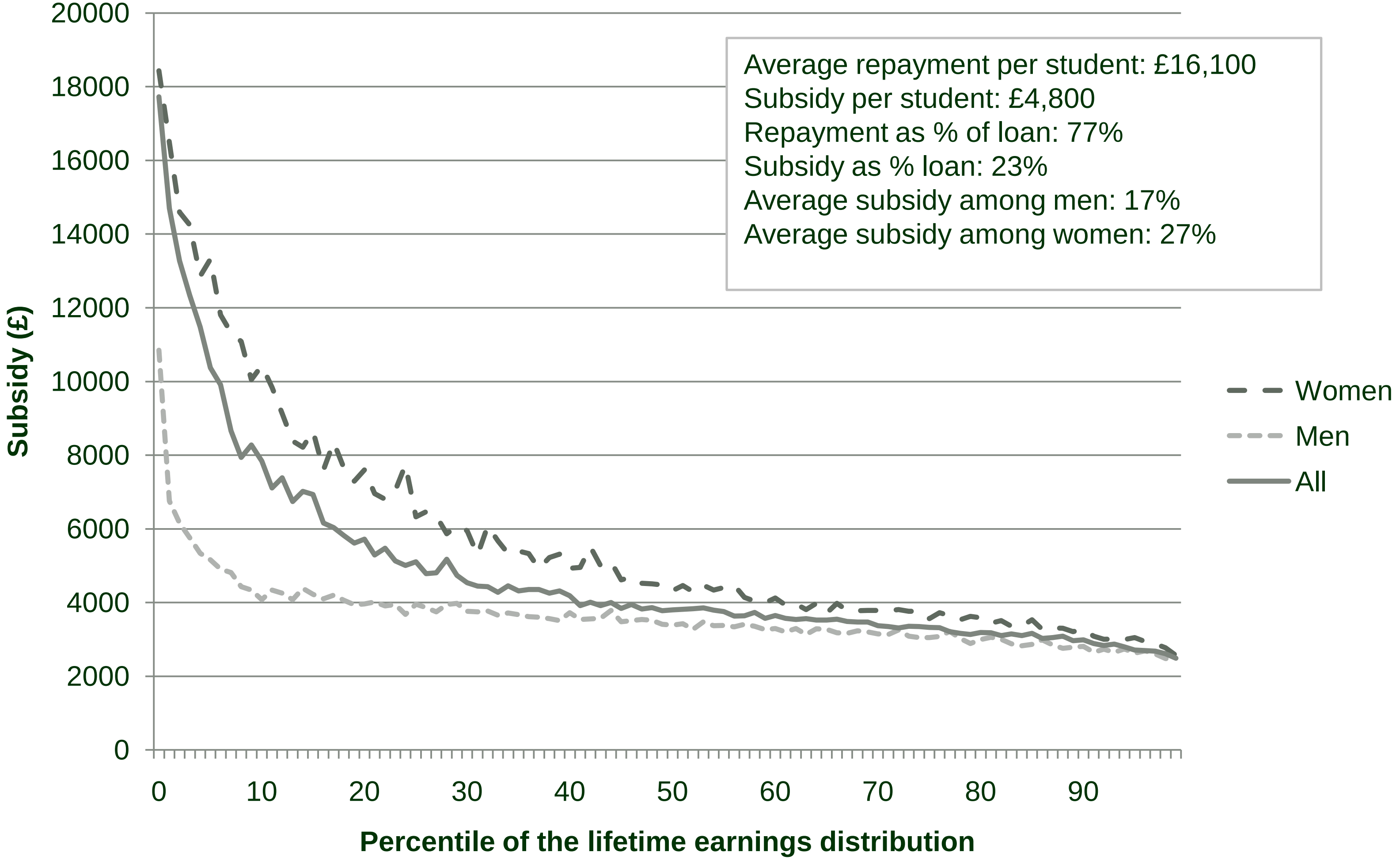
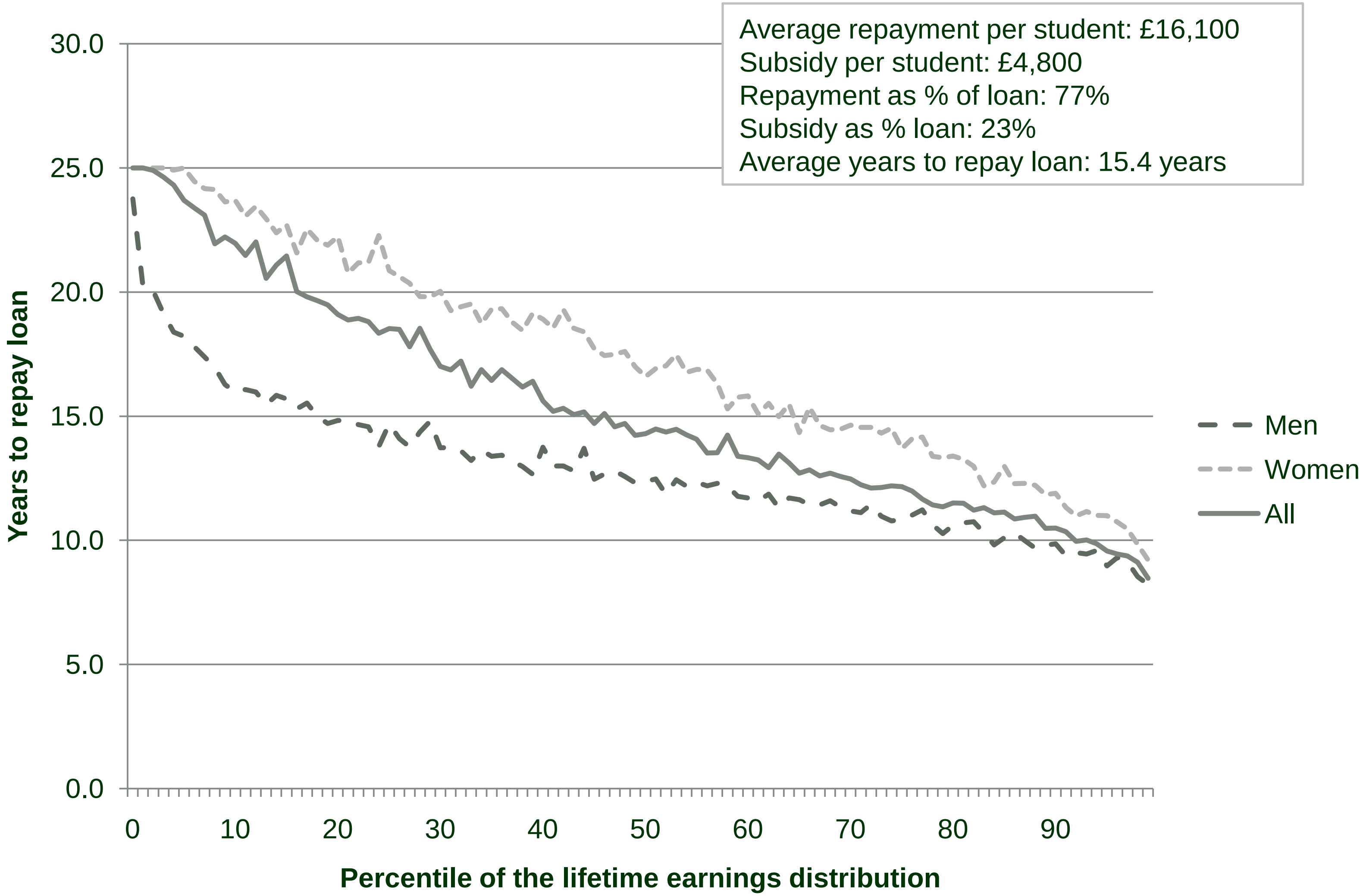
The current system: Government subsidy



The current system: Years to repay loan



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POLICY SCENARIOS

Scenarios

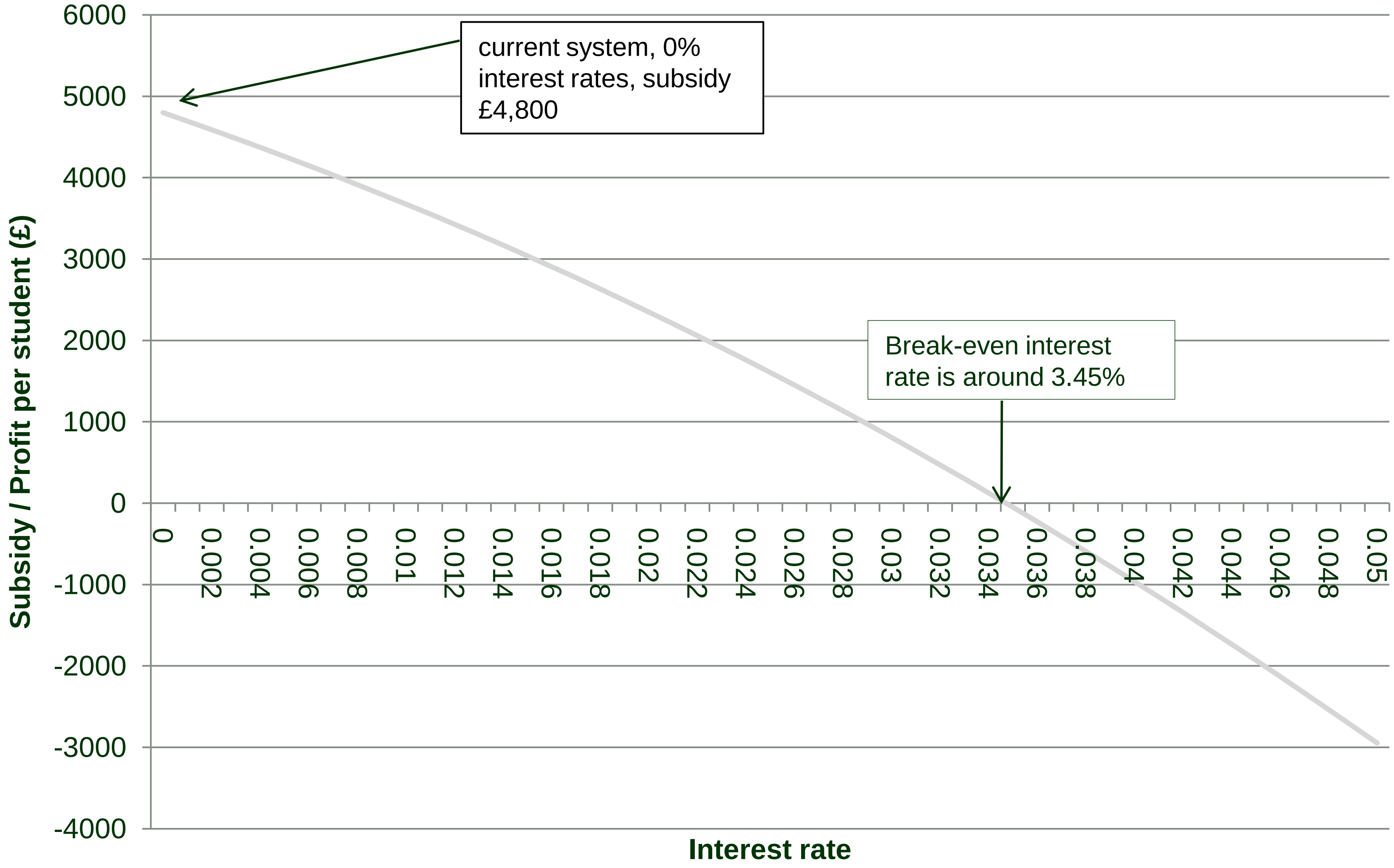
We have looked at some widely debated scenarios:

1. Charging a real interest rate on loans
   – Alone, this would involve a decrease in the public contribution
2. Increasing the maximum level of fees
   – If fee loans were extended to match, but the loan system remained unreformed, this would involve a rise in the public contribution
3. Some combination of the two and/or altering other parts of the system
   – Changing the loan repayment rate or threshold
   – Changing the loan write-off period

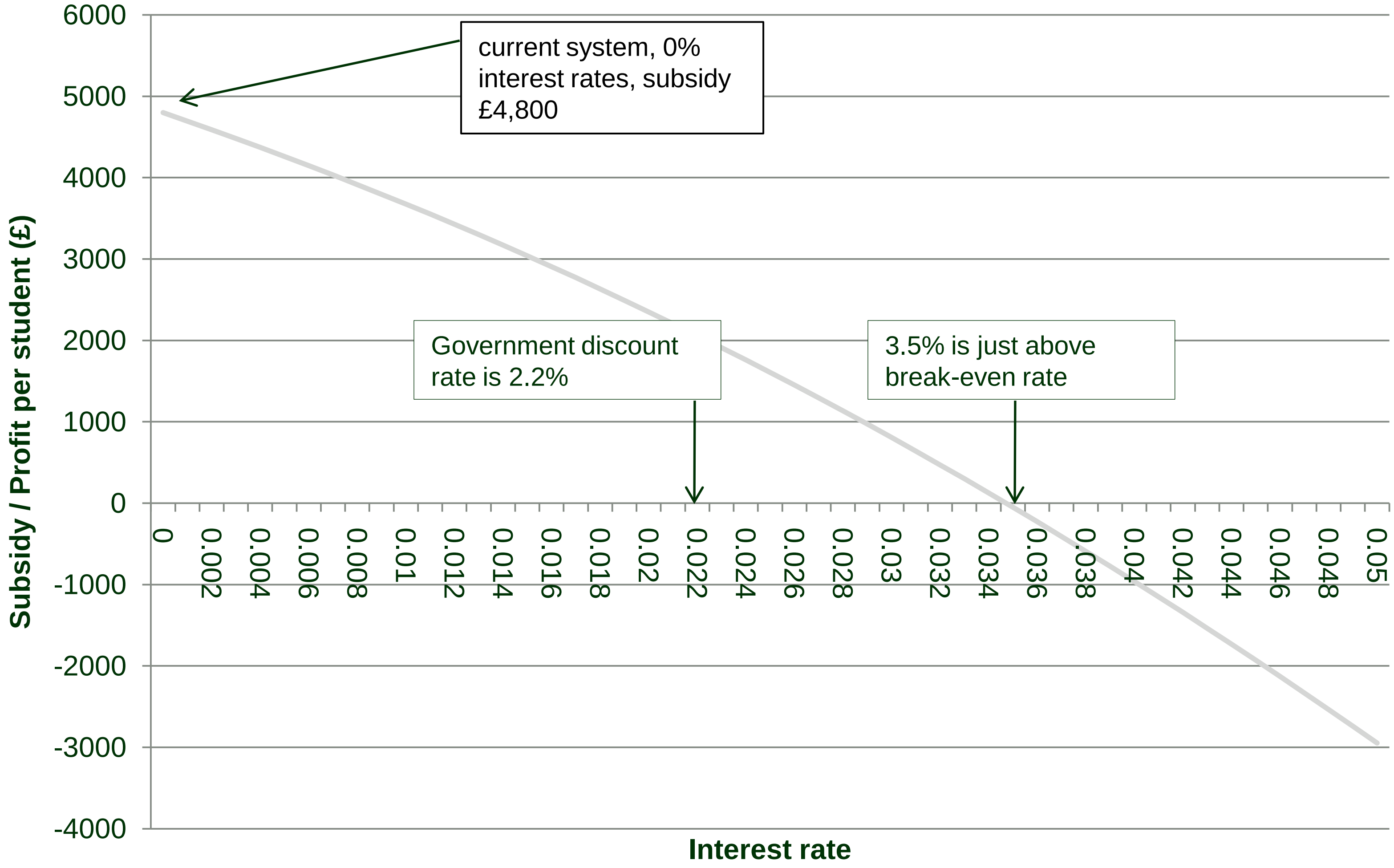
1. Charging a real interest rate on loans

- Under the current system, the exchequer pays the interest on the graduates’ behalf
- Charging a real level of interest rates would considerably reduce the government subsidy
  - As interest rates increase, the subsidy decreases
- We have chosen some example rates to illustrate these points
  - Government cost of borrowing (discount rate) (2.2%)
  - Approximately the ‘break-even’ interest rate (3.5%)

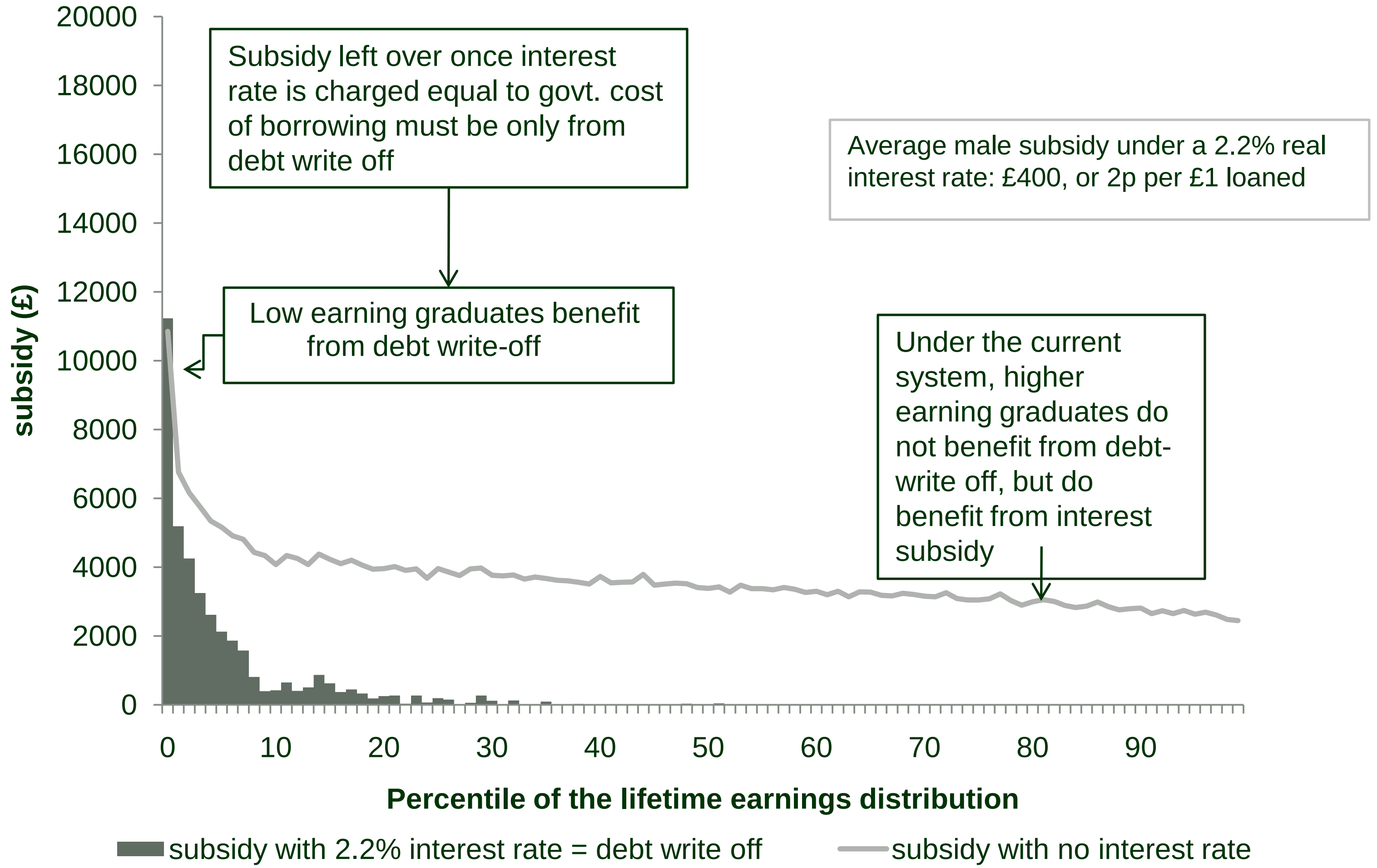
As interest rates increase, the government subsidy falls



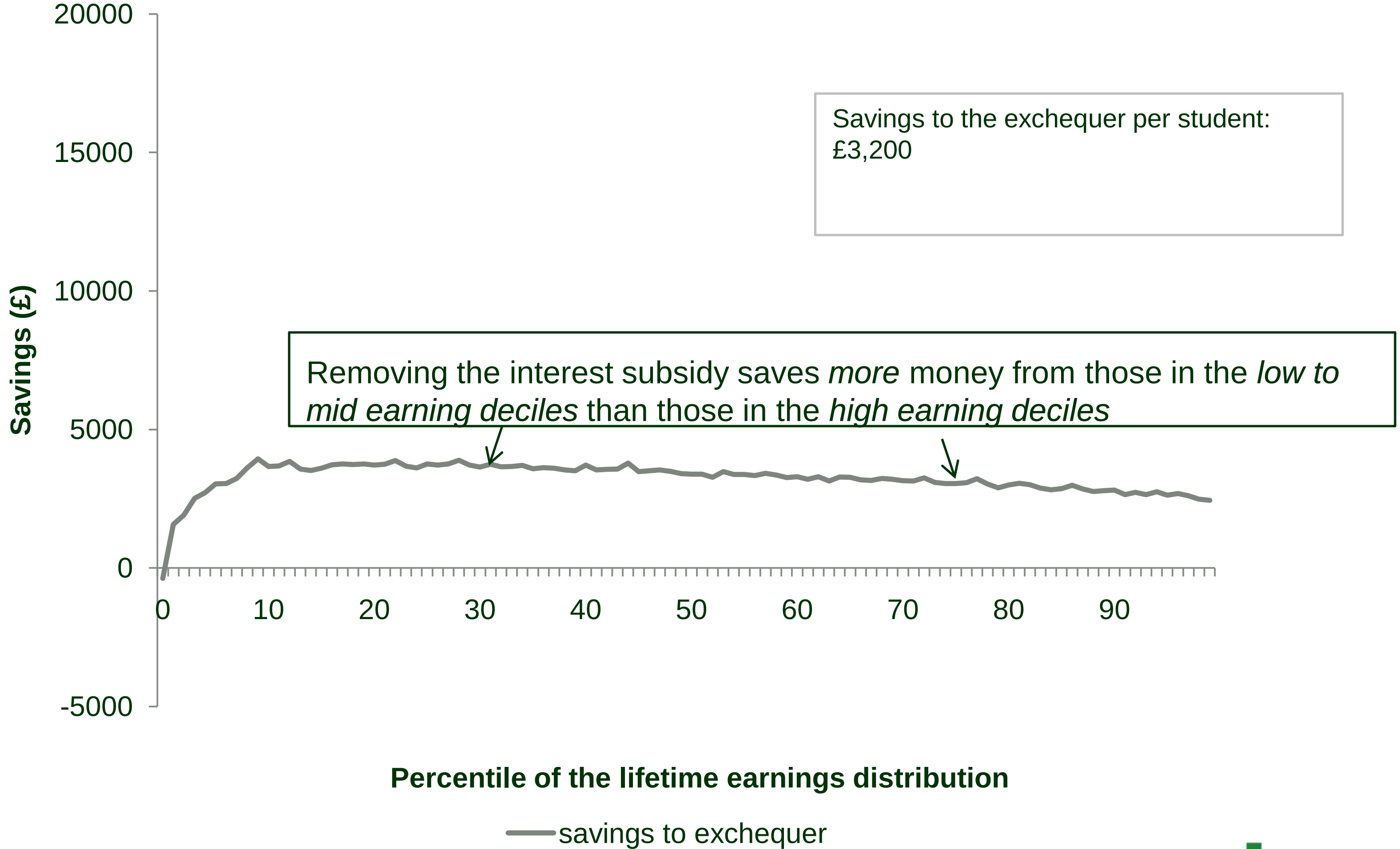
As interest rates increase, the government subsidy falls



Charging a 2.2% real interest rate: men lose most of their subsidy



Men: raising interest rate to 2.2%, with no behavioural change results in significant saving



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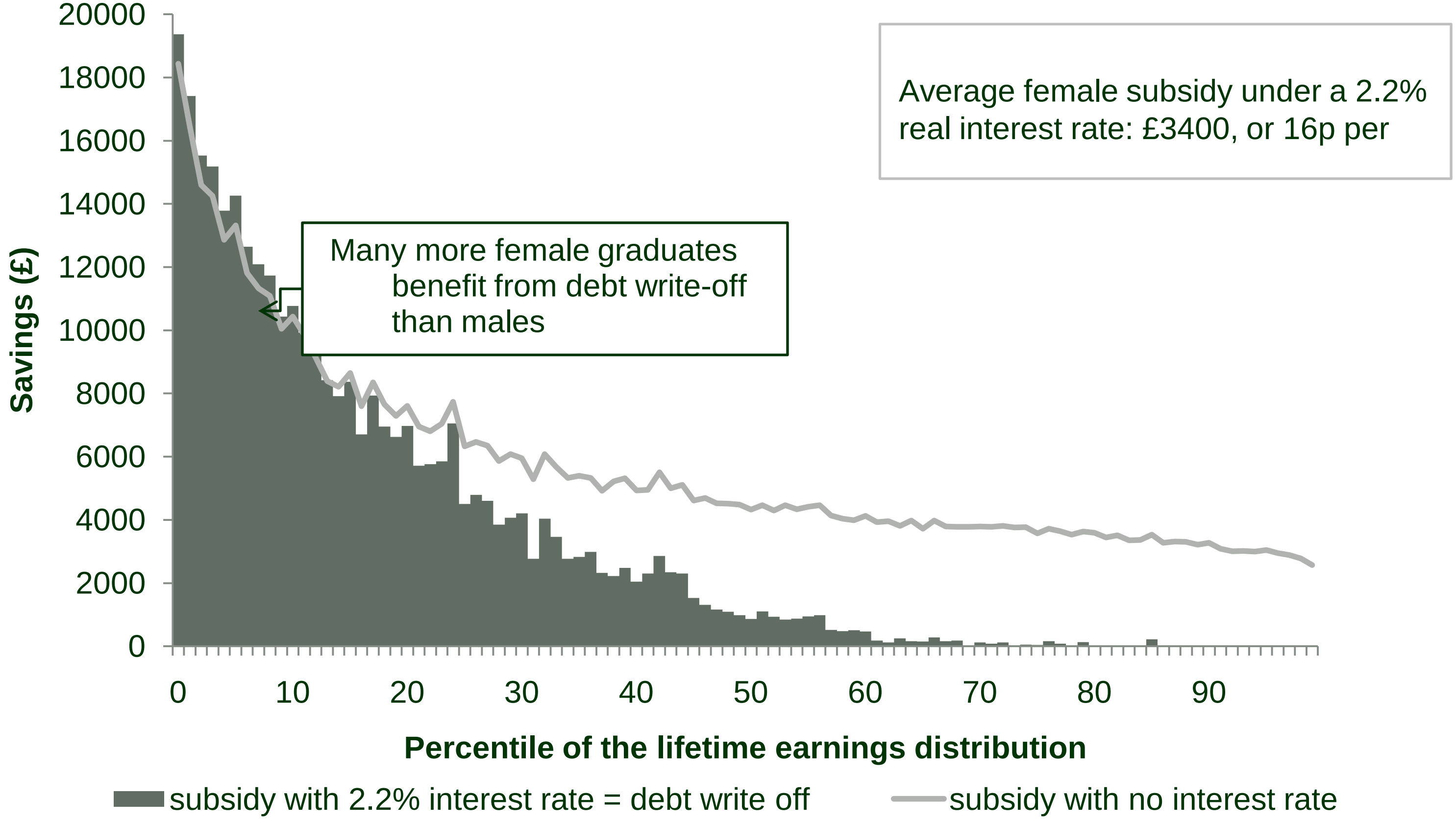
Charging a 2.2% real interest rate: women remain heavily subsidised by debt write-off



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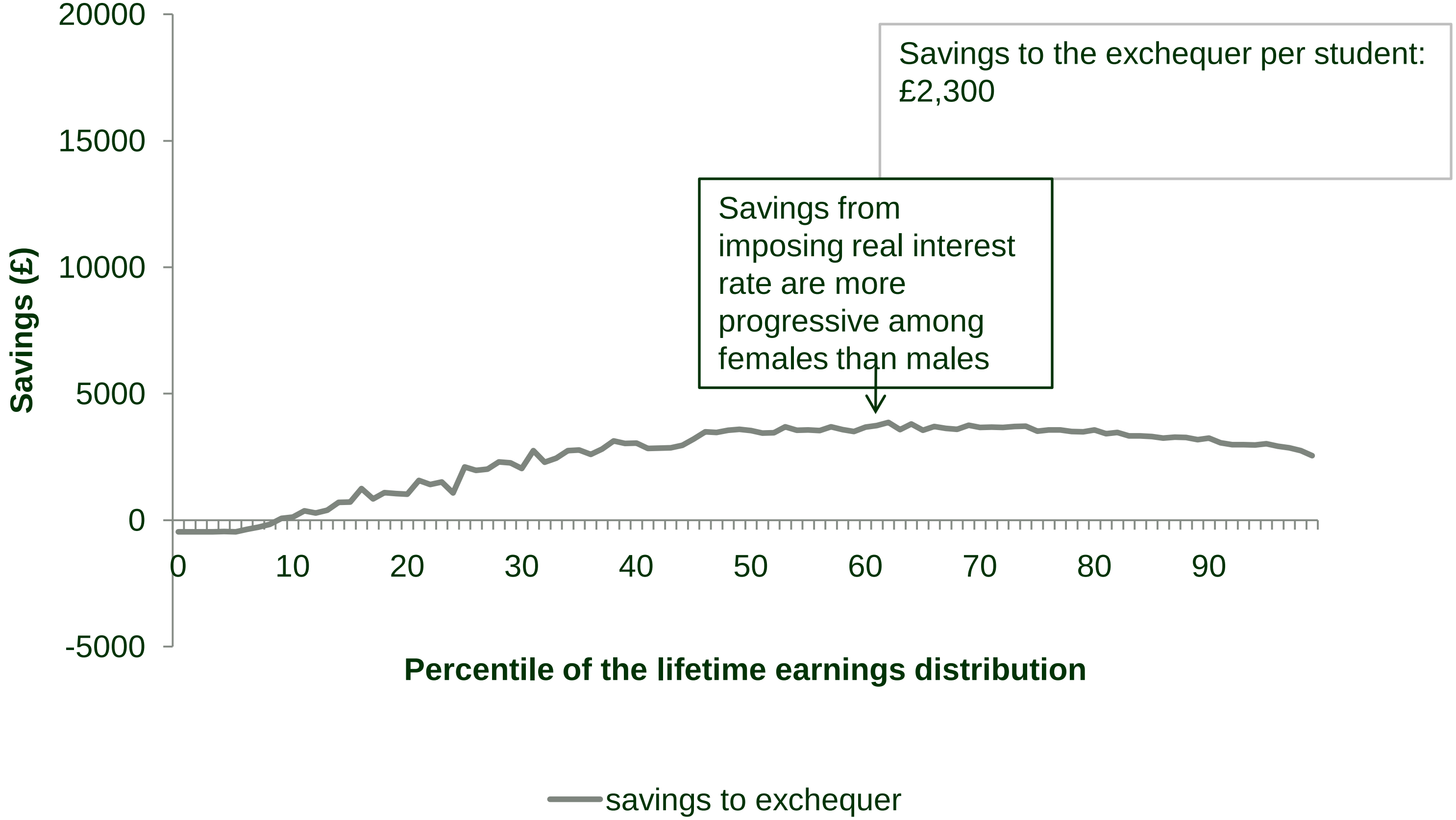
Raising interest rate to 2.2%, with no behavioural change results in a smaller but significant saving



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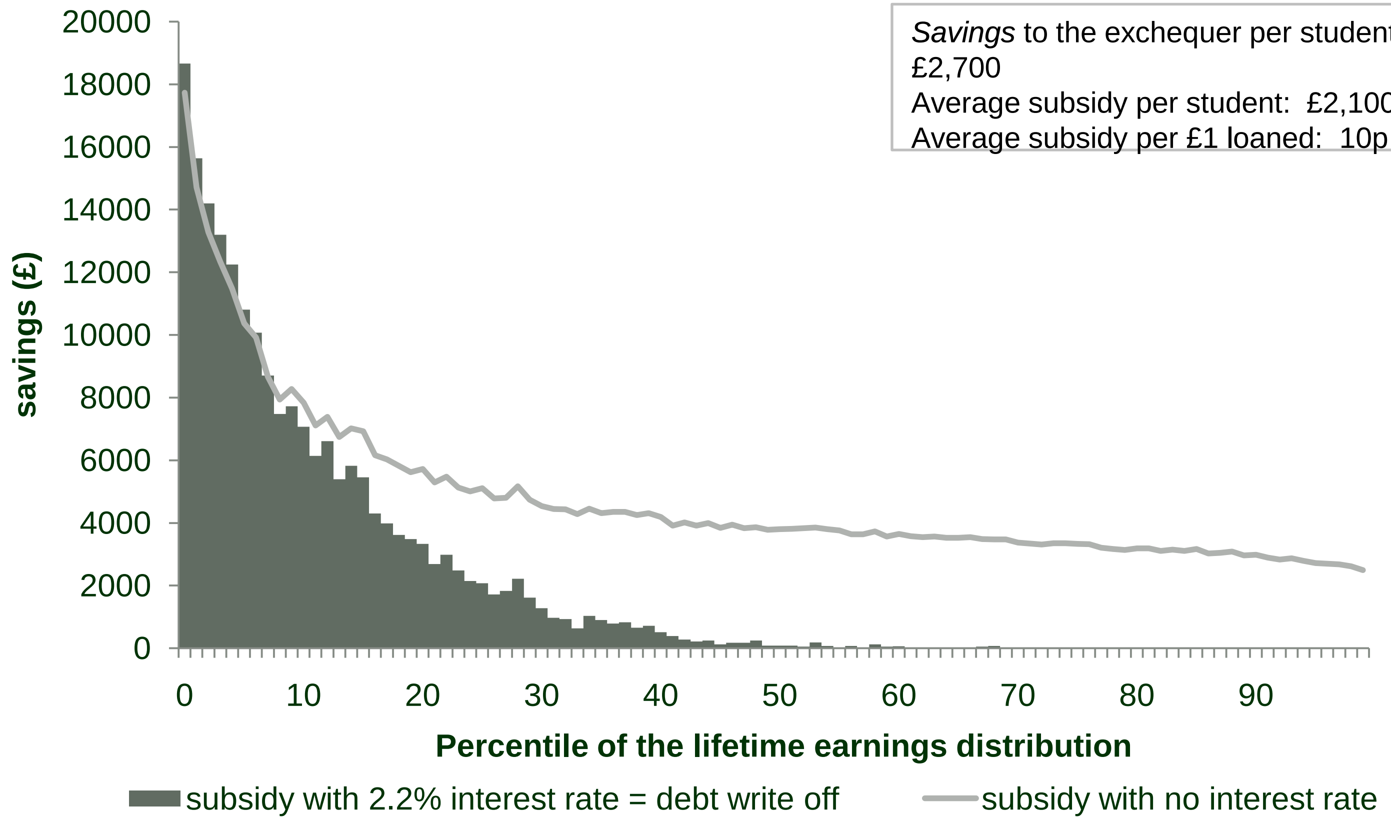
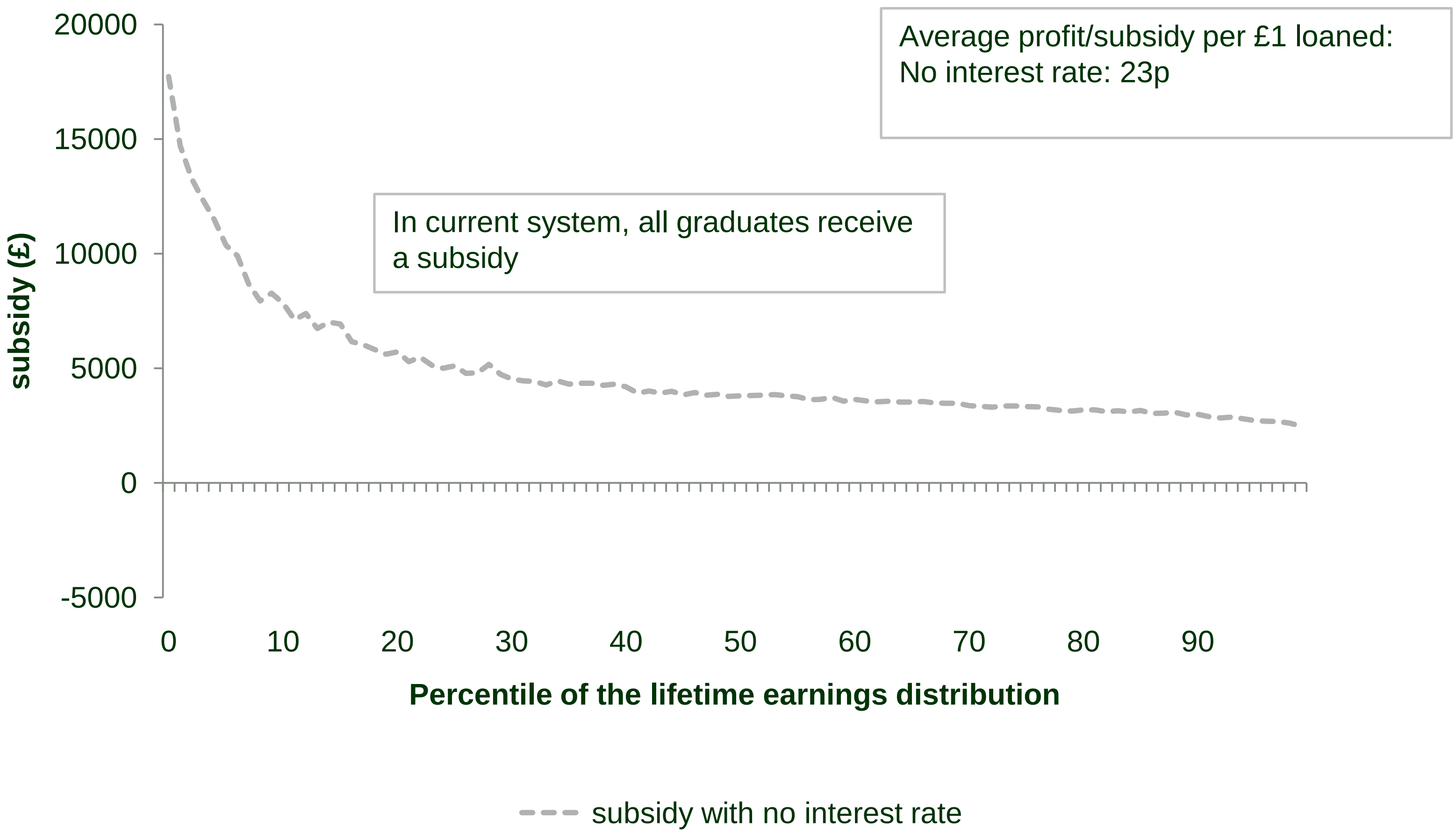
Interest rate 2.2%: All

Savings to the exchequer per student: £2,700
Average subsidy per student: £2,100
Average subsidy per £1 loaned: 10p



Increasing the interest rate to 3.5%



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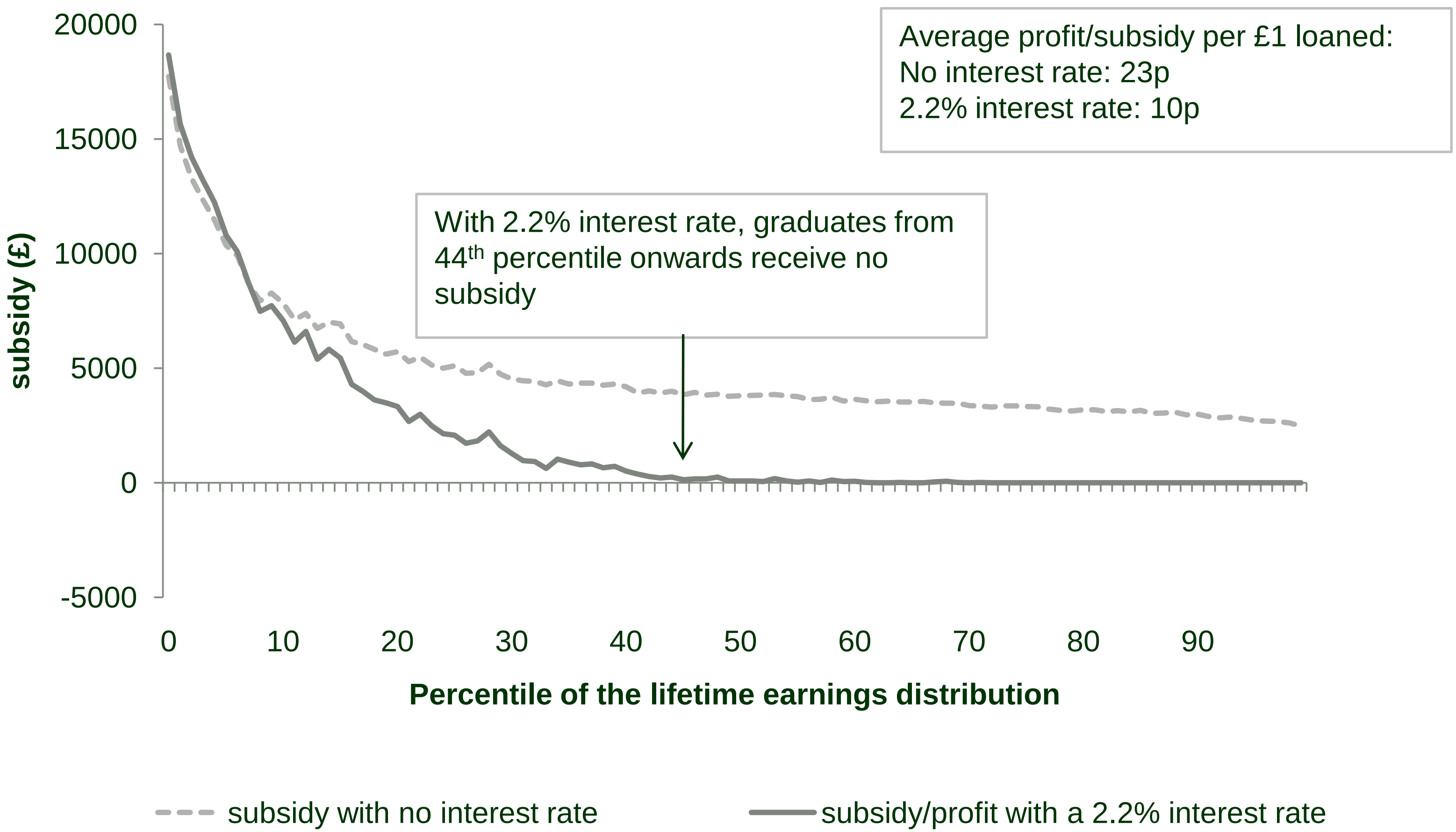
Increasing the interest rate to 3.5%



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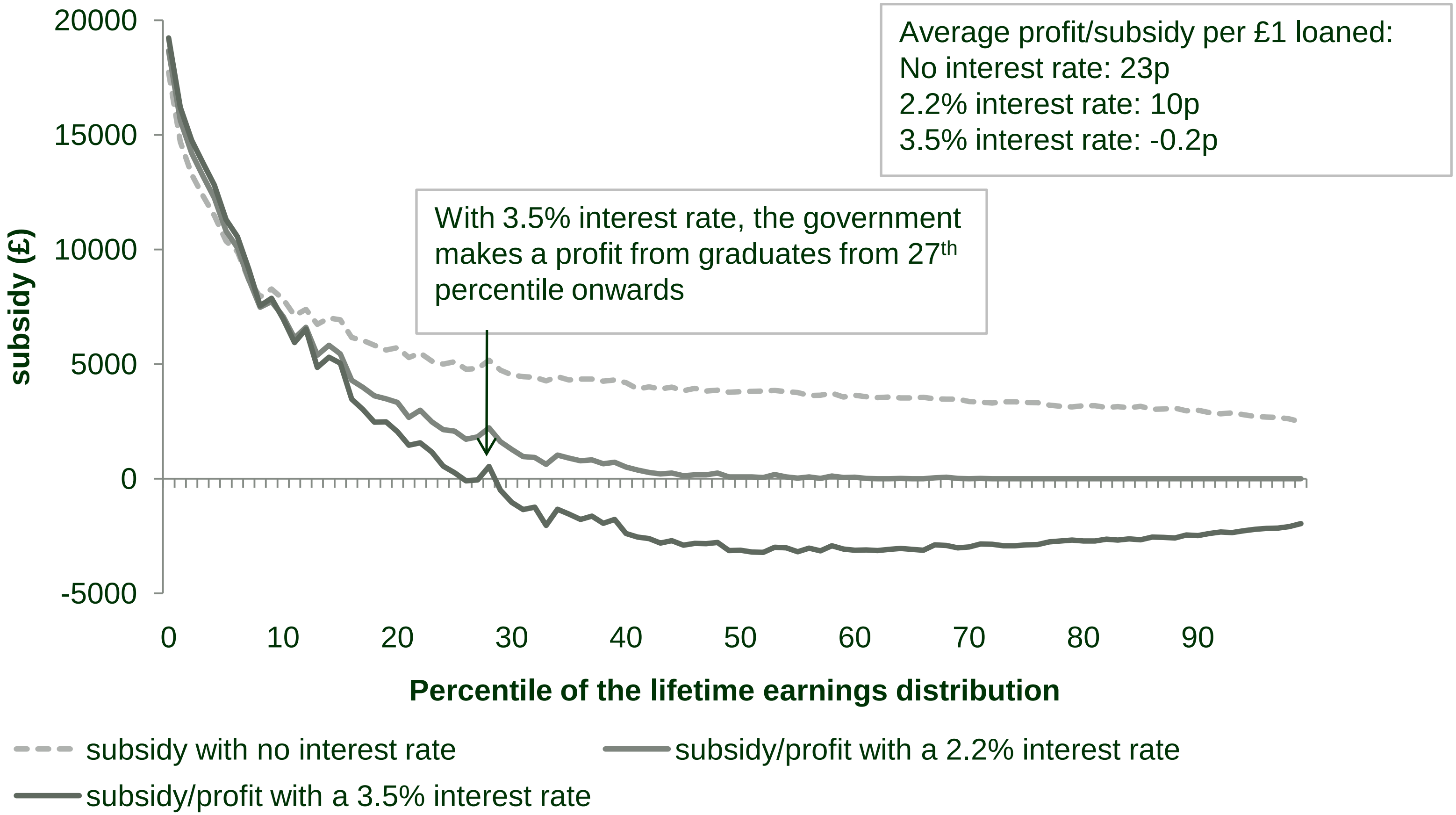
Increasing the interest rate to 3.5%



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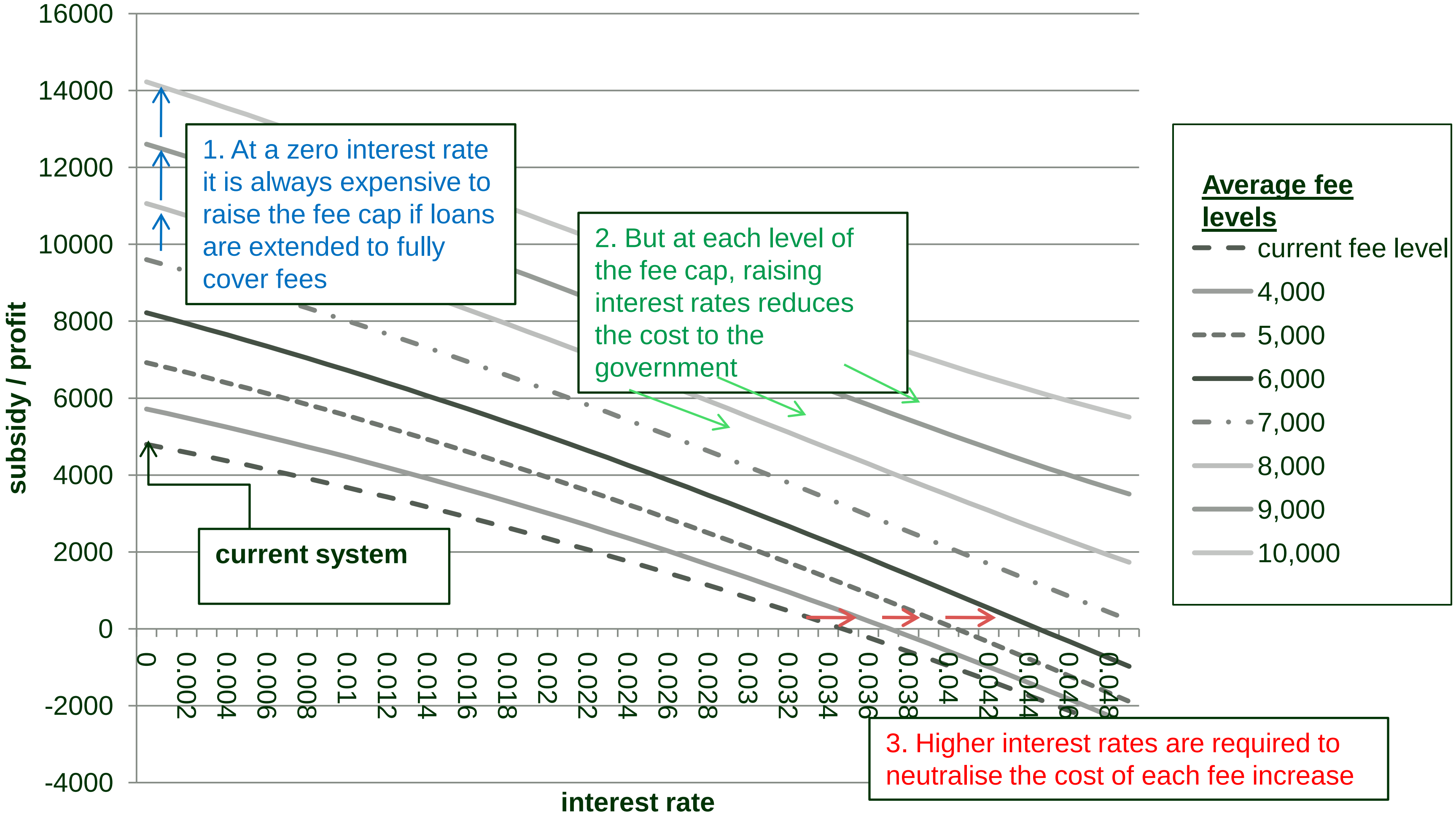
2. Increasing the fee cap

- Currently a £3,200 fee cap (in 2011 prices)
- The fee cap could be raised
- In the examples that follow, we assume the fee is £5,000 *on average*
    - This could be achieved if the fee cap was set to £5,000 and all universities charged it
    - This could also be achieved if the fee cap was set higher but some universities charged a lower fee
- Assuming loans were extended to fully cover fees, this would be expensive
- But charging an interest rate in combination with the fee increase could reduce costs

Different levels of interest rates and fees result in different costs



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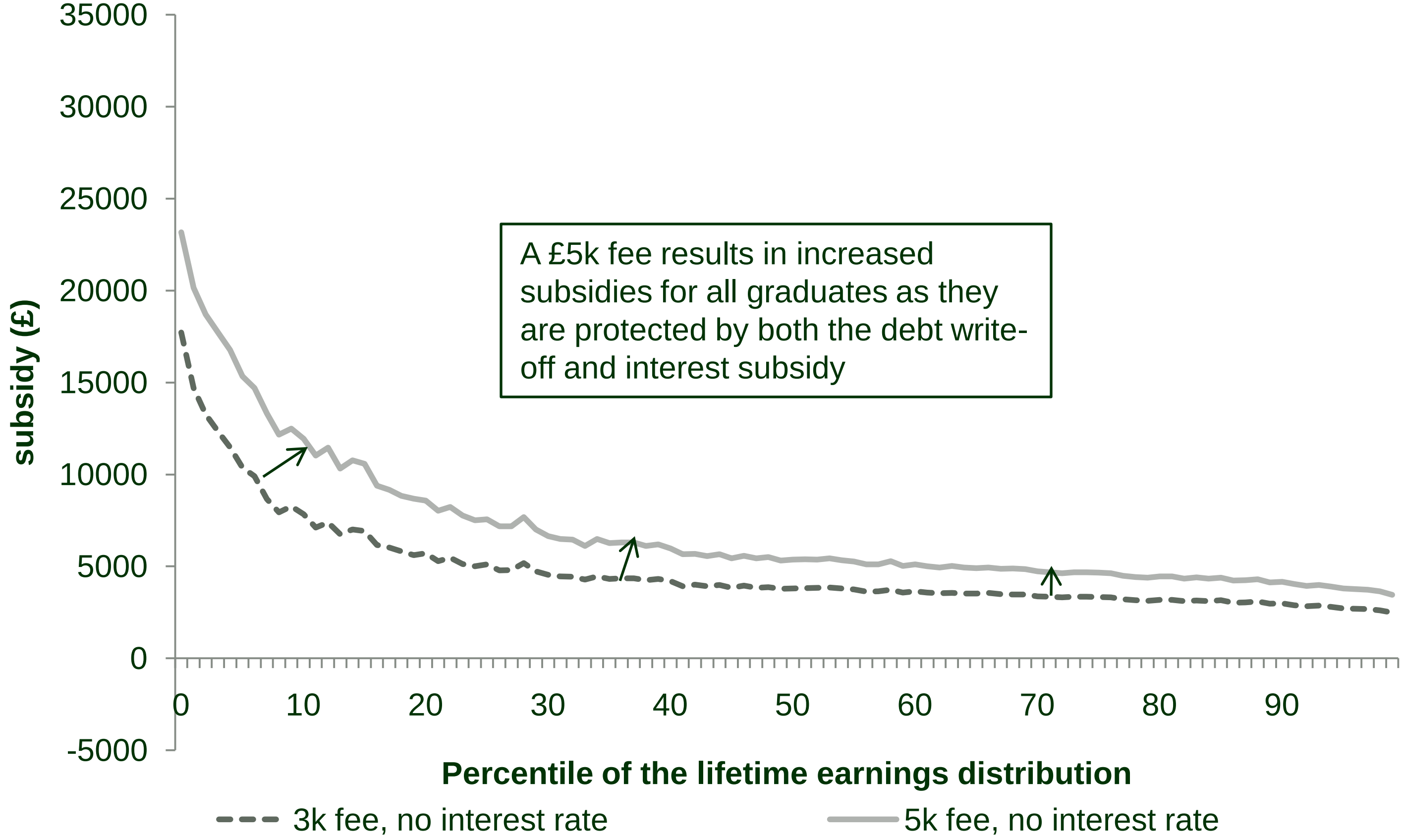
Distributional effects of increasing fees: 1. with no interest rate

Cost to the exchequer of raising fee cap to £5,000 under no interest rate: £2,100



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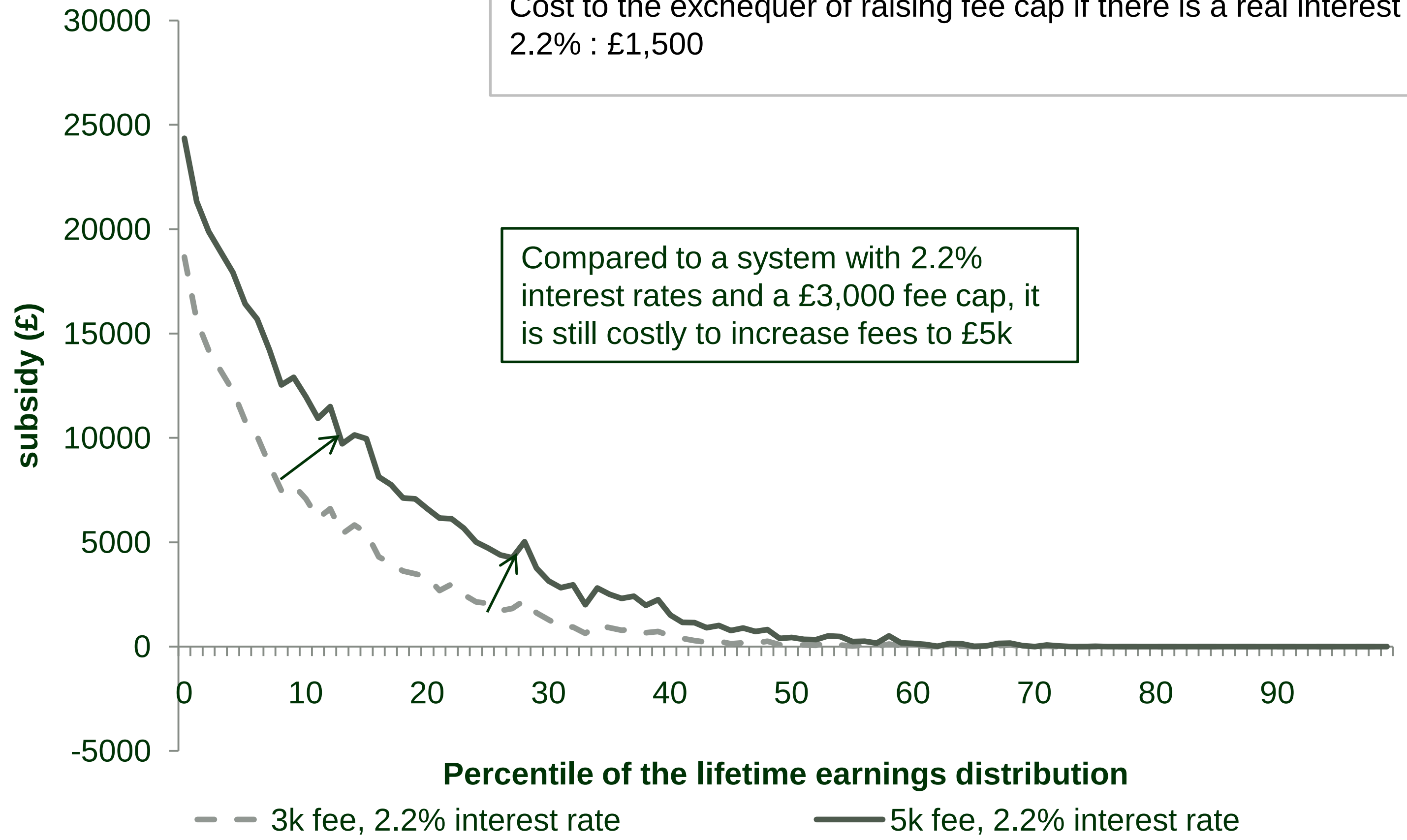
Raising fees with an interest rate is less costly

Cost to the exchequer of raising fee cap under no interest rate: £2,100

Cost to the exchequer of raising fee cap if there is a real interest rate of 2.2% : £1,500



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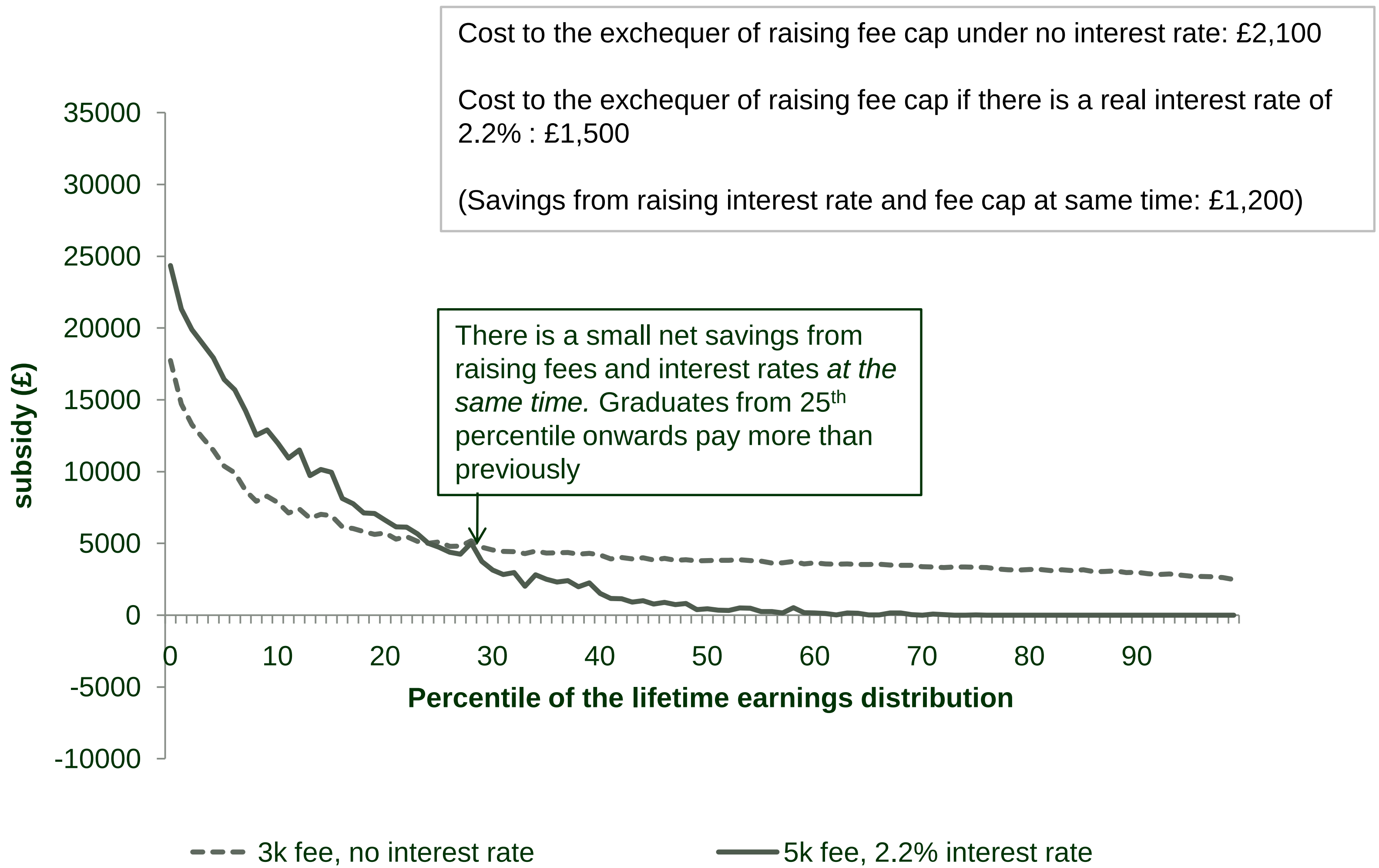
Raising fees and interest rates at the same time can save the government money



If the government wanted to reduce taxpayer subsidy without raising money, it should just raise interest rate

Government subsidy/profit

	0% interest rate	2.2% interest rate	3.5% interest rate
£3,200 fee	£4,800	£2,100	-£100
£5,000 fee	£6,900	£3,600	£1,100

This table shows that:

•Increasing the fee cap and extending loans to cover this without raising interest rates is always costly (the difference between each row)
•Increasing the interest rate without raising the fee cap always saves money (the difference between each column)

Behaviour change

- Charging an interest rate on loans will increase the cost of attending university for all but the very poorest graduates
- This may impact:
  - Repayment behaviour
  - Loan take-up
  - Participation
- Increasing the level of the fee cap will also increase the cost of university
- This may impact
  - Fee loan take-up
  - Participation
- Policy makers need to consider this

ALTERING OTHER PARAMETERS IN THE STUDENT LOAN SYSTEM

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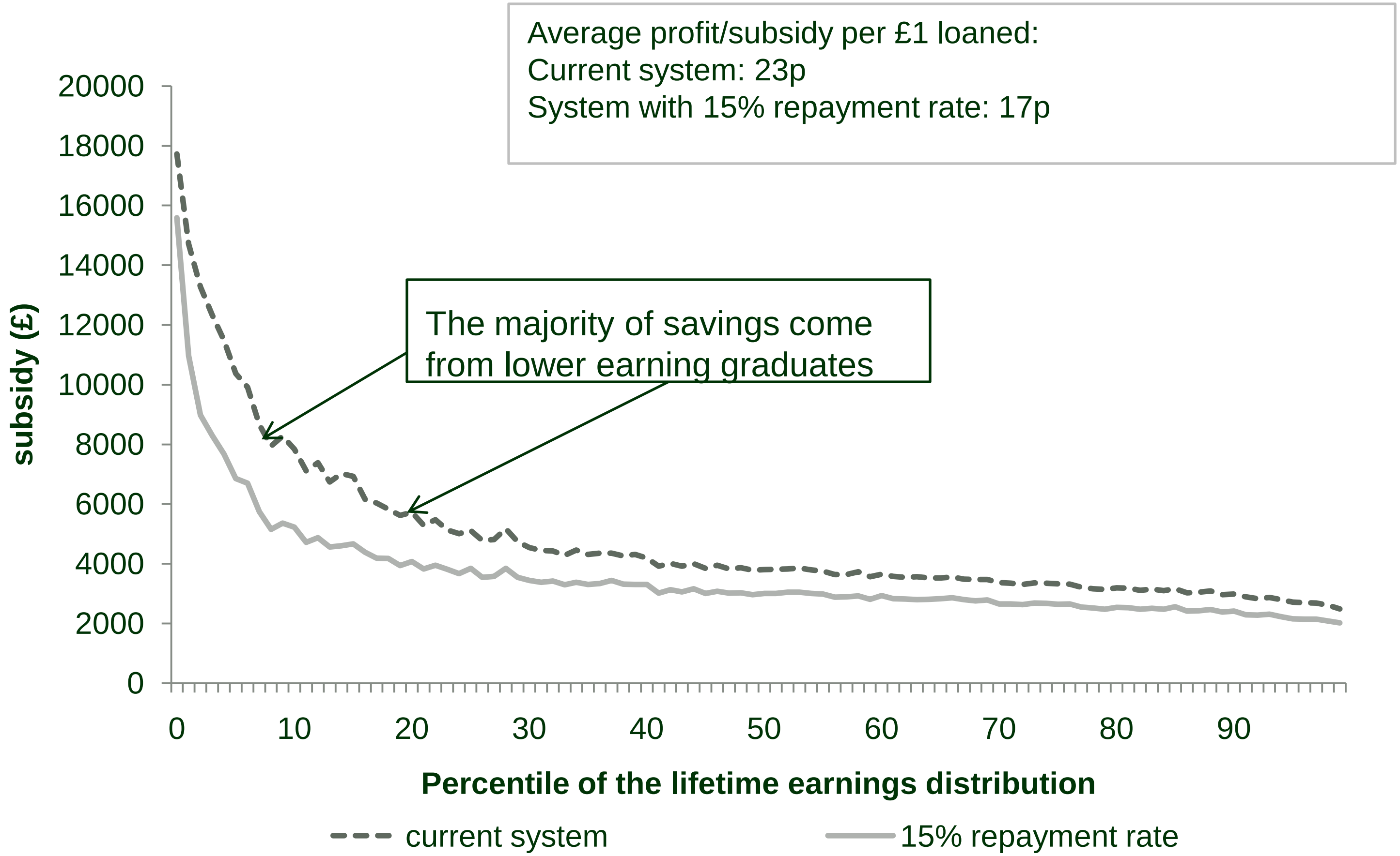
Increasing the repayment rate from 9% to 15% saves some money but on its own is regressive



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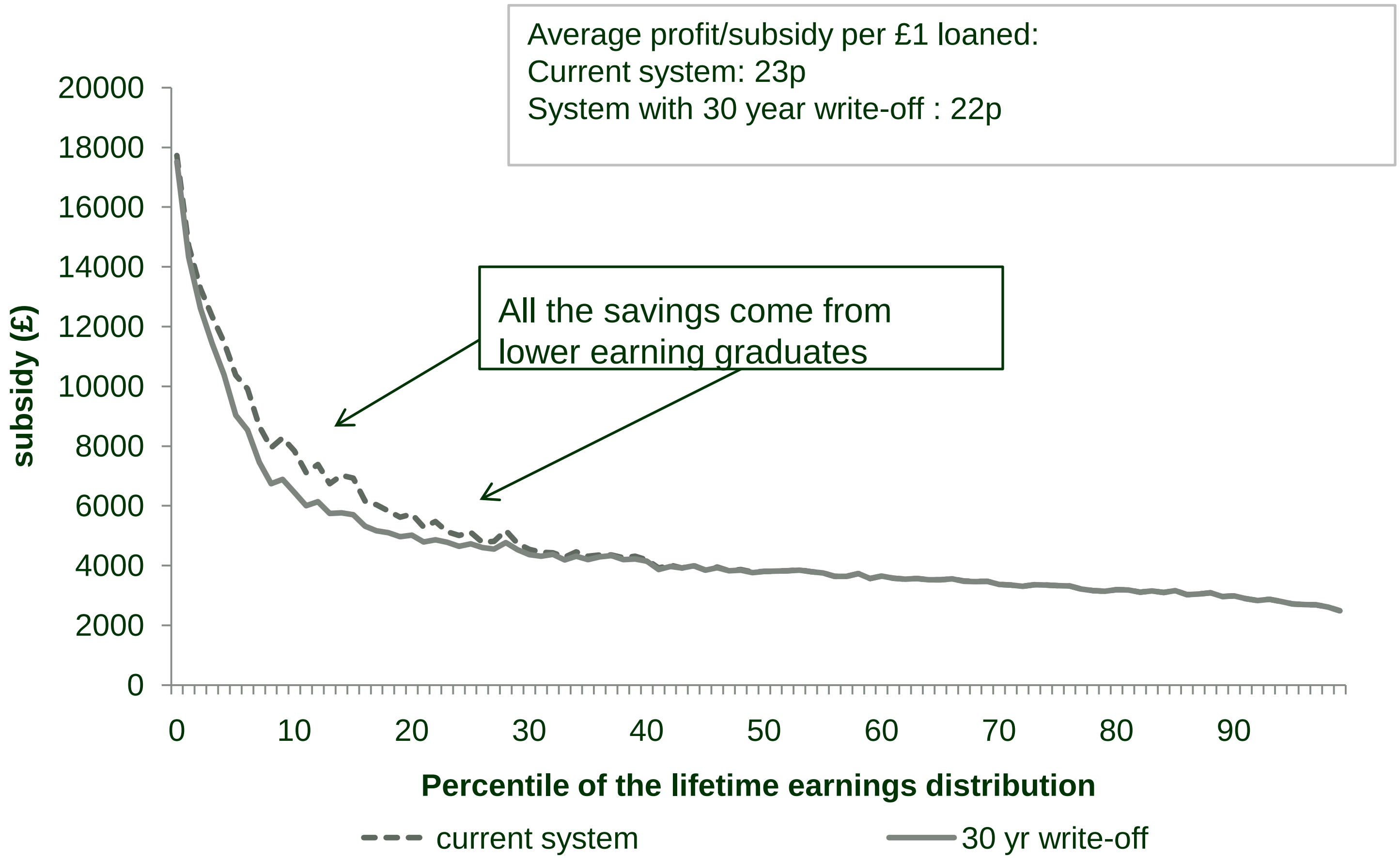
Increasing the write-off period to 30 years has a very small impact, and again is a regressive policy



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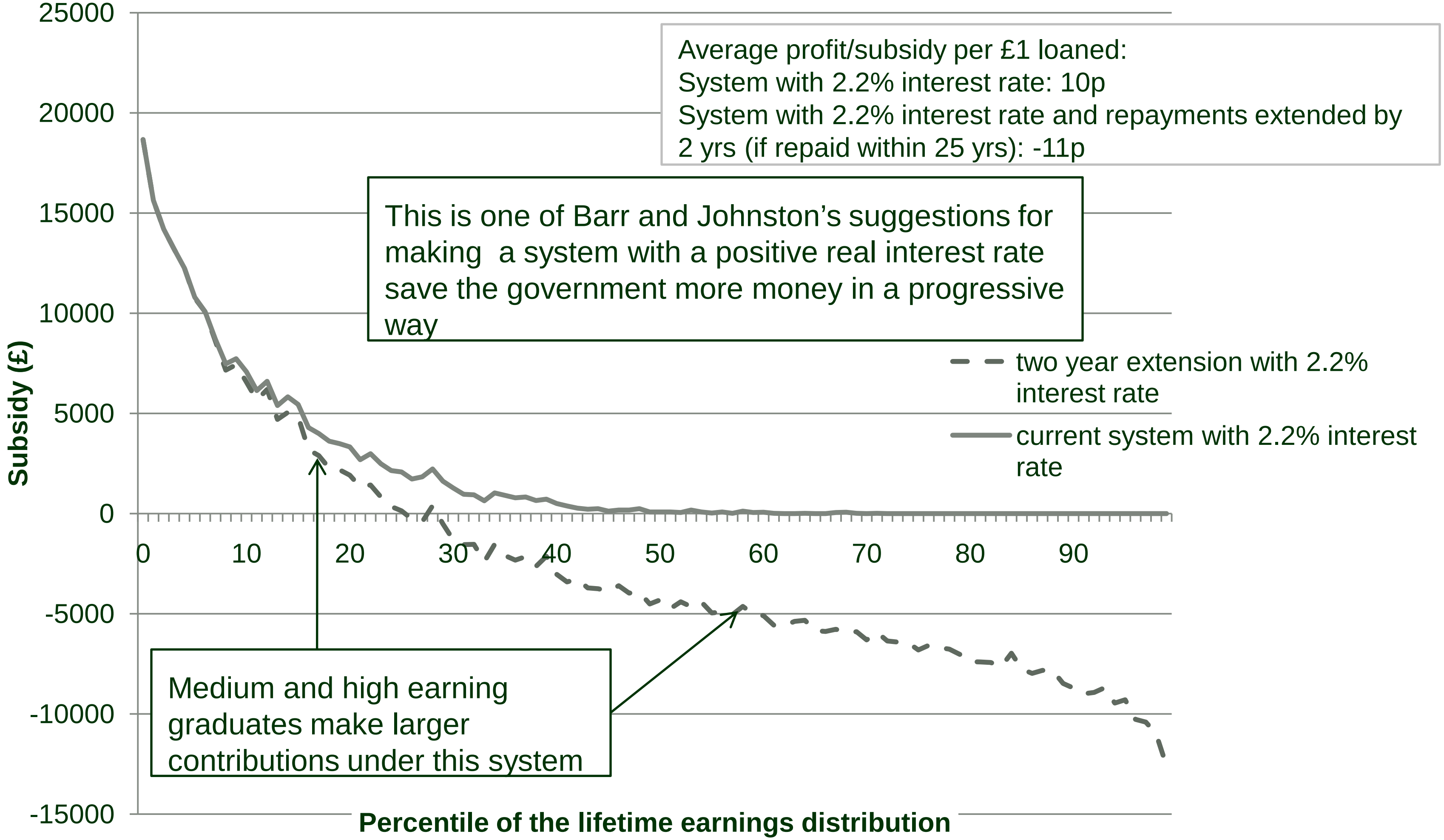
Extending the repayment period by 2 years for all graduates who repay before 25 years (with interest rate)



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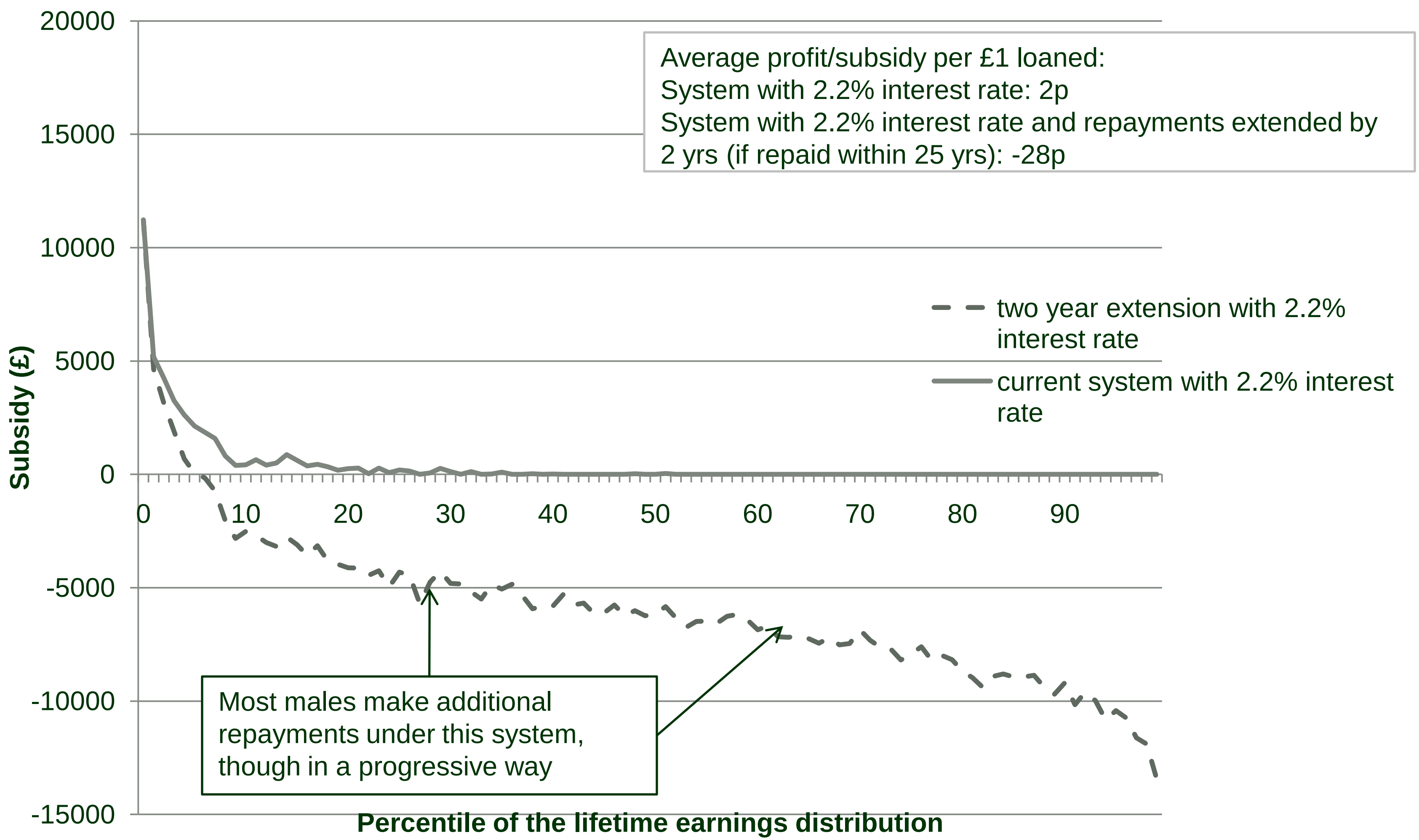
Extending the repayment period – males



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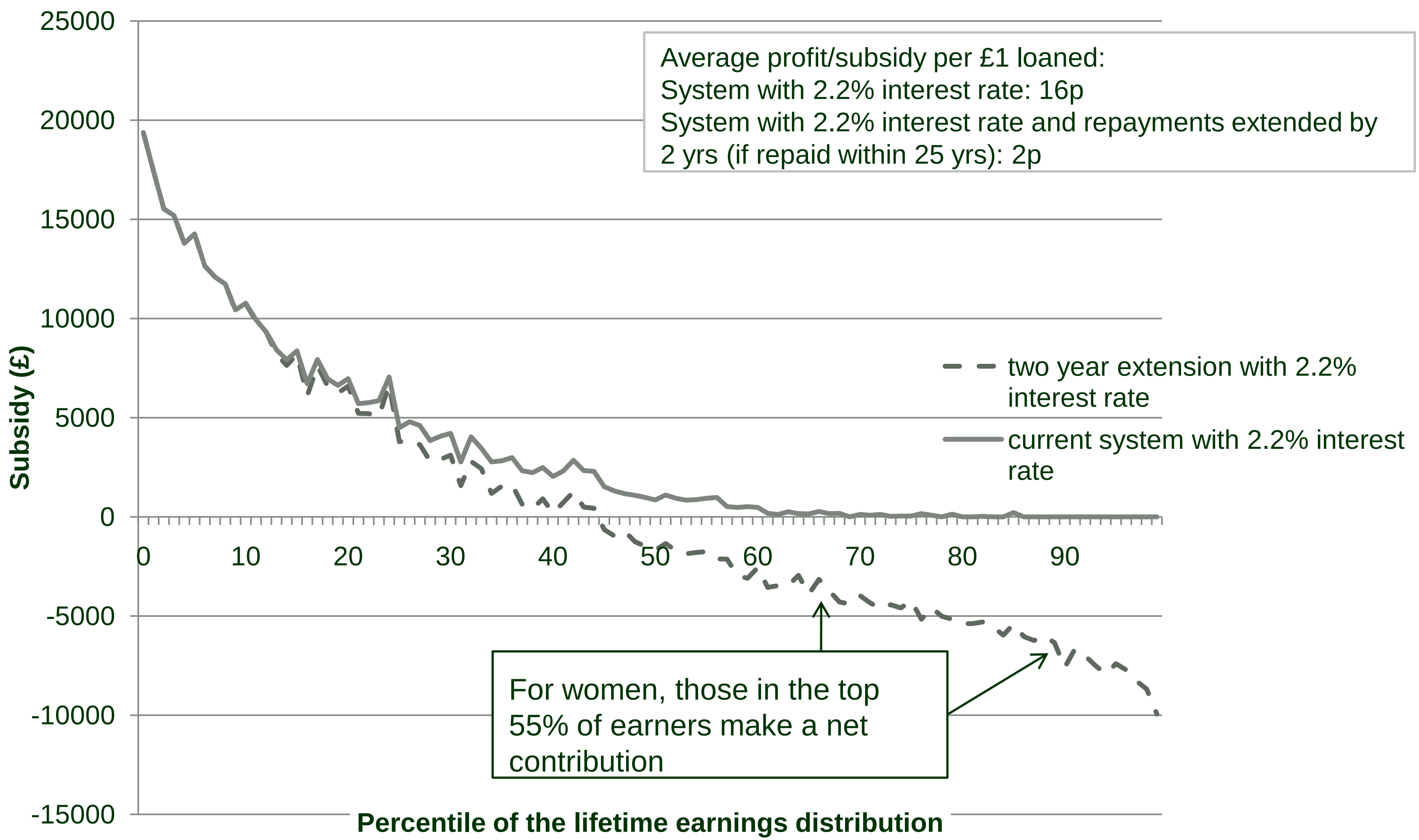
Extending the repayment period – females



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Altering other parameters in combination

- Combination of changes could generate an increase in fee revenues while simultaneously saving taxpayer money
- Our additional work for the Nuffield Foundation illustrates in some detail the various trade-offs involved in simultaneously changing:
  - Interest rates
  - Fees levels
  - Repayment rates
  - Debt write-off
  - Repayment thresholds

THE BALANCE BETWEEN PUBLIC AND PRIVATE CONTRIBUTIONS

Circular flows

- The following tables illustrate the flows of payments between the taxpayer, government, universities and students under the current system and some variations
- In each case these figures are expressed as *per year per student* figures rather than totals for 3 years
- Figures are constructed as follows:
  - Taxpayer – pays out HEFCE[1] money, maintenance grants, fee and maintenance loan subsidies
  - Student – receives maintenance grants and loans
  - Graduate – pays fee and maintenance loans (less loan subsidies)
  - University – receives HEFCE and tuition fee money[2]

[1]HEFCE teaching grant (source HEFCE grant letter 2010)

[2] Bursaries not included

Circular Flows – adding an interest rate of 2.2%

	Current System	2.2% interest rate	Net Change
Taxpayer	-£7,400	-£6,500	£900
Student	£5,000	£5,000	0
Graduate	-£5,400	-£6,300	-£900
University	£7,800	£7,800	0
Sum	0	0	0

This table shows that increasing interest rate to 2.2%:
- *saves* the taxpayer £900 *per student per year* (from reducing the loan subsidy)
- *costs* graduates £900 *per student per year* (from increased loan repayments)
- does not affect student or university costs / income

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Circular Flows – increasing average fee level to £5000

	Current System	£5k average fee	Net Change
Taxpayer	-£7,400	-£8,100	-£700
Student	£5,000	£5,000	0
Graduate	-£5,400	-£6,500	-£1,100
University	£7,800	£9,600	£1,800
Sum	0	0	0

This table shows that raising the average fee to £5,000
- *costs* the taxpayer £700 per student per year (from increasing the loan subsidy)
- *costs* graduates £1,100 per student per year (from increased loan repayments)
- *benefits* universities by £1,800 per student per year (from additional fee income)
- does not affect student costs / income

Circular Flows – increasing average fee level to £5000 and increasing interest rates to 2.2%

	Current System	£5k average fee + 2.2% i.r	Net Change
Taxpayer	-£7,400	-£7,000	£400
Student	£5,000	£5,000	£0
Graduate	-£5,400	-£7,600	-£2,200
University	£7,800	£9,600	£1,800
Sum	0	0	0

This table shows that raising the average fee to £5,000 and increasing interest rates to 2.2%:
- saves the taxpayer £400 per student per year (from reducing the loan subsidy)
- *costs* graduates £2,200 per student per year (from increased loan repayments)
- *benefits* universities by £1,800 per student per year (from additional fee income)
- does not affect student costs / income

CONCLUSIONS

Conclusions

- Charging interest on loans
  - Saves money for taxpayer
  - Not fully progressive
  - Adverse selection issues not discussed here but may be important at higher levels of interest rates
- Raising the fee cap
  - Costs money for taxpayer if loans are extended to match
  - Lower cost with higher interest rate
  - May affect participation
- Combinations of both changes – plus others- could be used to simultaneously raise fee revenue and lower taxpayer burden,
  - This would always be by generating more private contributions from graduates