

Institute for  
Fiscal Studies

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

A project for Universities UK

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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

# 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
- The government's own

# 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<sup>1</sup>
  - 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)<sup>2</sup>
- 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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<sup>1</sup> Source: Student Loans Company Statistical First Release 06/2009, table 4

<sup>2</sup> 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
    - Long-term average earnings growth at 2% per year
  - Optimistic:
    - 4.5% fall in earnings over 2007-2010 relative to trend
    - Long-term average earnings growth at 2.25% per year
  - Pessimistic
    - 10% fall in earnings over 2007-2010 relative to trend
    - Long-term average earnings growth at 1.75% per year
- 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<sup>1</sup>

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

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

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

<sup>5</sup> 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 minus - total loaned to each student total repaid (in NPV terms)

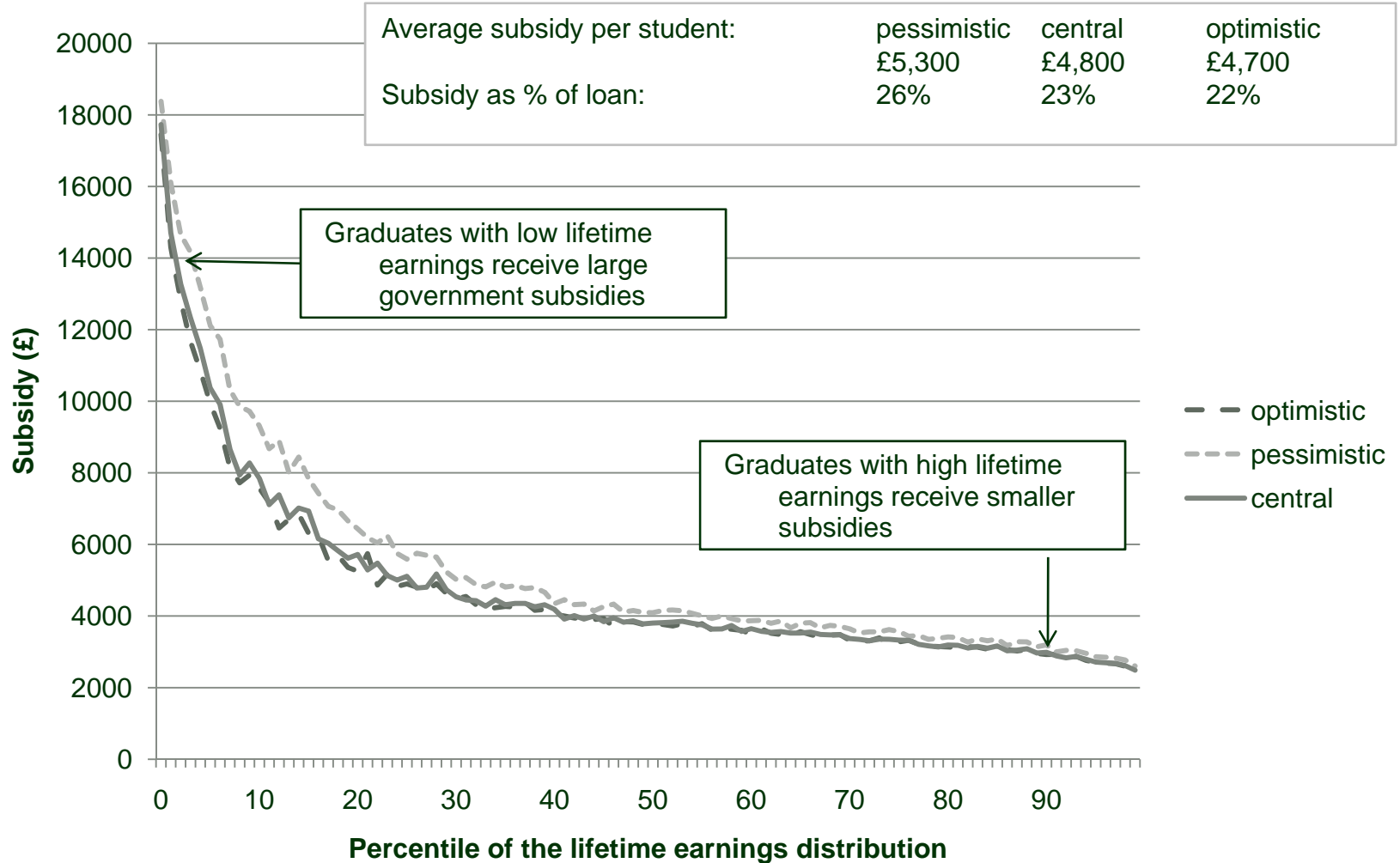
Years to repay loan - total number of years graduate repays loan for (maximum 25)

# The current system: net present value of repayments

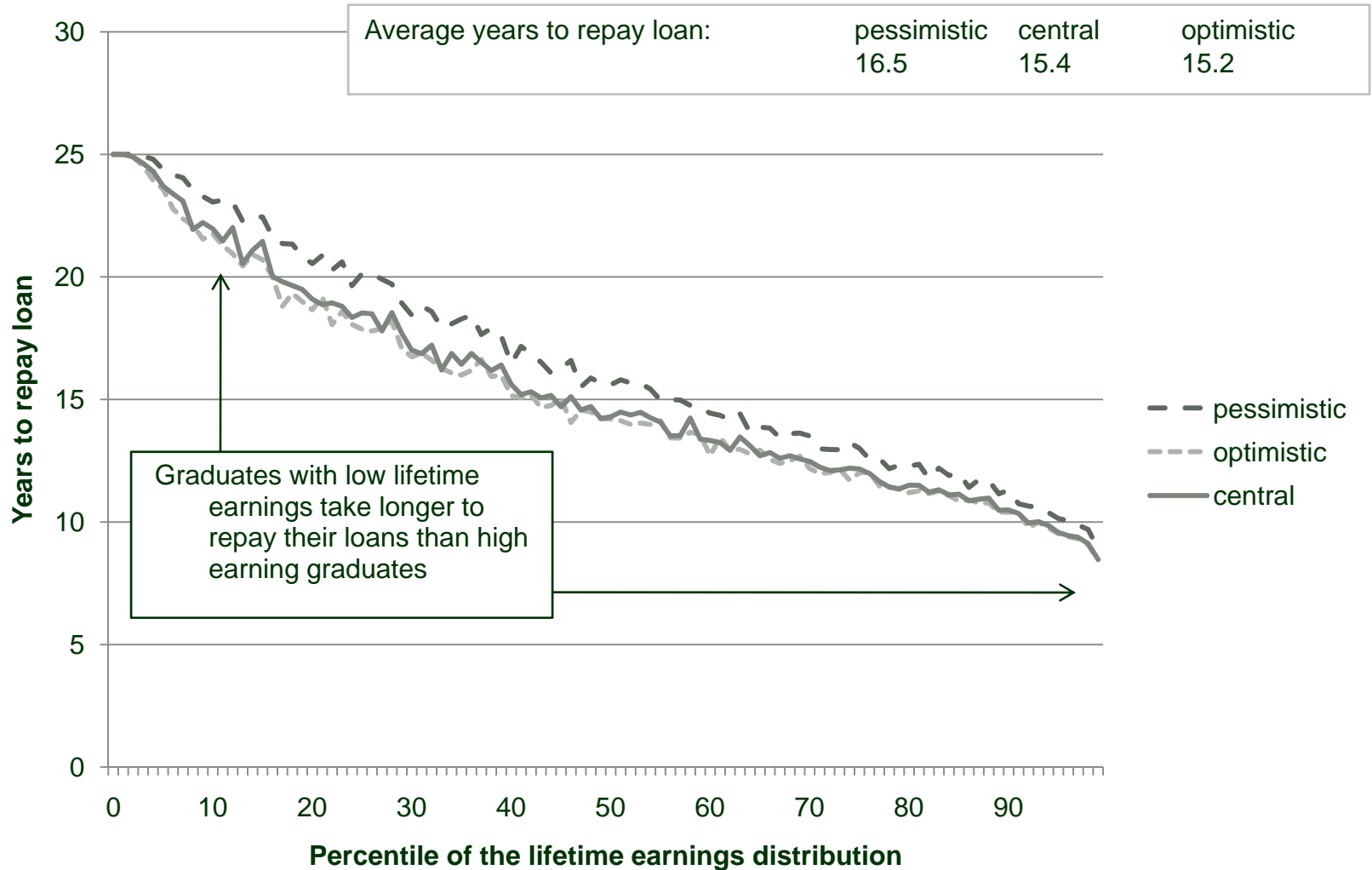
Average repayment per student:	pessimistic	central	optimistic
	£15,600	£16,100	£16,200
Repayment as % of loan:	74%	77%	78%



# The current system: Government subsidy



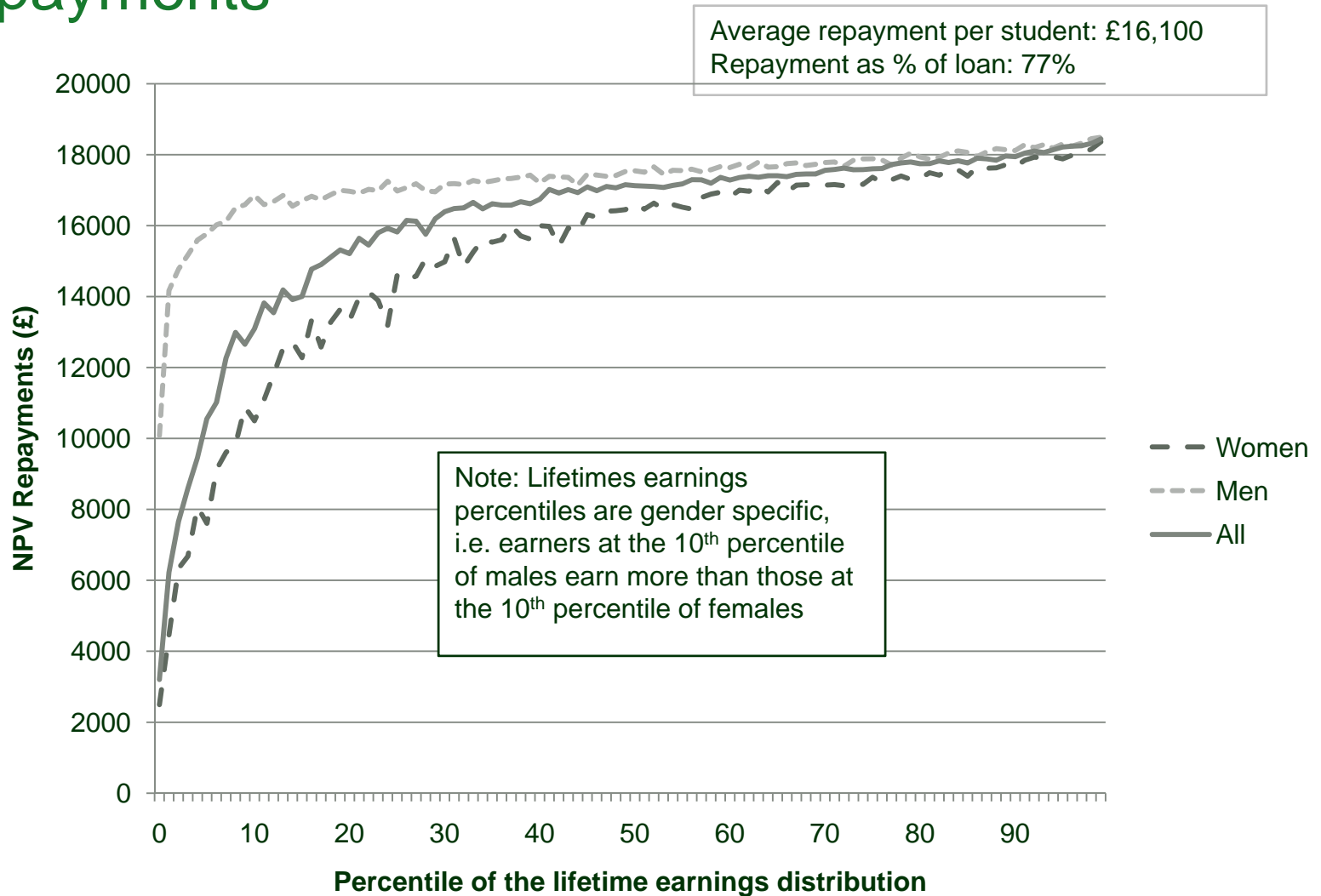
# The current system: Years to repay loan



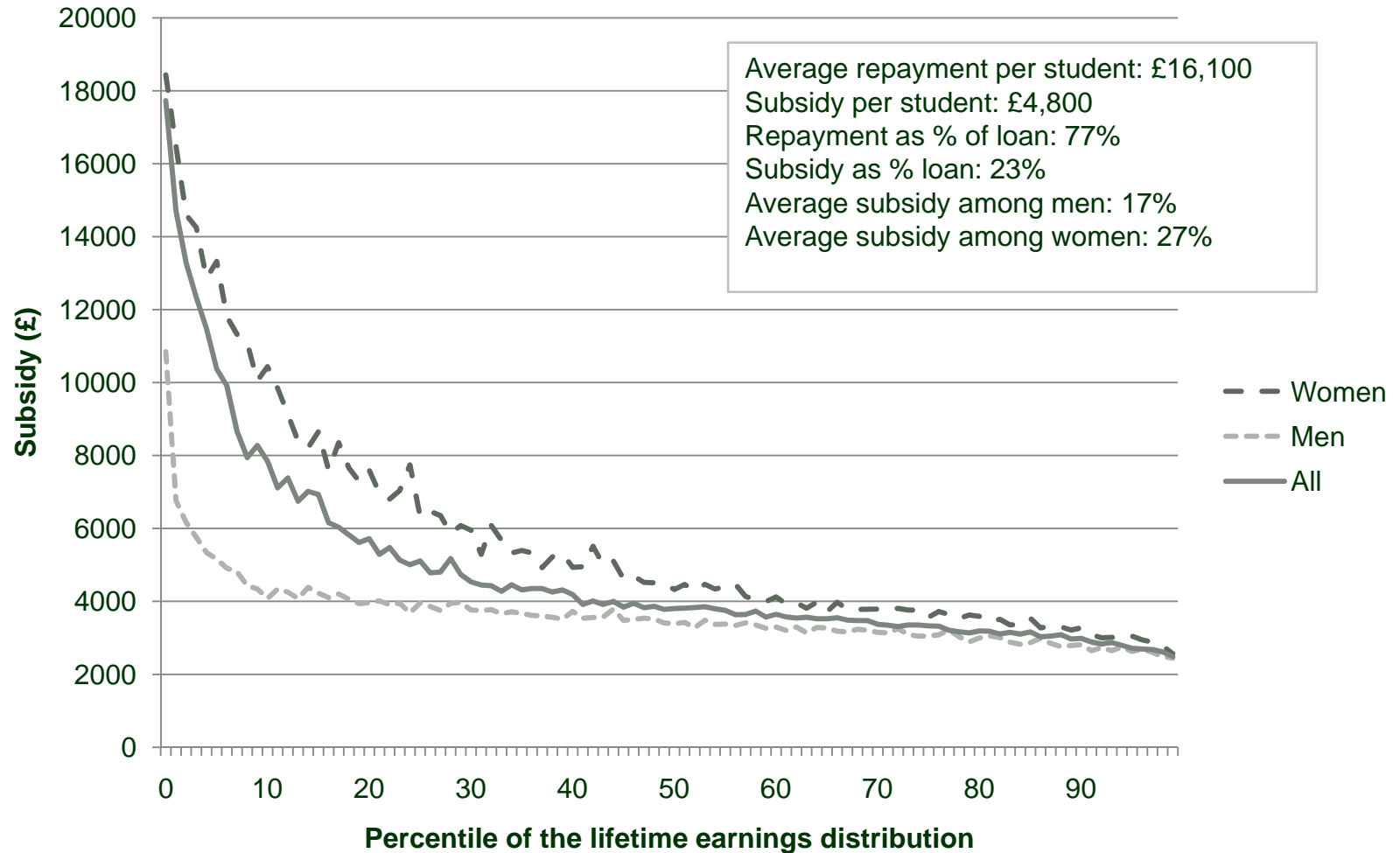
# The current system: central scenario

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

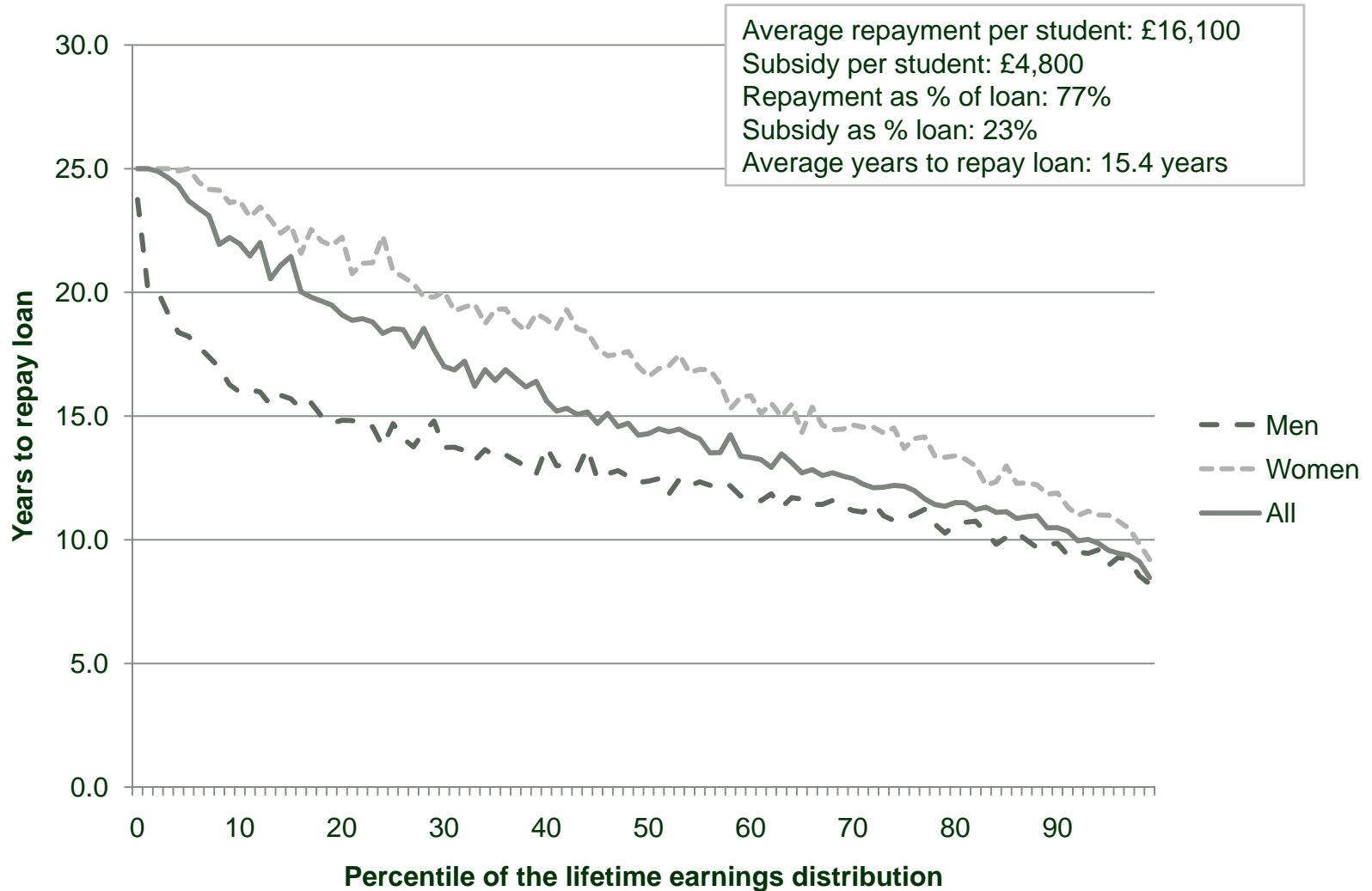
# The current system: net present value of repayments



# The current system: Government subsidy



# The current system: Years to repay loan



# POLICY SCENARIOS

# Scenarios

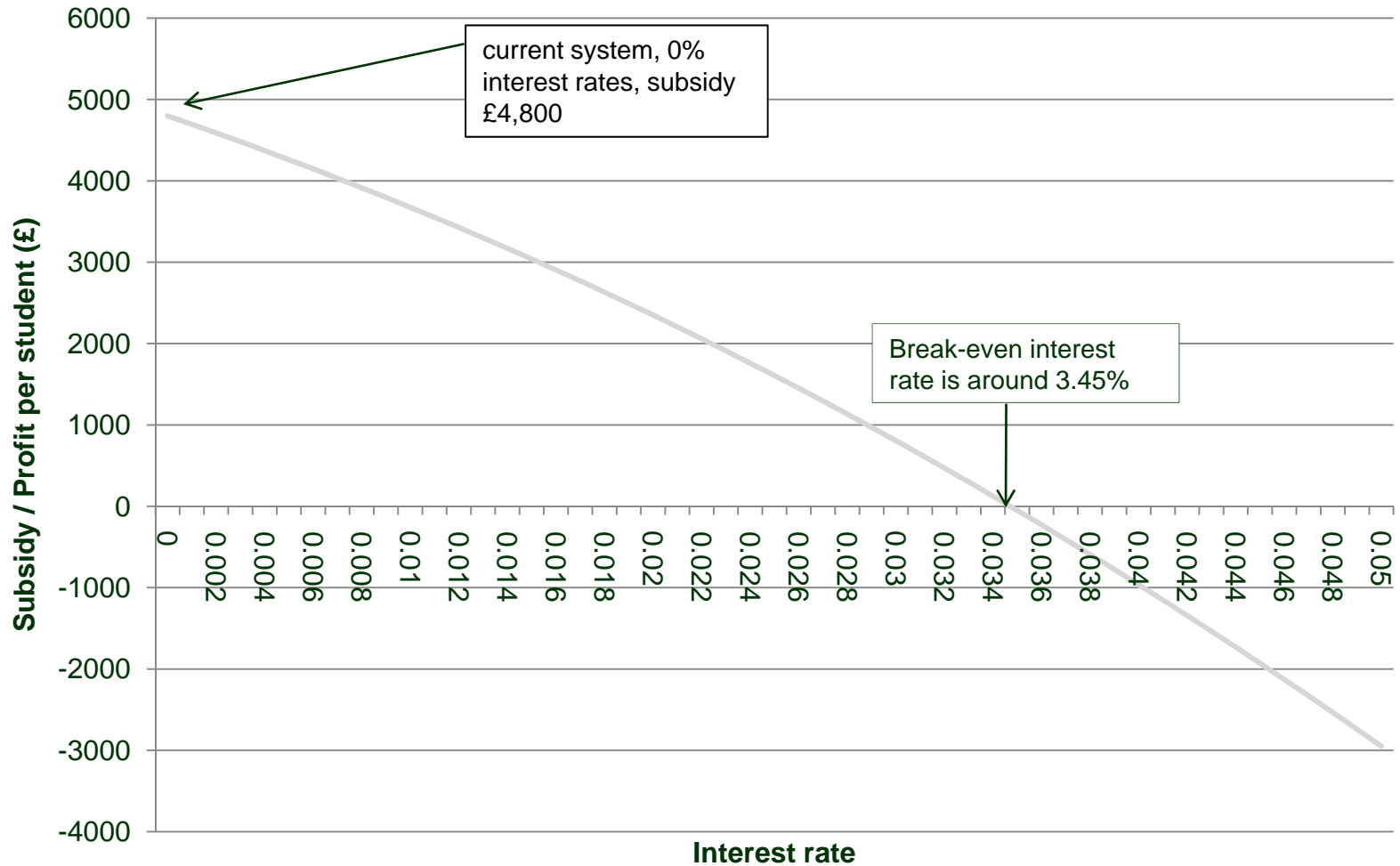
We have looked at some widely debated scenarios:

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

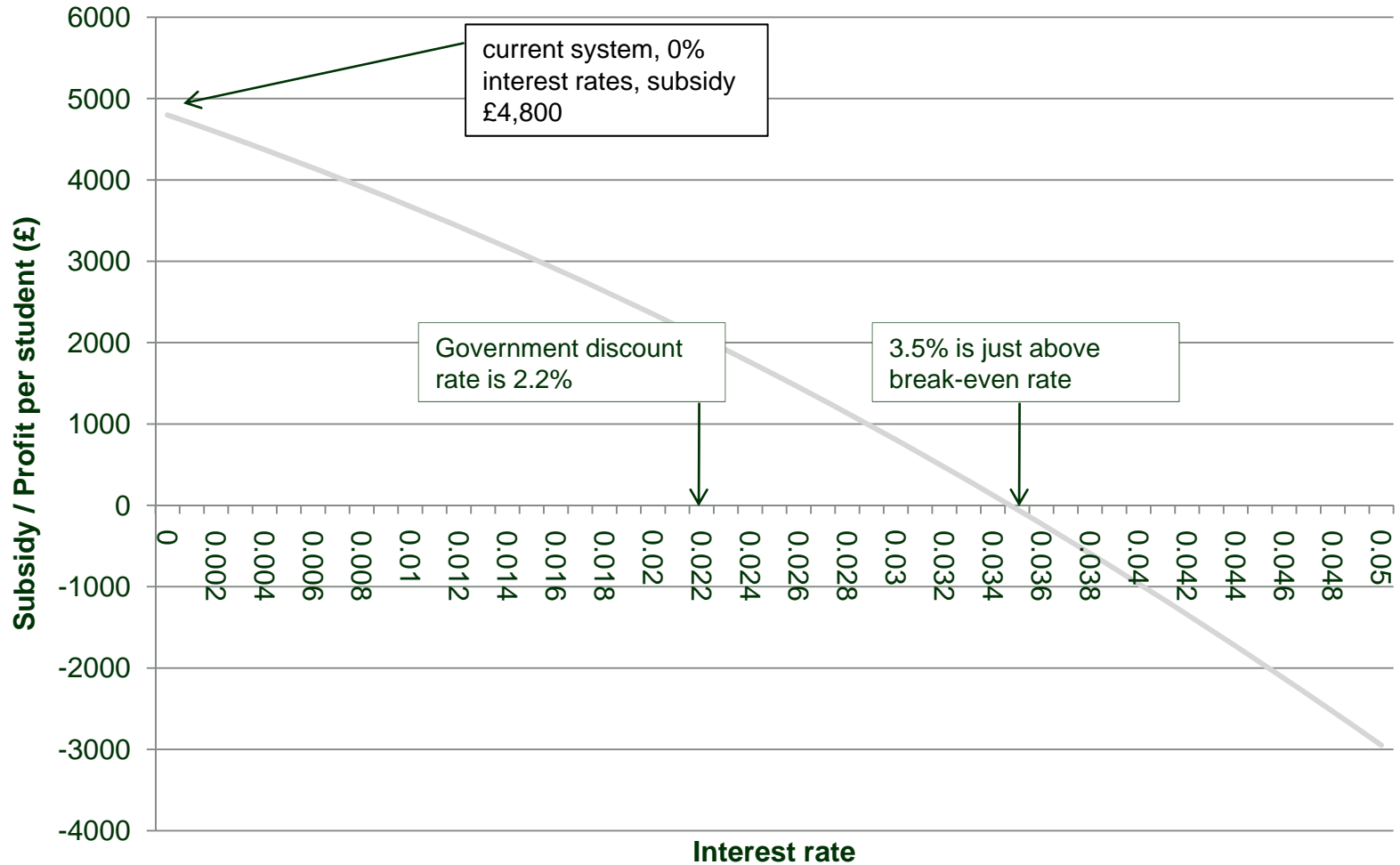
# 1. Charging a real interest rate on loans

- 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%)

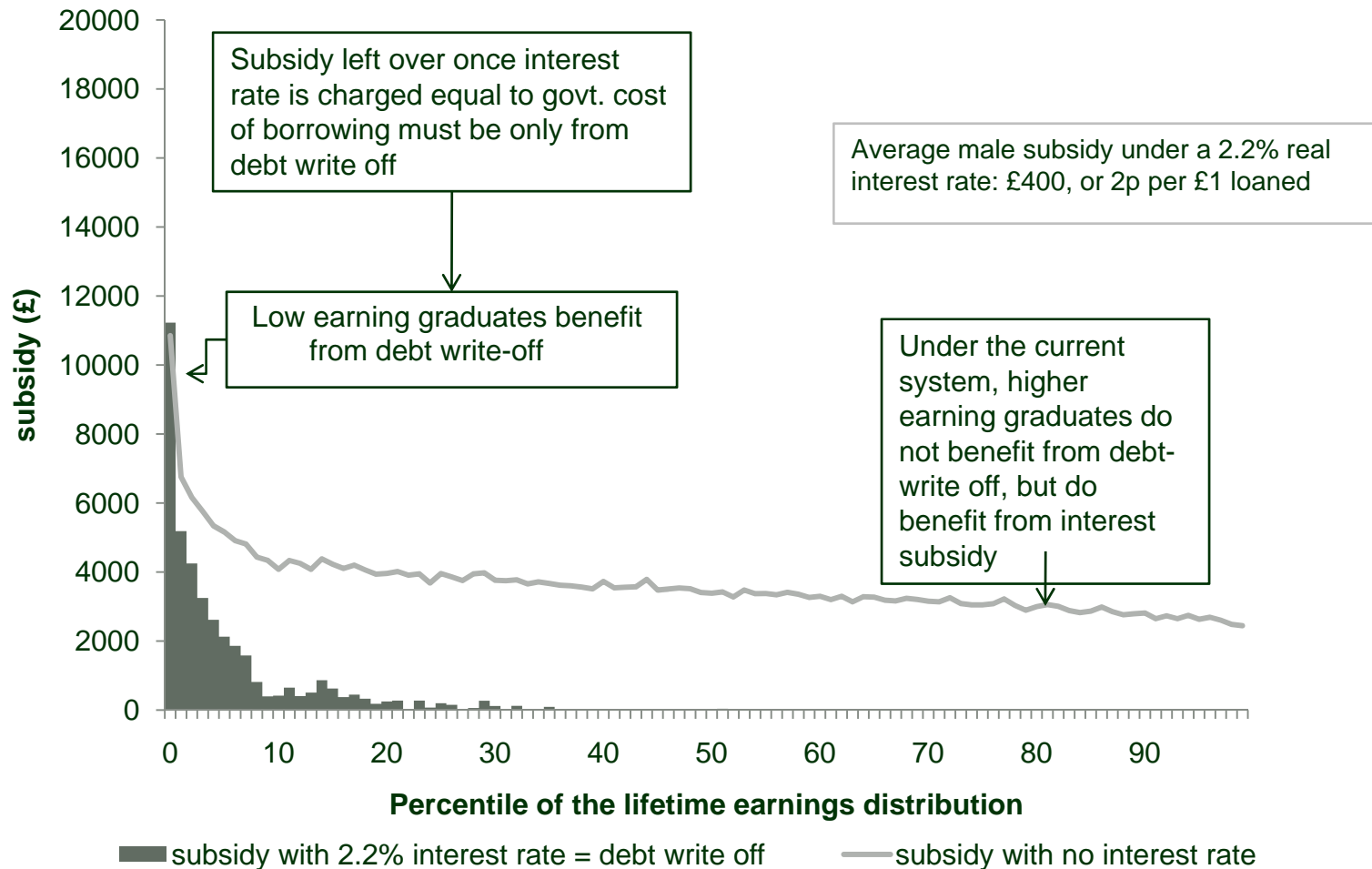
# As interest rates increase, the government subsidy falls



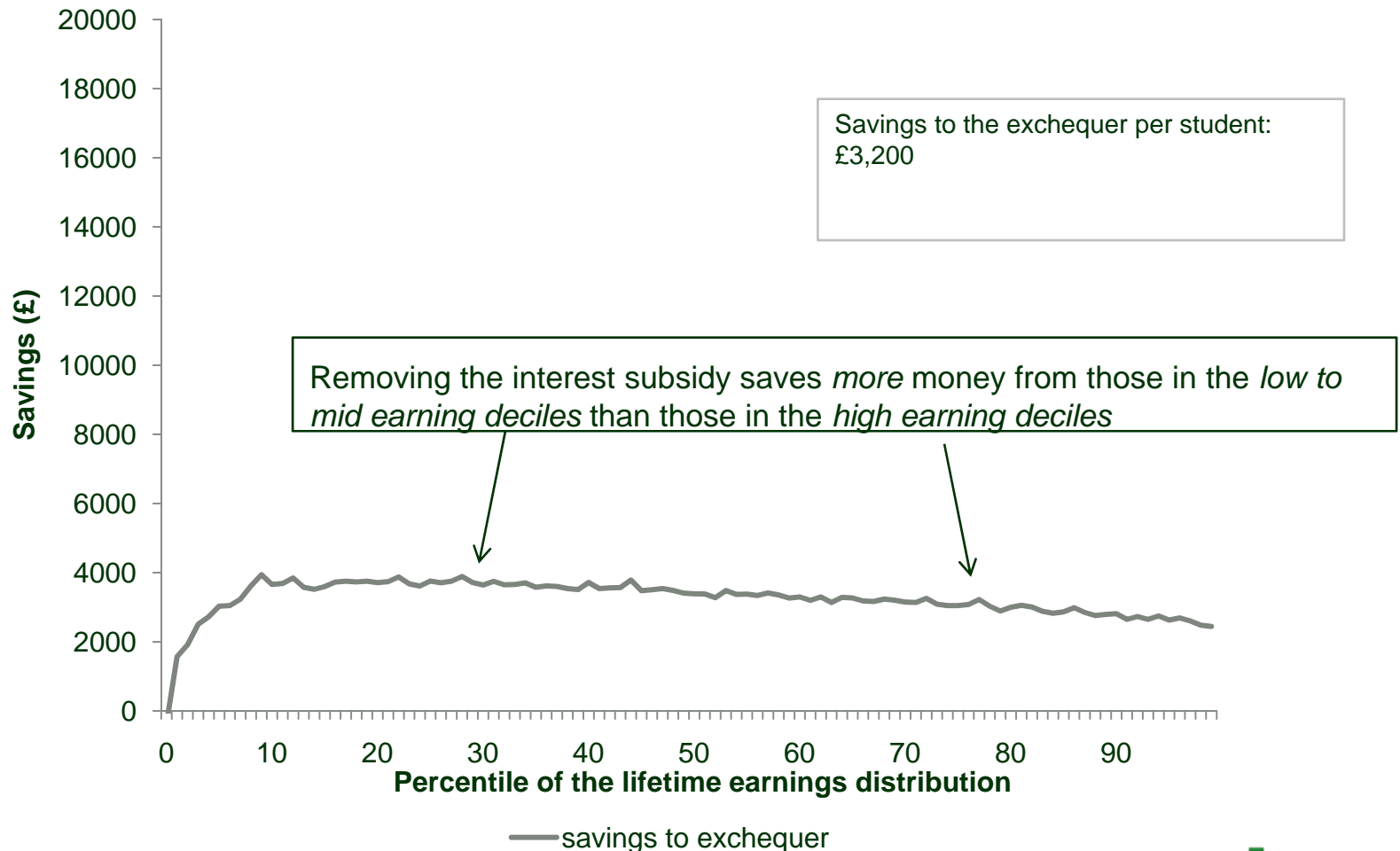
# As interest rates increase, the government subsidy falls



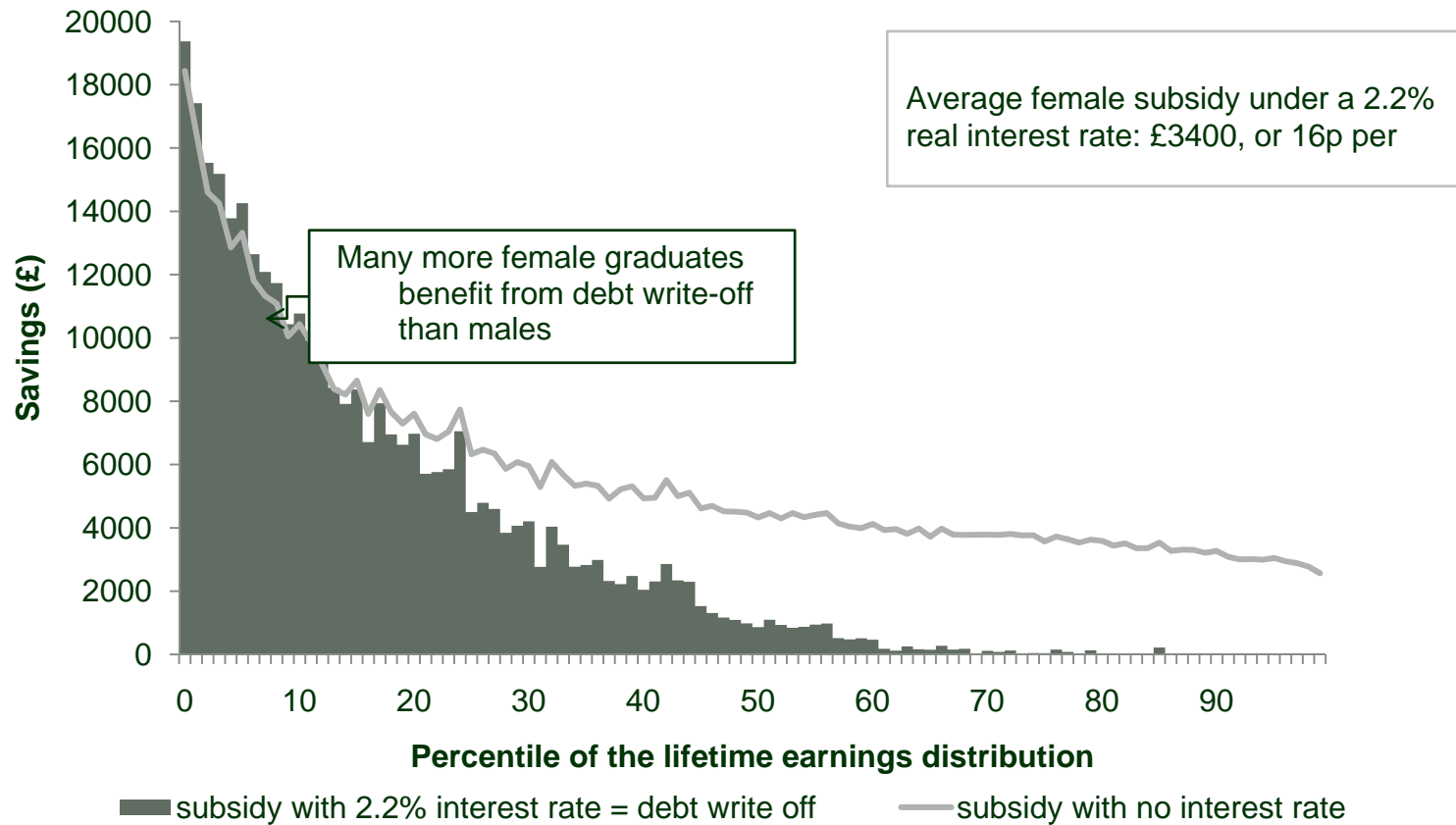
# Charging a 2.2% real interest rate: men lose most of their subsidy



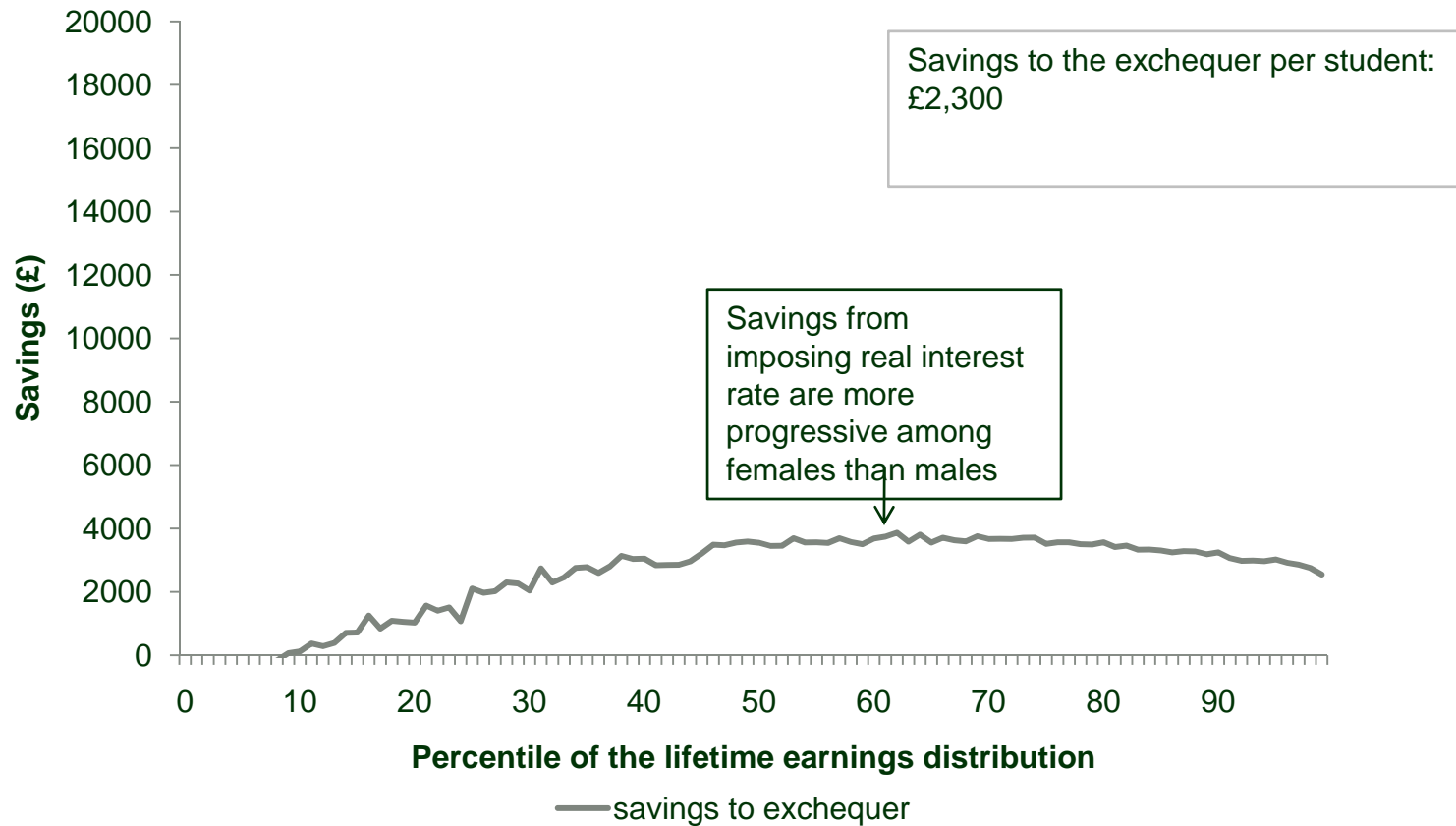
# Men: raising interest rate to 2.2%, with no behavioural change results in significant saving



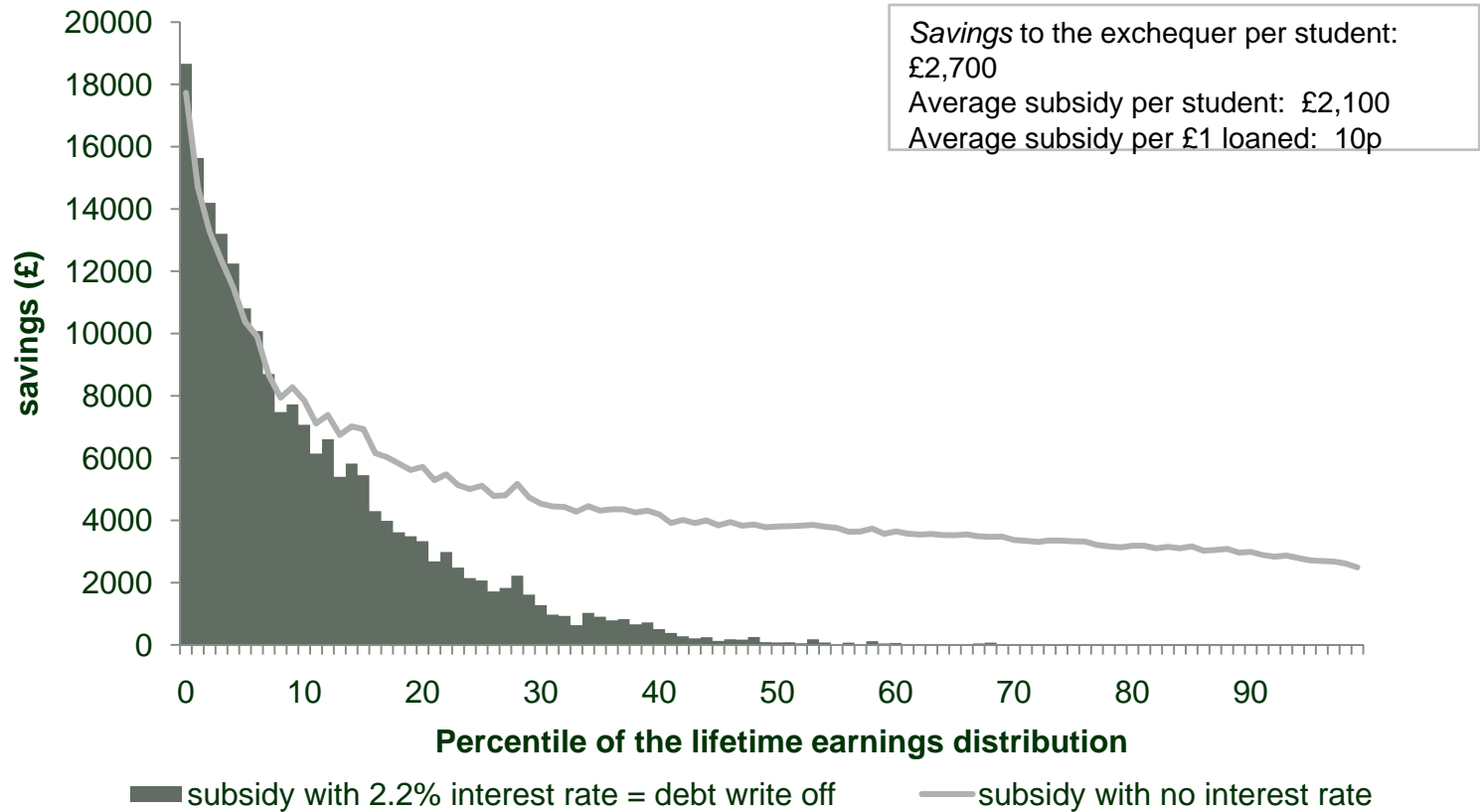
# Charging a 2.2% real interest rate: women remain heavily subsidised by debt write-off



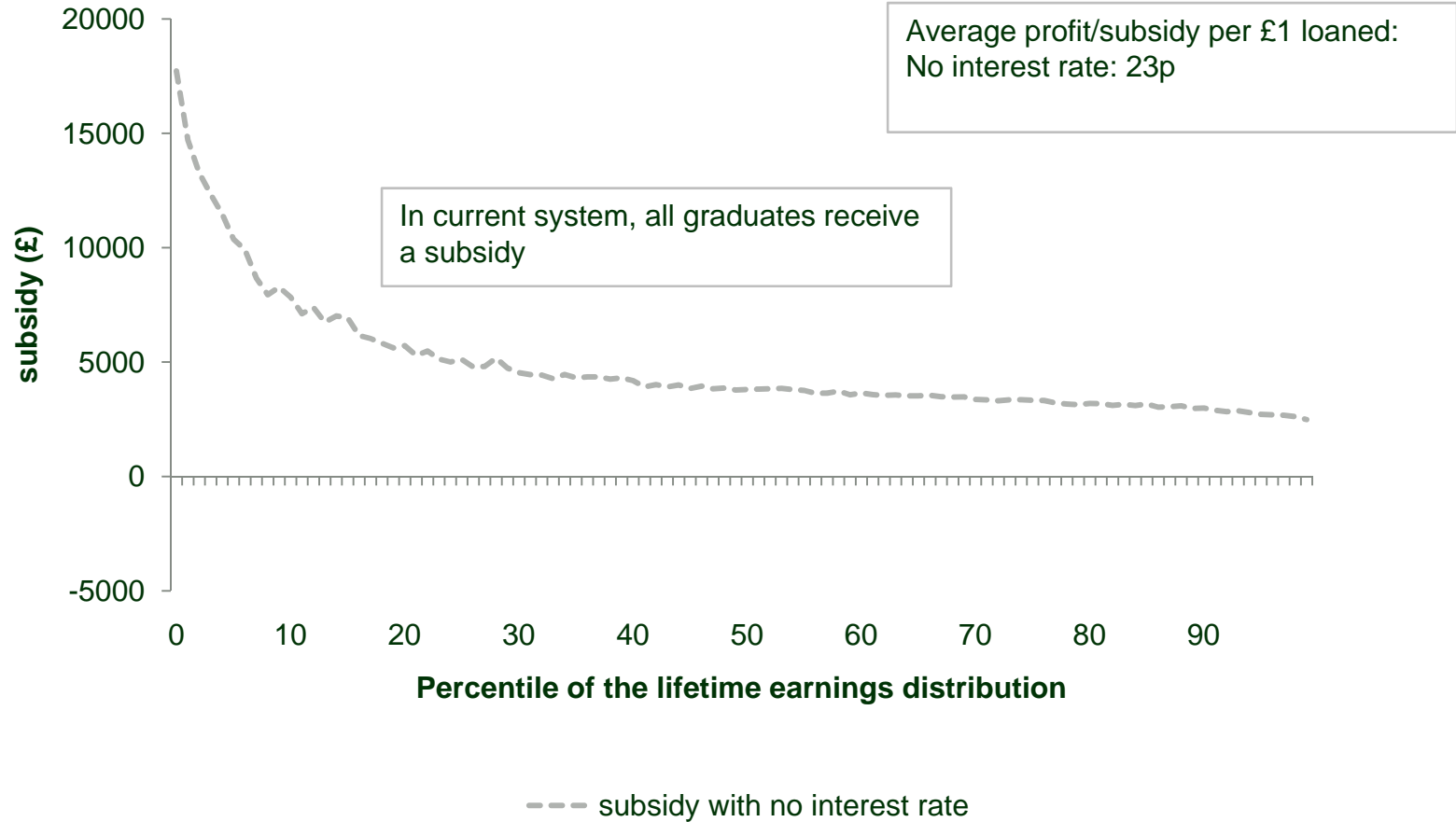
# Raising interest rate to 2.2%, with no behavioural change results in a smaller but significant saving



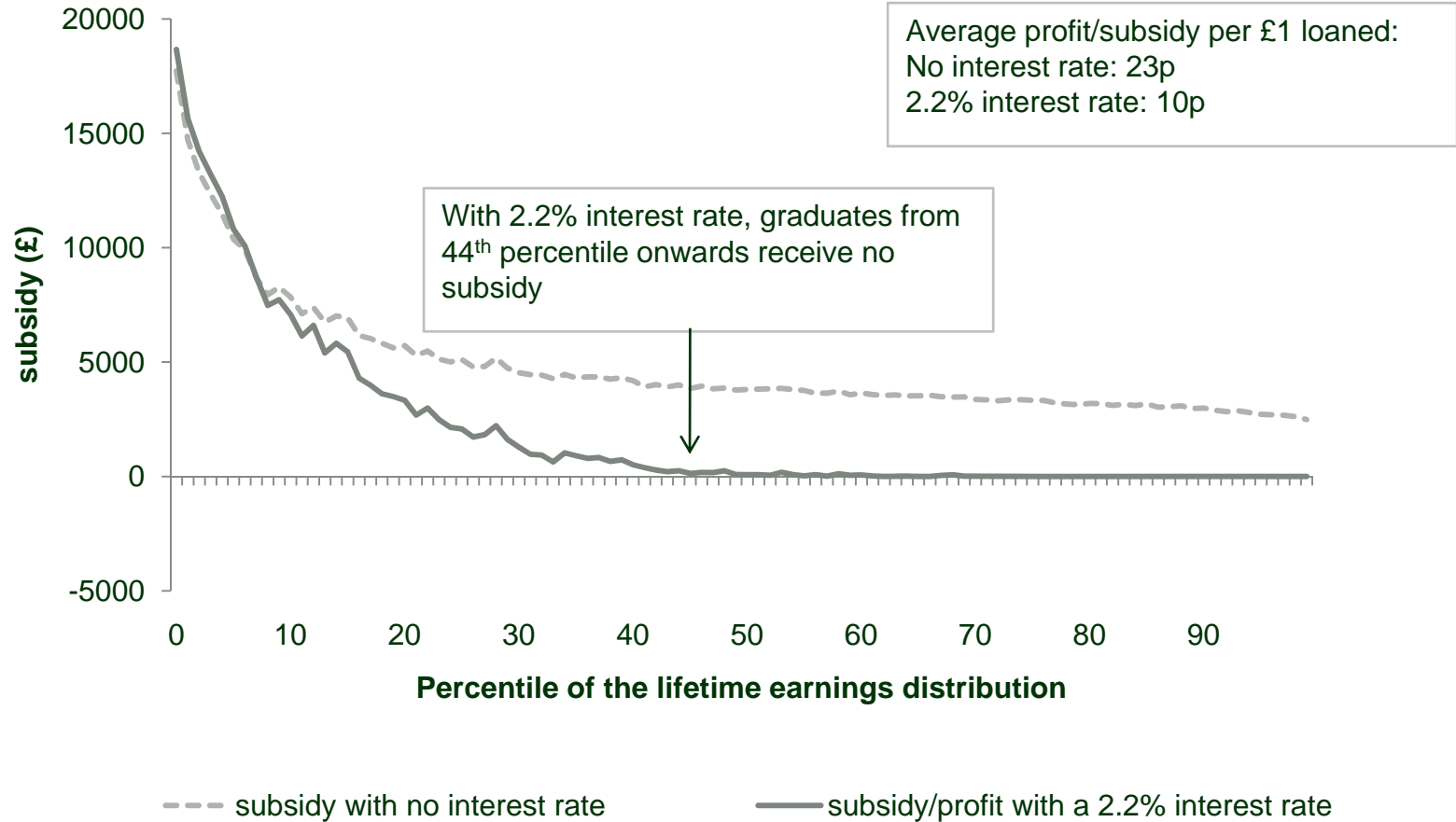
# Interest rate 2.2%: All



# Increasing the interest rate to 3.5%



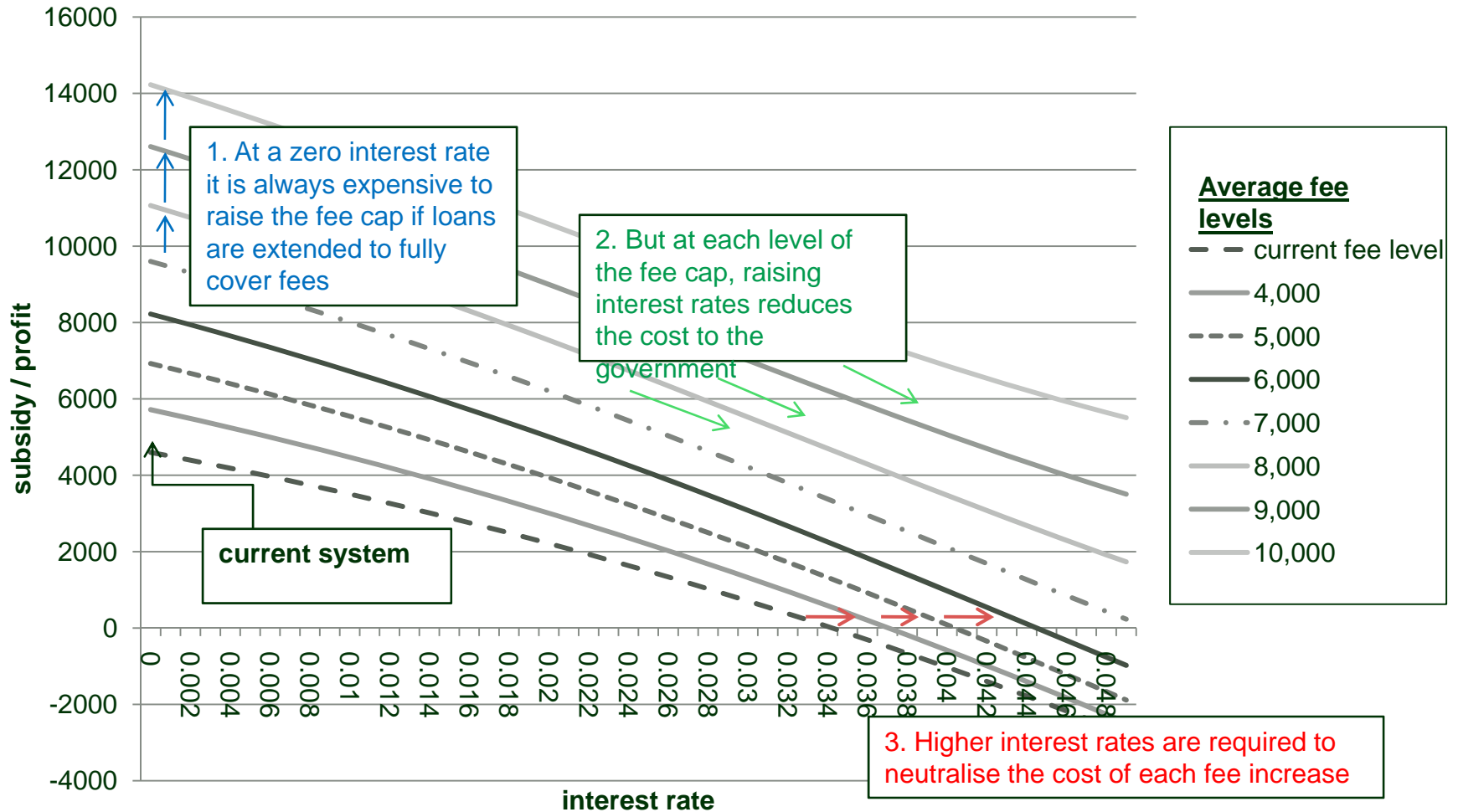
# Increasing the interest rate to 3.5%



## 2. Increasing the fee cap

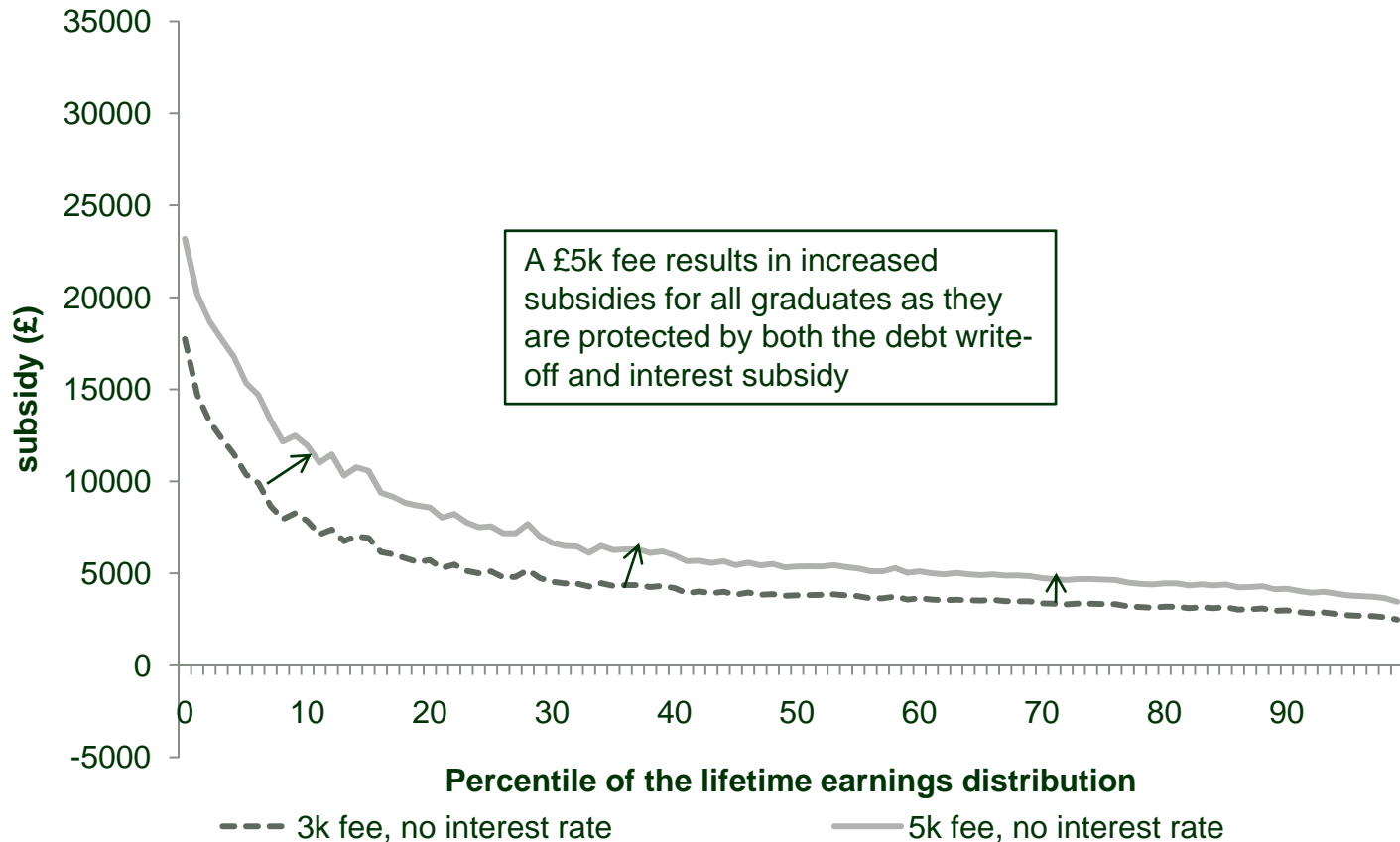
- Currently a £3,200 fee cap (in 2011 prices)
- The fee cap could be raised
- In the examples that follow, we assume the fee is £5,000 *on average*
  - This could be achieved if the fee cap was set to £5,000 and all universities charged it
  - This could also be achieved if the fee cap was set higher 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

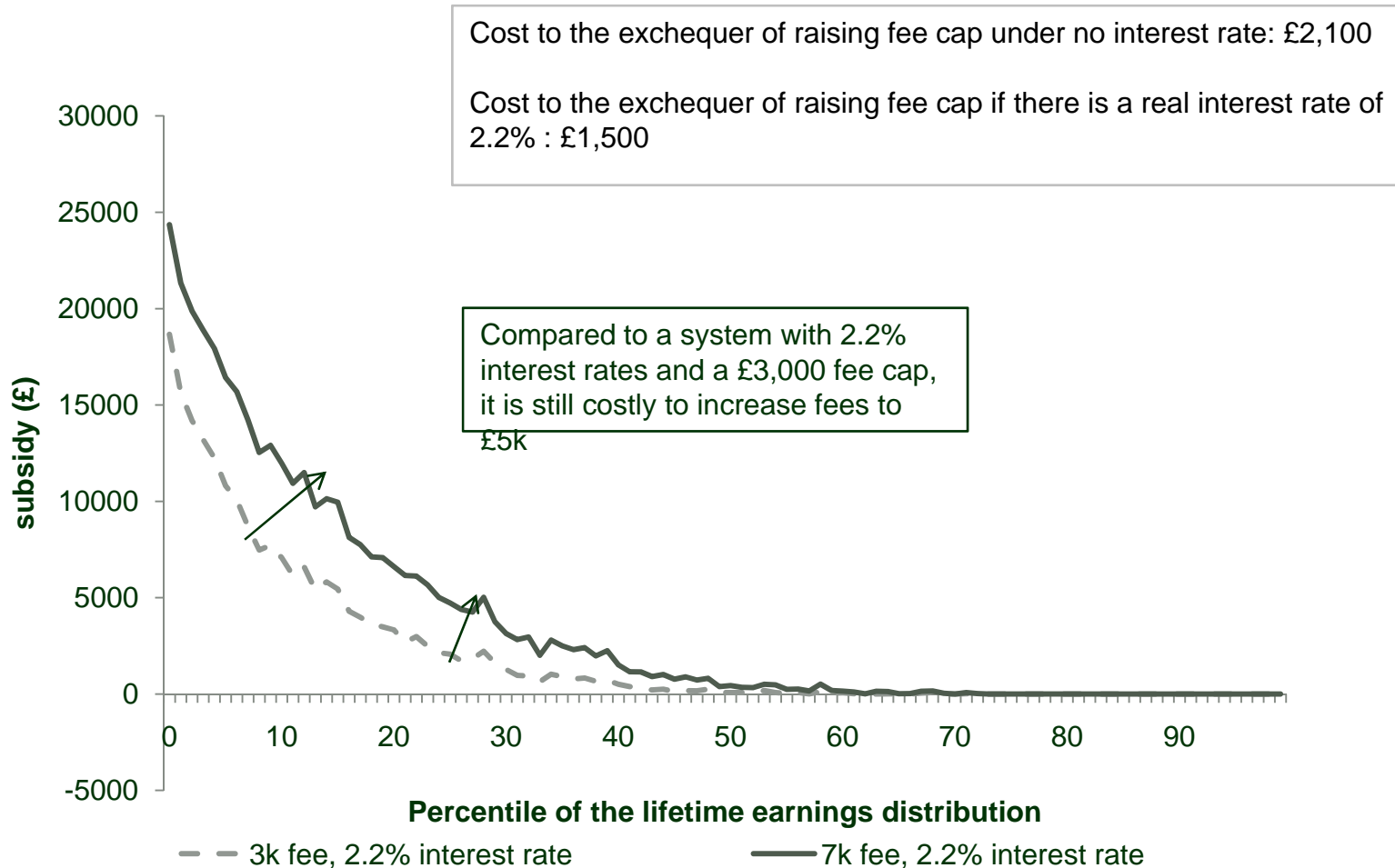


# Distributional effects of increasing fees: 1. with no interest rate

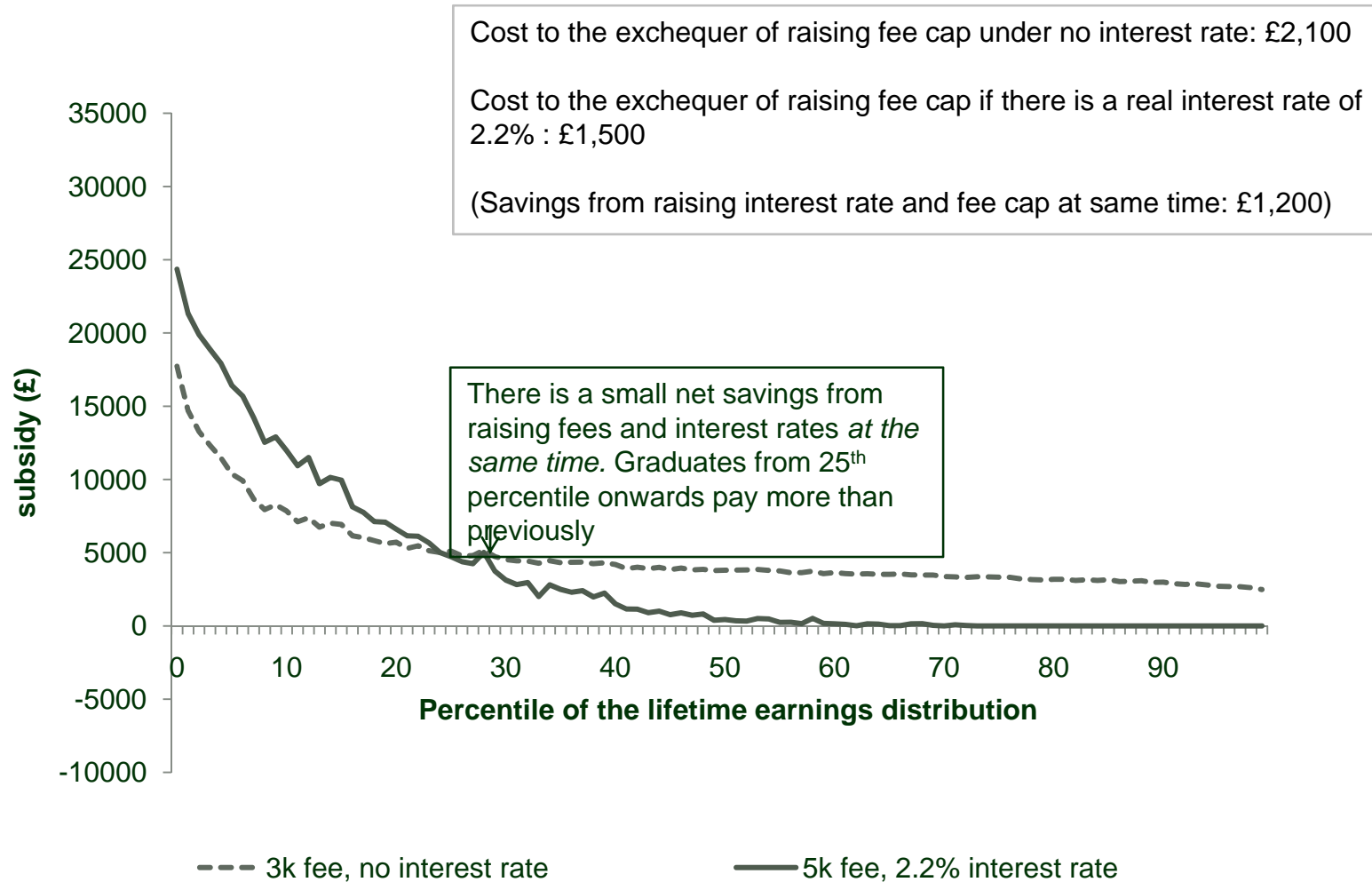
Cost to the exchequer of raising fee cap to £5,000 under no interest rate: £2,100



# Raising fees with an interest rate is less costly



# 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
£3,000 fee	£4,800	£2,100	-£100
£5,000 fee	£6,900	£3,600	£1,100

This table shows that:

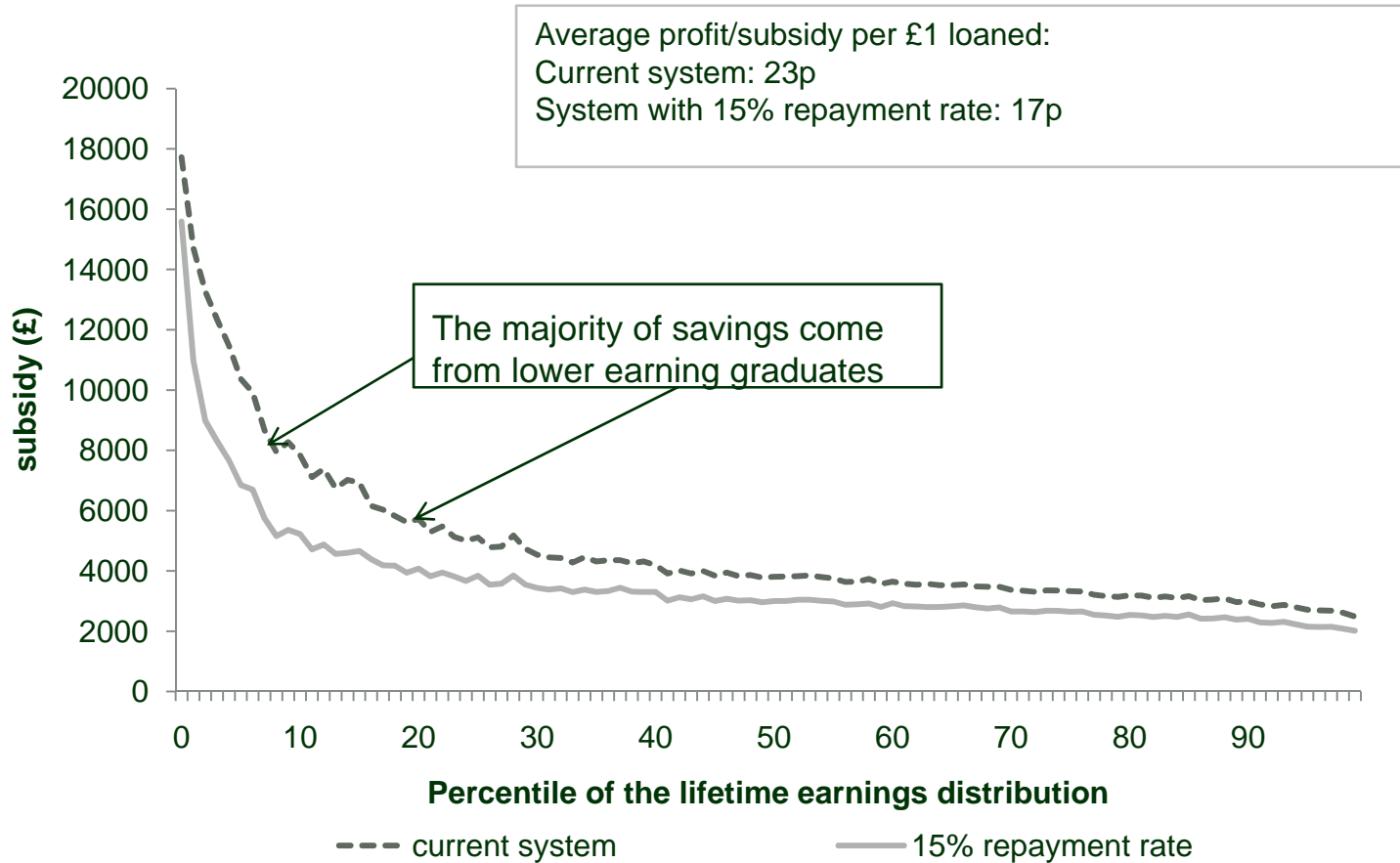
- Increasing the fee cap and extending loans to cover this without raising interest rates is always costly (the difference between each row)
- Increasing the interest rate without raising the fee cap always saves money (the difference between each column)

# Behaviour change

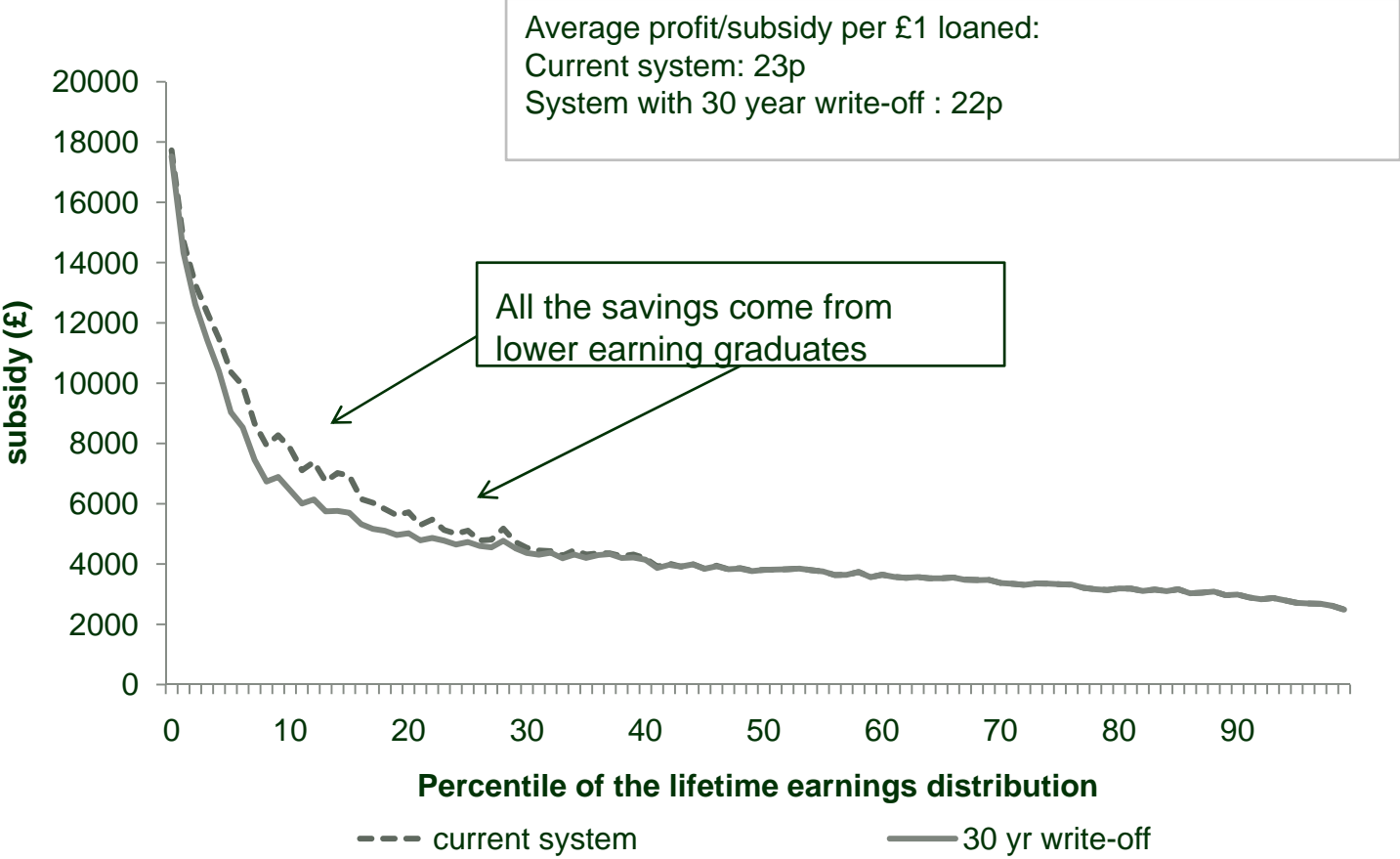
- Charging an interest rate on loans will increase the cost of attending university for all but the very poorest graduates
- This may impact:
  - Repayment behaviour
  - Loan take-up
  - Participation
- Increasing the level of the fee cap will also increase the cost of university
- This may impact
 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

# ALTERING OTHER PARAMETERS IN THE STUDENT LOAN SYSTEM

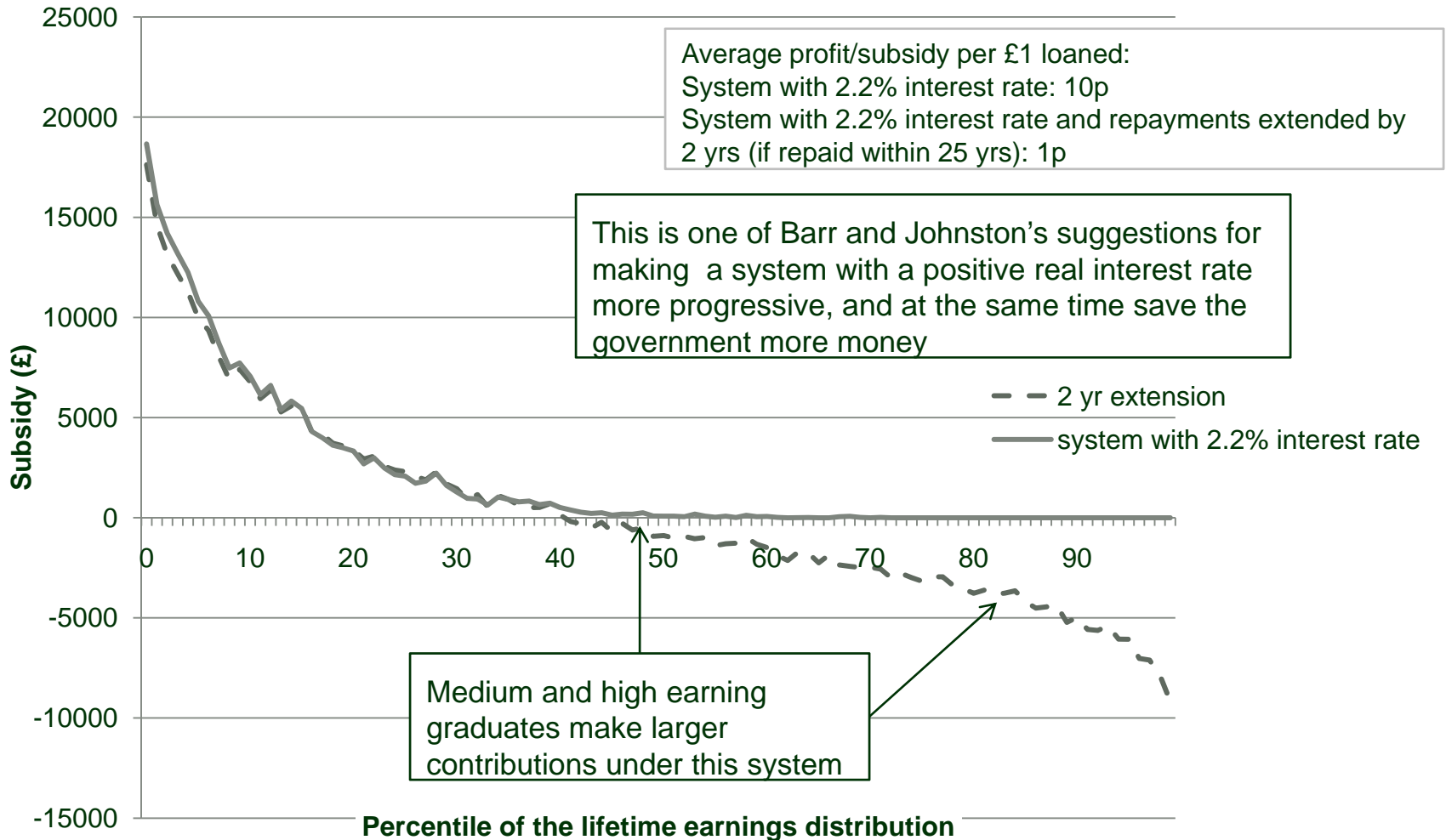
# Increasing the repayment rate from 9% to 15% saves some money but on its own is regressive



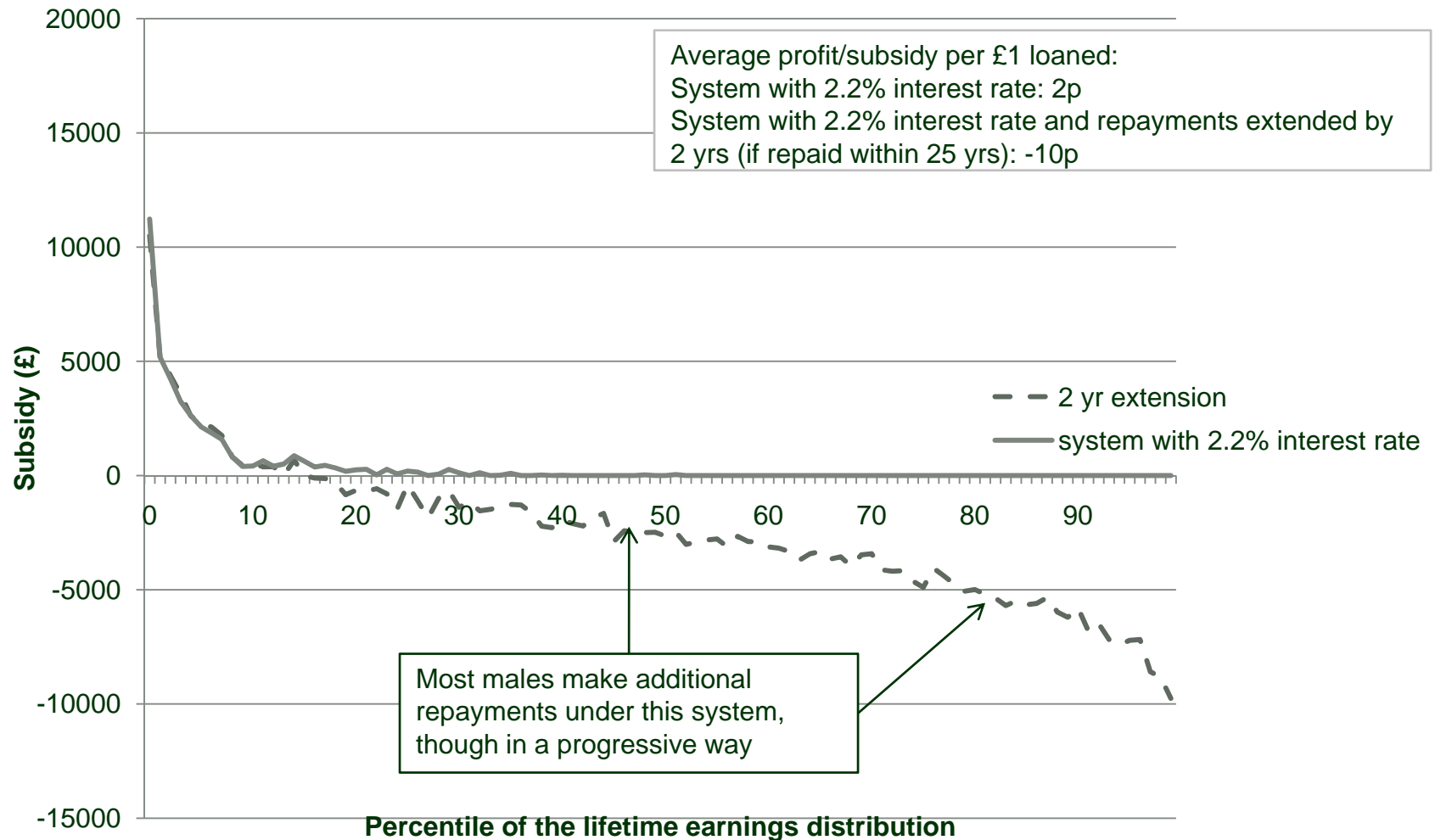
# Increasing the write-off period to 30 years has a very small impact, and again is a regressive policy



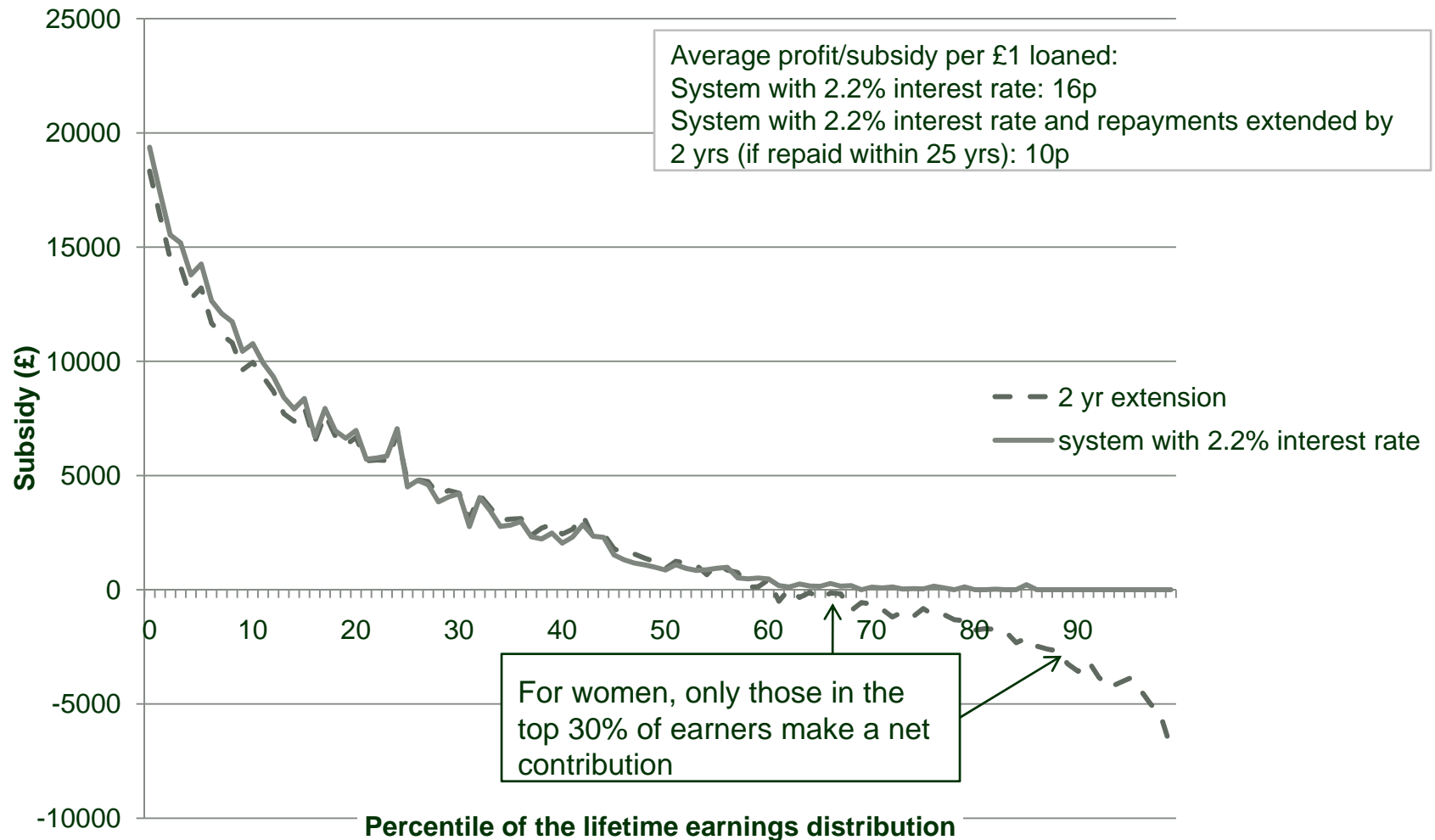
# Extending the repayment period by 2 years for all graduates who repay before 25 years (with interest rate)



# Extending the repayment period – males



# Extending the repayment period – females



# 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<sup>1</sup> 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<sup>2</sup>

<sup>1</sup>HEFCE teaching grant (source HEFCE grant letter 2010)

## 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

# 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