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## How taxes and benefits redistribute income and affect work incentives: a lifecycle perspective



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# What we do

- Two questions about UK tax and benefit system:
  1. How does it affect **work incentives**?
  2. How much **redistribution** does it do?
- Lifecycle approach
- Focus on
  - Women and their families
  - Working life (ages 19-59)
  - Personal taxes and benefits

# How we do it

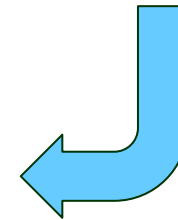
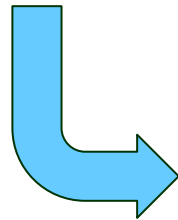
- Based on simulated data
- Women assumed to behave according to forward-looking decision-making model
  - Make choices over education, labour supply and savings
  - Experience gained through working
  - Evolving family circumstances
- Model estimated to replicate behaviour of real individuals in Great Britain

How does the current UK tax and benefit system affect **work incentives?**

# Work incentives: the story in one slide

Work incentives vary lots  
by family circumstances

Family circumstances  
vary lots across life



Work incentives vary  
lots across life



Forward-looking measure gives a  
different impression of incentives,  
particularly for lone parents

# Measuring static work incentives

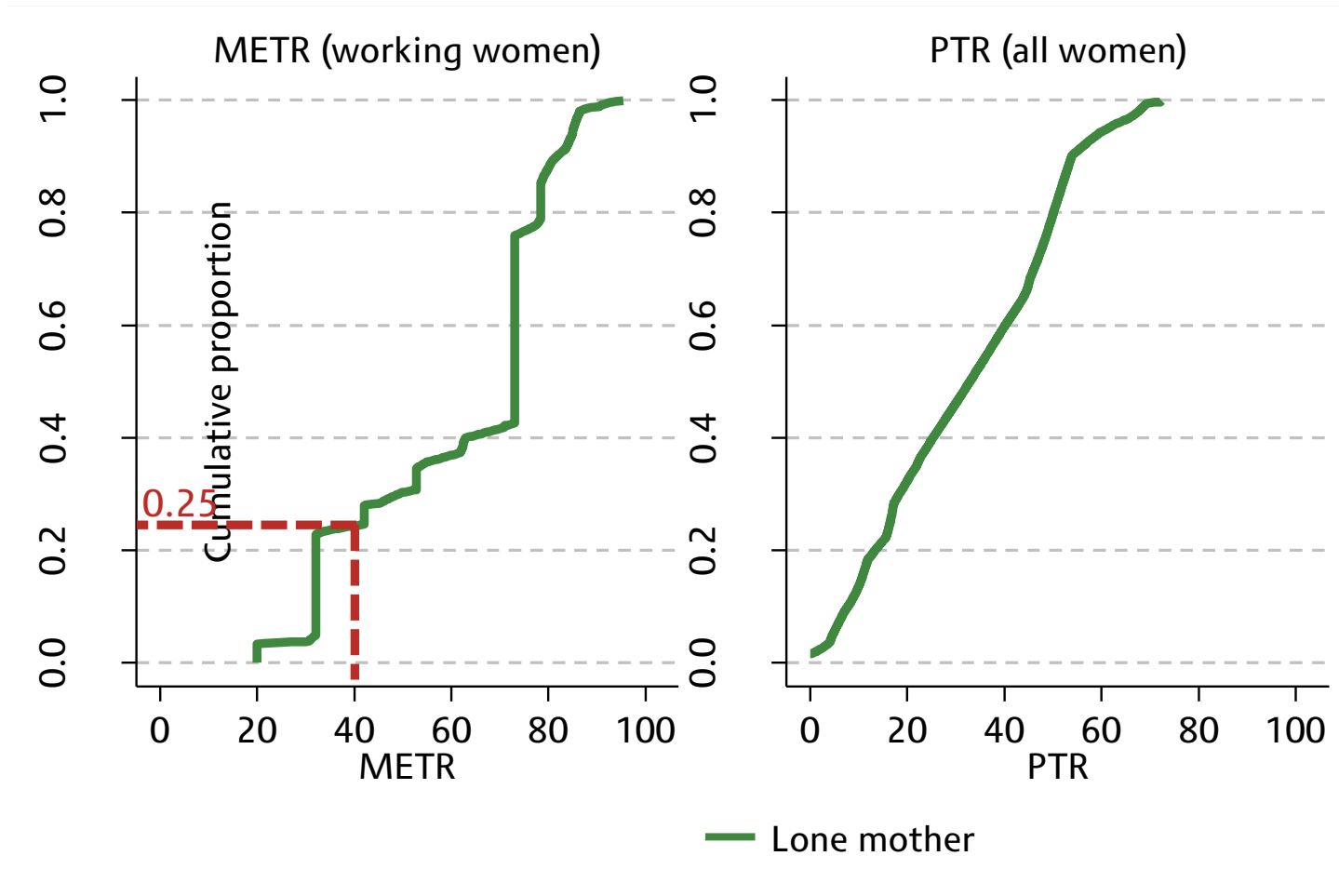
- Marginal effective tax rate (METR):

*The fraction of a small rise in earnings that is lost to extra taxes and lower benefits*

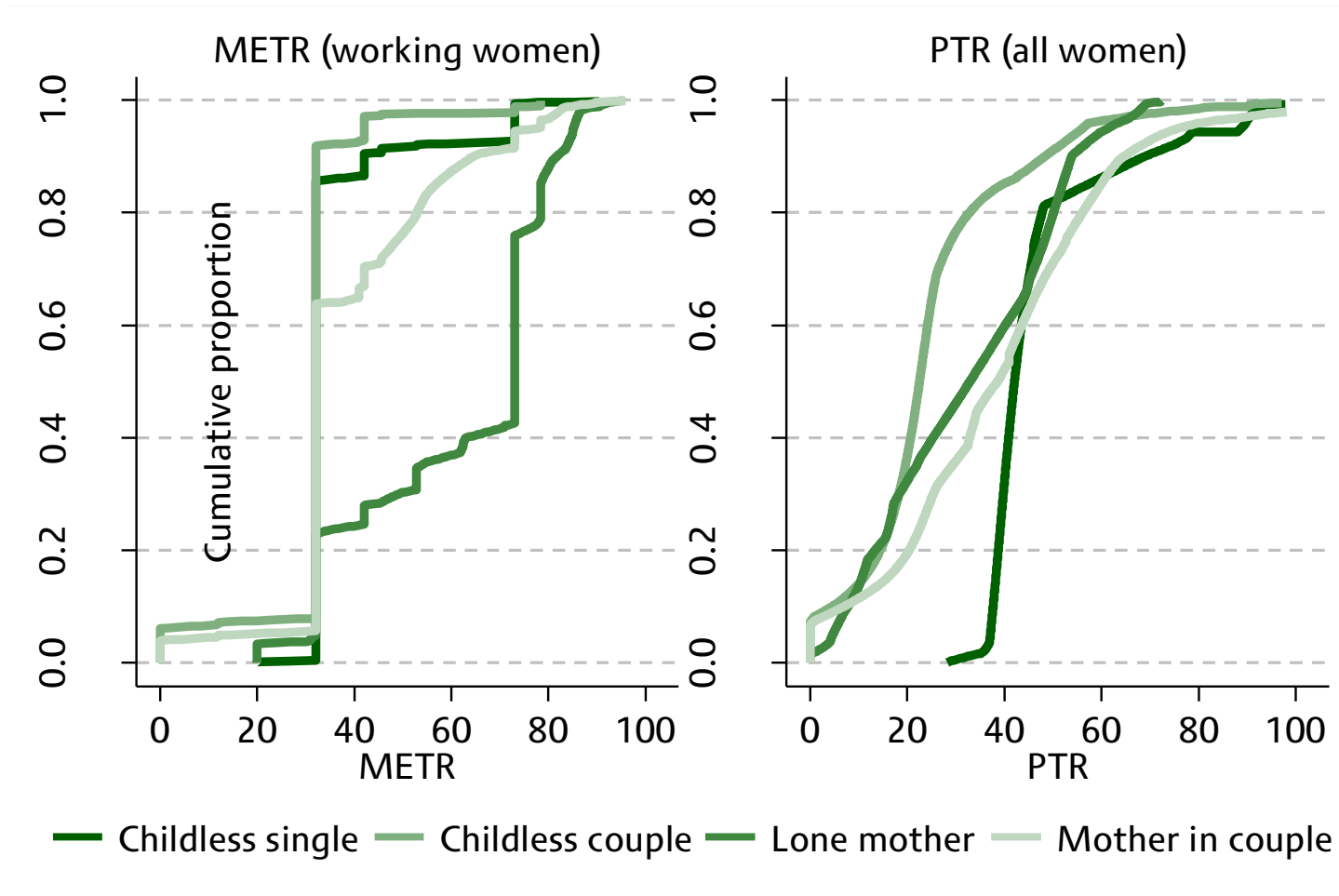
- Participation tax rate (PTR):

*When moving into work, the fraction of the rise in earnings that is lost to extra taxes and lower benefits*

# Work incentives vary by family circumstances

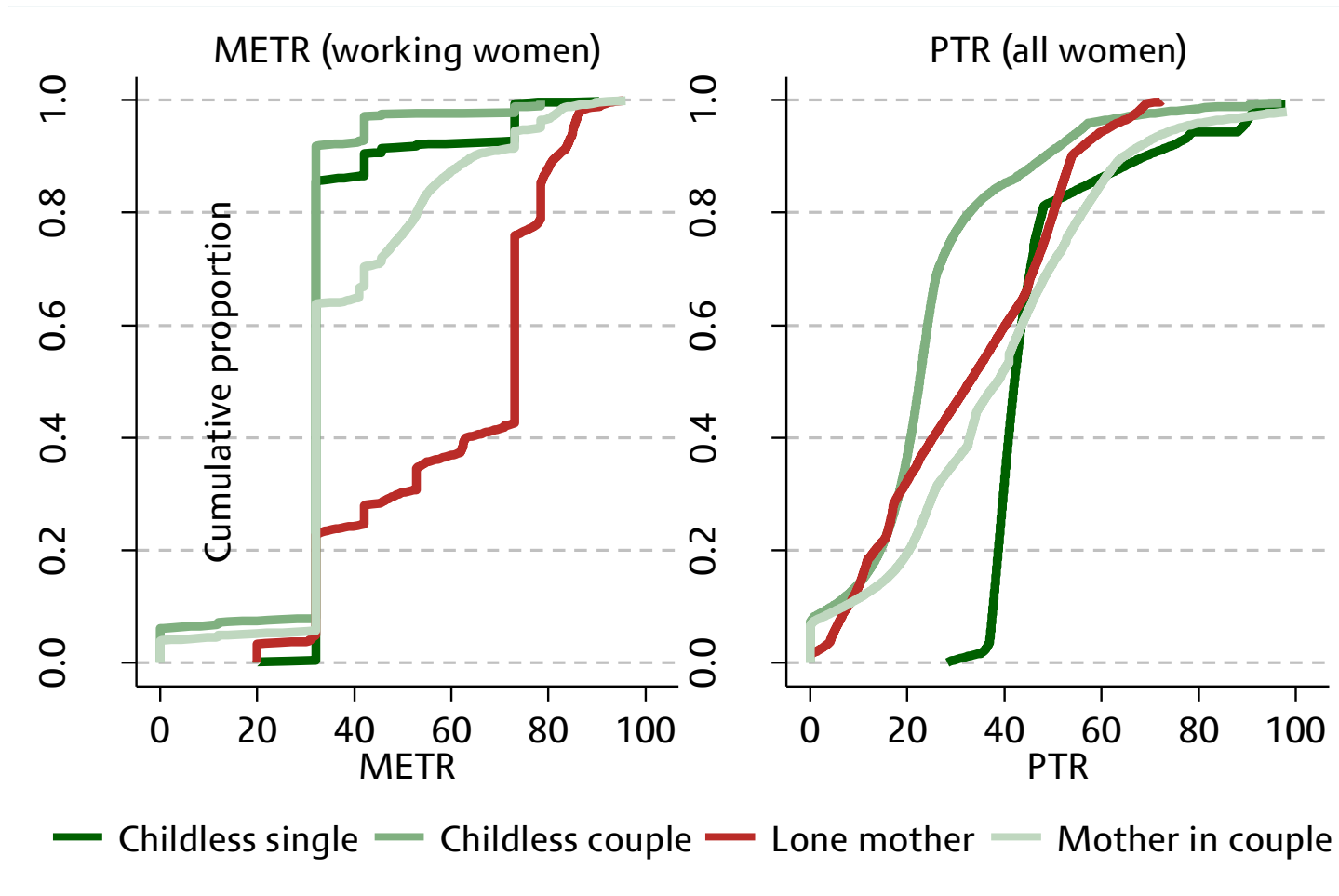


# Work incentives vary by family circumstances

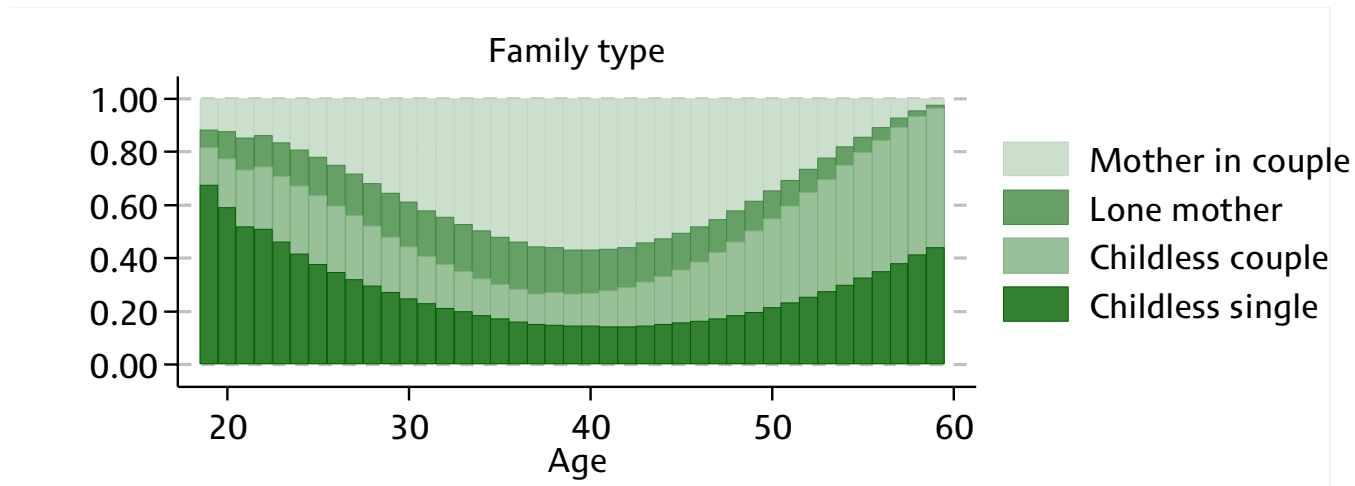




# Work incentives vary by family circumstances



# Changing family circumstances mean work incentives vary across life



# And individuals are not permanently stuck with weak work incentives

25-29 year olds: percentage with METR/PTR above 60% who are still above that level some years later

	Number of years ahead			
	1 year	5 years	10 years	20 years
METR	74%	47%	38%	22%
PTR				

Notes: METR is for working women, PTR is for all women

# And individuals are not permanently stuck with weak work incentives

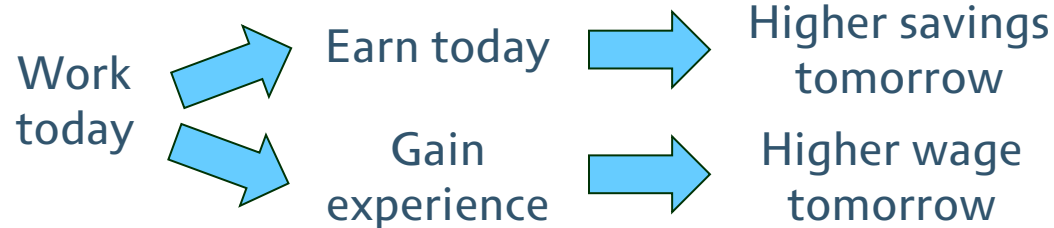
25-29 year olds: percentage with METR/PTR above 60% who are still above that level some years later

	Number of years ahead			
	1 year	5 years	10 years	20 years
METR	74%	47%	38%	22%
PTR	78%	49%	36%	25%

Notes: METR is for working women, PTR is for all women

# A dynamic measure of work incentives

- Why does the future matter for work incentives?



- Higher wage tomorrow treated differently by tax and benefit system
- Higher wage and savings tomorrow may affect work decisions

# A dynamic measure of work incentives (2)

- Forward-looking participation tax rate (FLPTR):

*When moving into work today, the fraction of the rise in current and future earnings that is lost to extra taxes and lower benefits*

- FLPTR is a weighted average of:
  - Today's PTR
  - Future METRs and PTRs

# Dynamic and static measures are different

Difference between FLPTR and static PTR

	Across all ages
Mean	1.5ppts

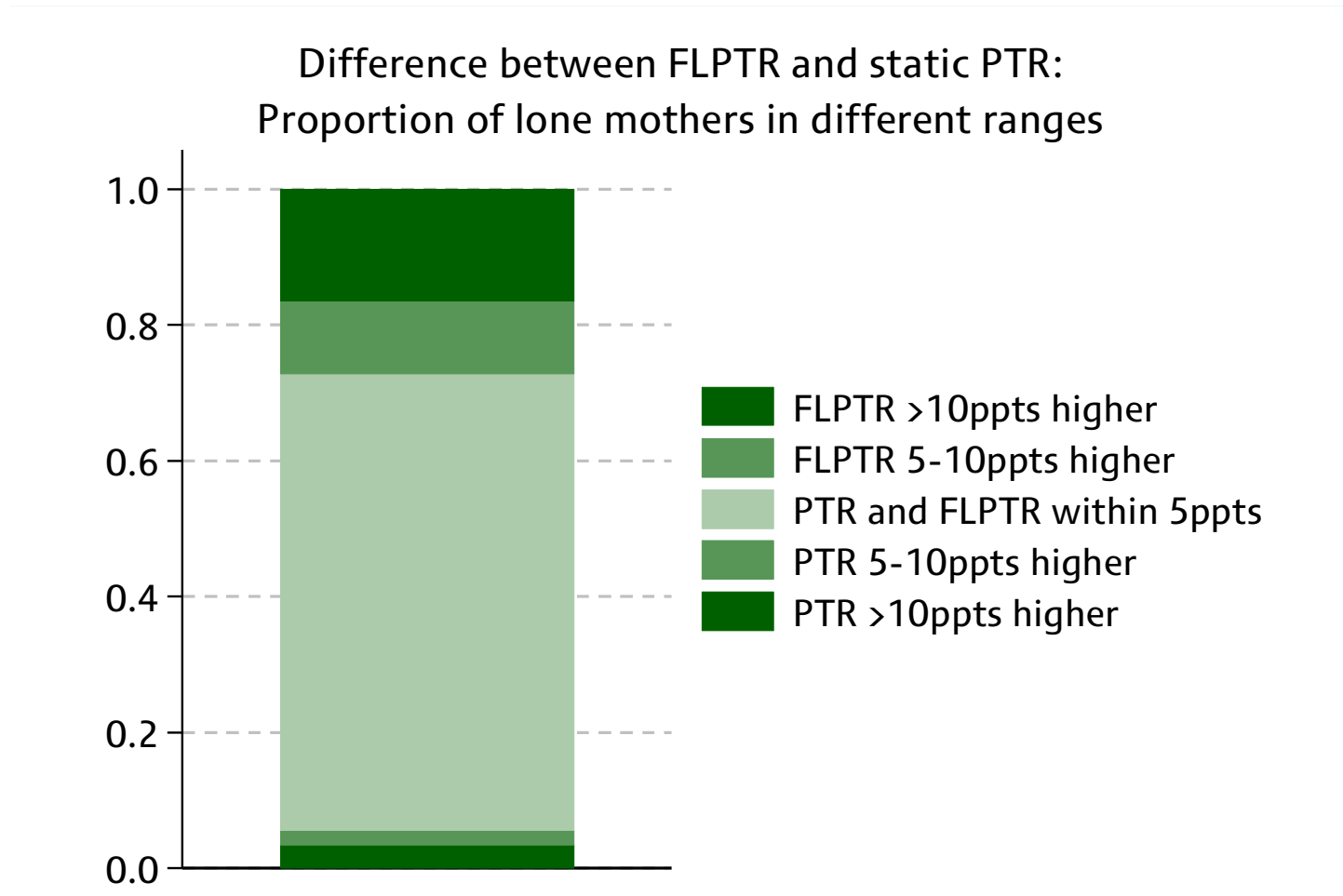
# Dynamic and static measures are different

## Difference between FLPTR and static PTR

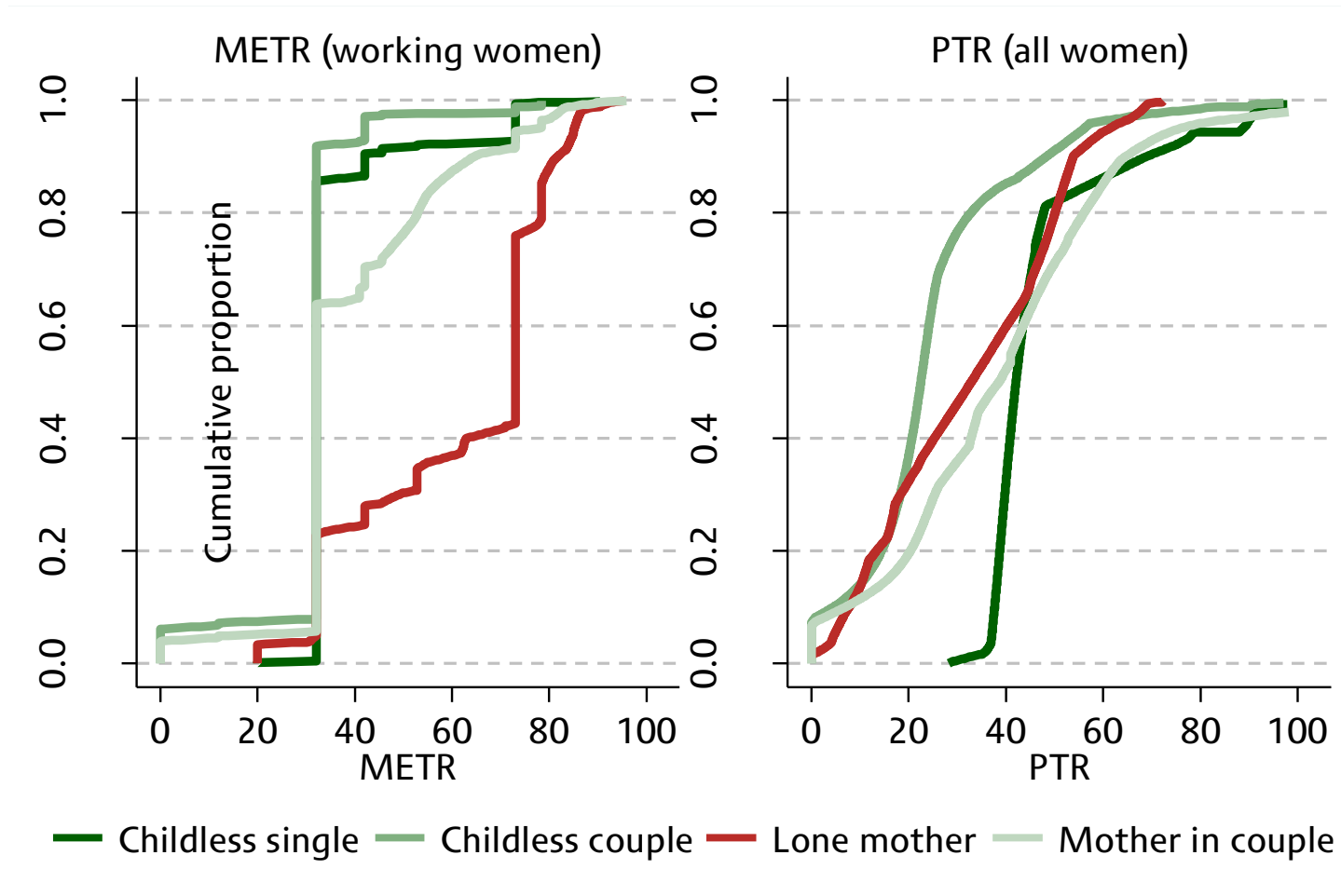
	Across all ages
<b>Mean</b>	1.5ppts
<b>% of women:</b>	
<b>Larger than 5ppts (absolute)</b>	21%
<b>Larger than 10ppts (absolute)</b>	11%



# Differences are particularly large for lone mothers



# Because of patterns in static work incentives



How much **redistribution** does  
the tax and benefit system do?

# Why do we look at lifetime inequality and redistribution?

- Individual (family) income varies across individuals *and* over time
  - Fluctuations over time can be partly smoothed by individuals
- Taxes and benefits reduce variation in income
  - Both between individuals
  - And over time



Snapshot assessments may overstate the ability of taxes and benefits to reduce true economic disparities

# What we do in this part of the project

- Look at lifetime **inequality** in income among women in families
  - Measures dispersion in income – we use the Gini coefficient
- And the **lifetime redistribution** properties of the UK tax and benefits system
  - Measures how taxes and benefits reduce inequality, moderating persistent differences between individuals

# The story in one slide

1. The UK tax and benefits system redistributes most significantly where disparities are larger
  - Among women with basic education
  - During the main child-rearing years
2. Particularly successful at ensuring that lone motherhood does not lead to persistent inequalities in lifetime income
3. Reforms since 2000 strengthened its ability to reduce lifetime inequalities
  - In-work benefits for low-income families with children - WFTC
  - Effect largely driven by responses in employment

# The tax and benefits system reduces annual inequality

	Annual inequality		Lifetime inequality	
	Gross earnings	Net income	Gross earnings	Net income
All women	0.37	0.28	0.24	0.18
By education				
Basic	0.42	0.24	0.27	0.15
Intermediate	0.32	0.25	0.21	0.16
High	0.28	0.26	0.15	0.13

Gini coefficients for gross and net annual and lifetime income.

## And it also reduces lifetime inequality

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Gini coefficients for gross and net annual and lifetime income.

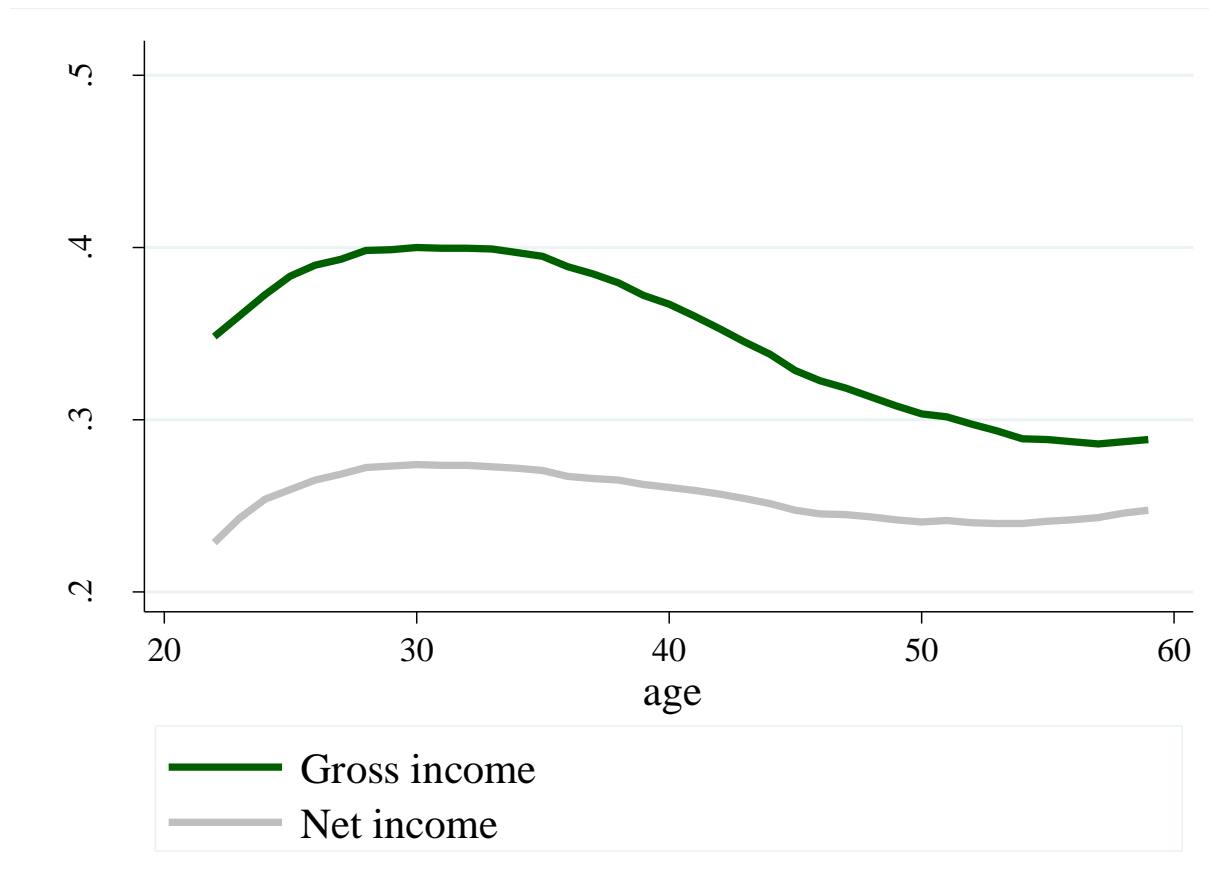


# The impact is particularly strong where disparities are larger: for women with basic education

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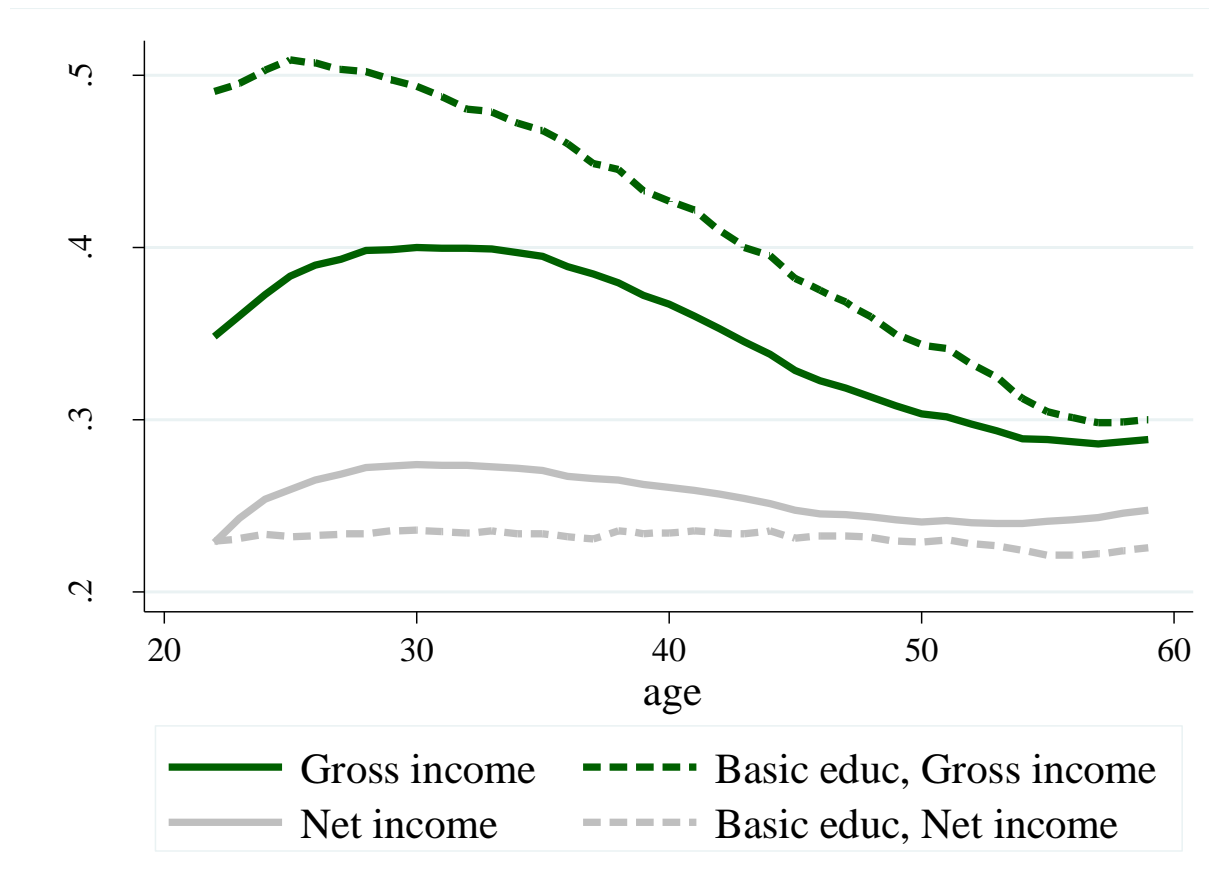
Gini coefficients for gross and net annual and lifetime income.

# Over the life-cycle, taxes and benefits are more redistributive when differences are more marked



Gini coefficients for gross and net income by age.

# Particularly for those exposed to greater disparities



Gini coefficients for gross and net income by age.

# Decompose lifetime inequality in its main building blocks

	Initial wealth and education	Family history			
		Partner	Children	Lone mother	Total
Gross income	34.1%	3.4%	6.0%	8.7%	18.1%
Net income	39.5%	3.1%	7.2%	1.1%	11.4%

Share of variation in lifetime income explained by each factor.

# Largest share of lifetime inequality established early in adult life

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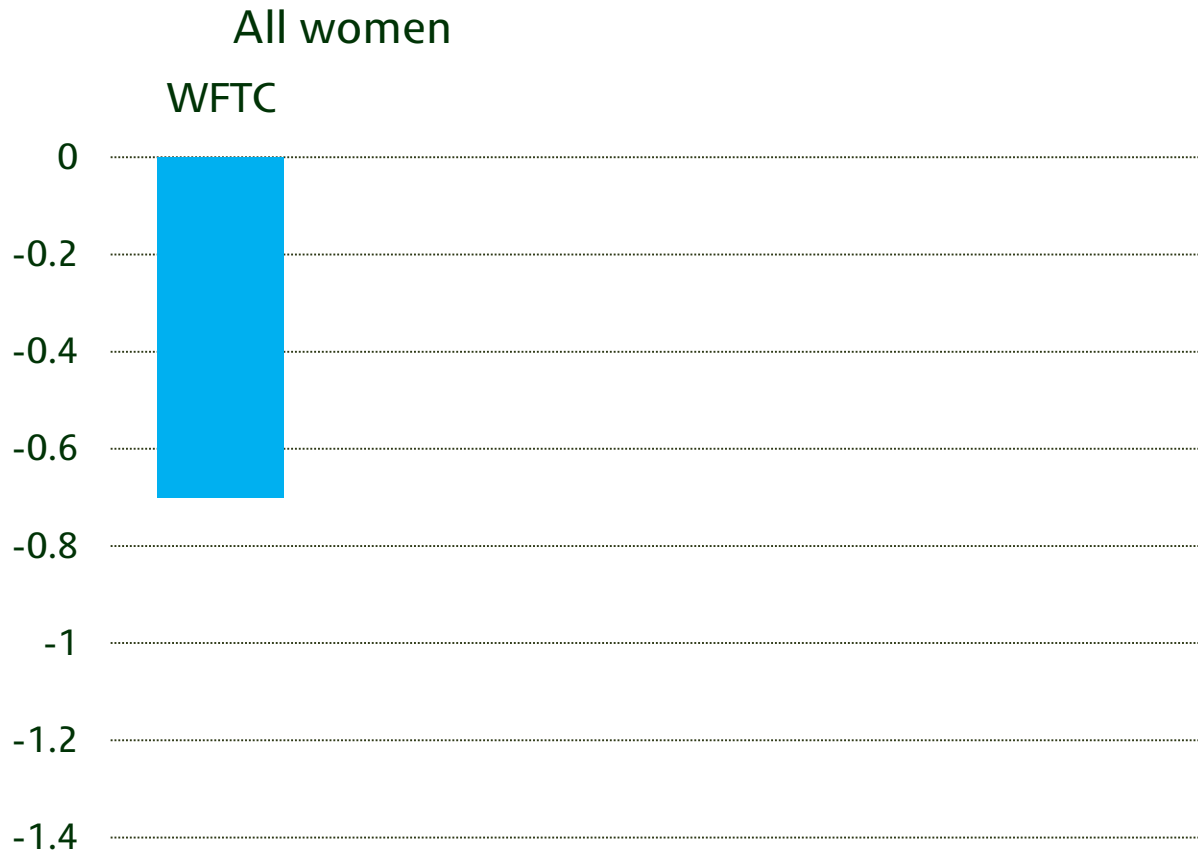
Share of variation in lifetime income explained by each factor.

# But tax and benefits system ensures the impact of lone-motherhood does not persist

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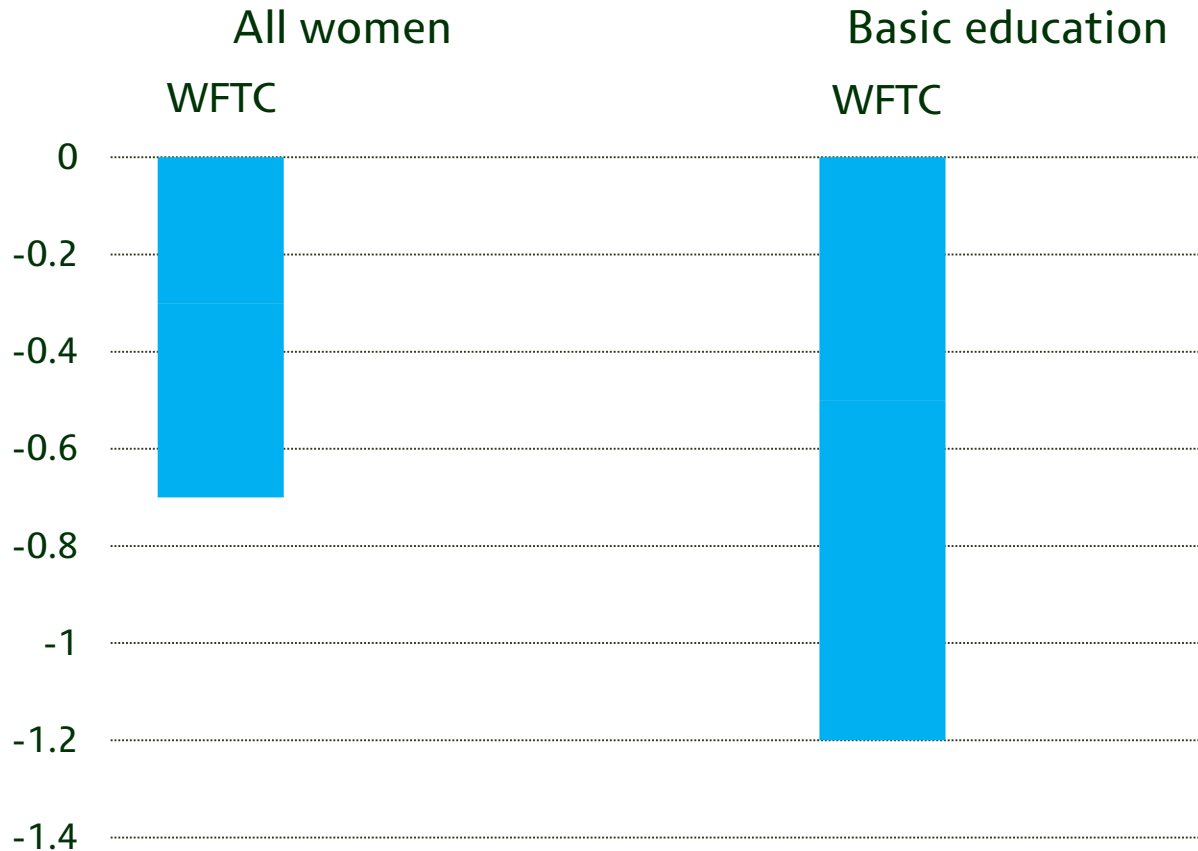
Share of variation in lifetime income explained by each factor.

# In-work benefits for low income families with children reduce lifetime inequality



Effects on Gini coefficient: 2002 version of WFTC and IS versus pre-WFTC 1999 tax and benefits system

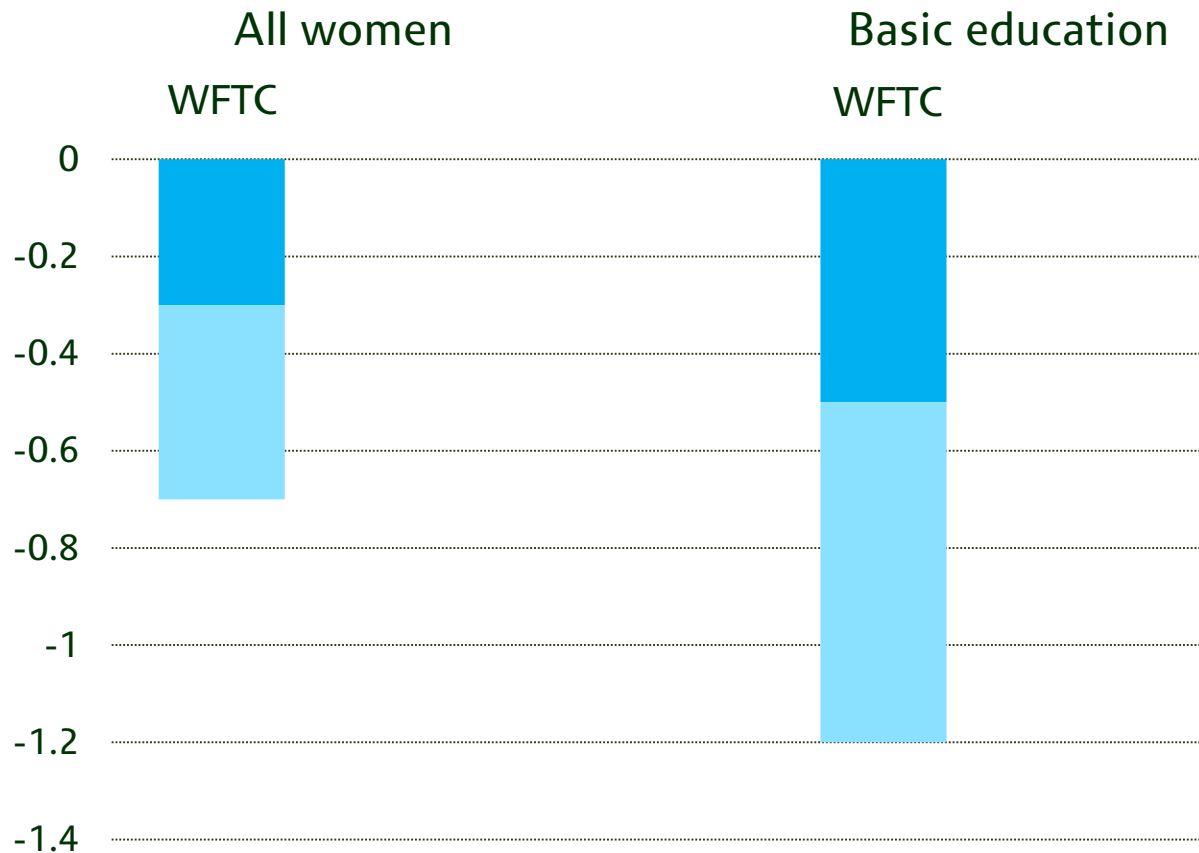
# Particularly for women with basic education



Effects on Gini coefficient: 2002 version of WFTC and IS versus pre-WFTC 1999 tax and benefits system

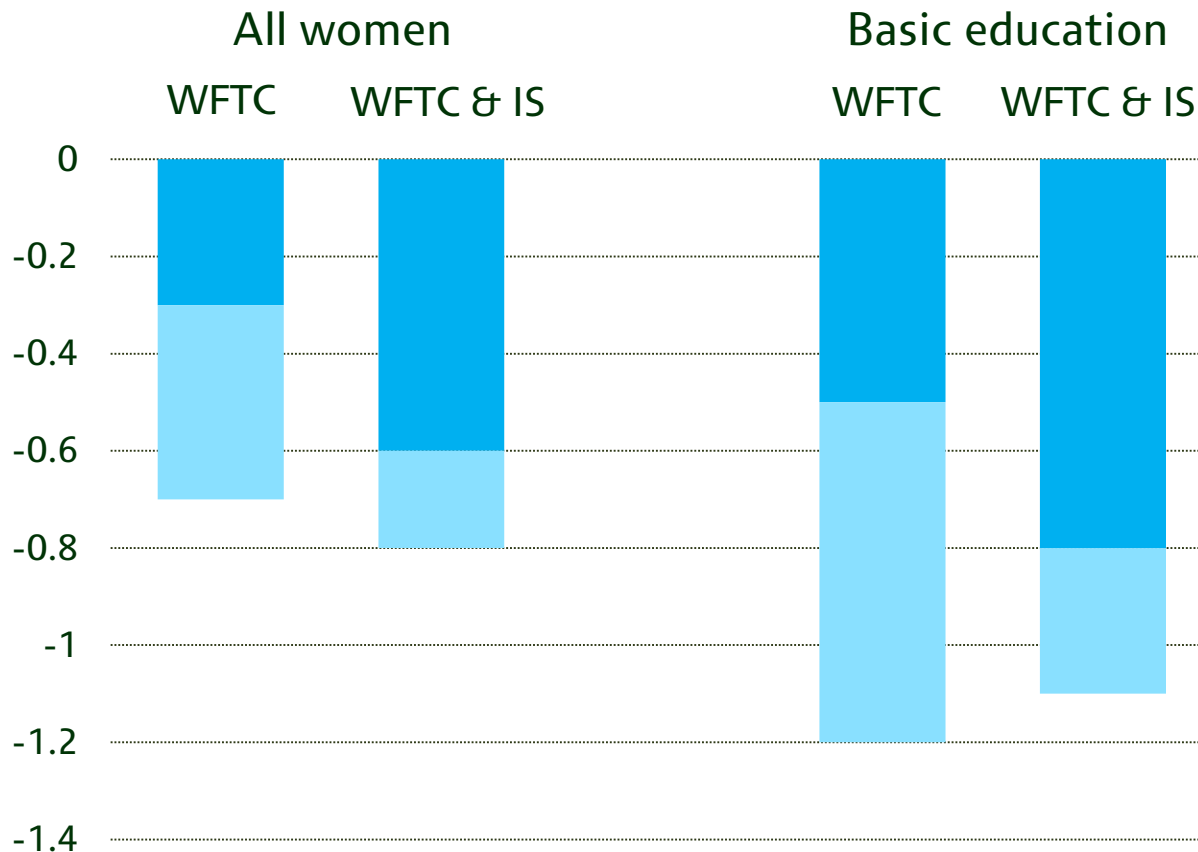


# And response largely driven by its impact on moving women into work



Effects on Gini coefficient: 2002 version of WFTC and IS versus pre-WFTC 1999 tax and benefits system

# Income support for families out of labour market reduces importance of employment responses



Effects on Gini coefficient: 2002 version of WFTC and IS versus pre-WFTC 1999 tax and benefits system

# Summary of findings

**On work incentives** - changing family circumstances mean

1. Work incentives vary a lot  
And vary a lot across the lifecycle
2. Forward-looking measure gives a different impression of incentives, particularly for lone parents

**On lifetime inequality and redistribution**

1. The UK tax and benefits system ensures that the consequences of lone-motherhood on inequality do not persist
2. Reforms to in-work benefits during the 2000s contributed significantly to reduce lifetime inequality  
With effects largely driven by employment responses

Thank you!