

# Taxation of Earnings and the Impact on Labor Supply and Human Capital

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## Empirical Foundations of Supply-Side Economics

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Slide Presentation

# Empirical Foundations of Supply-Side Economics

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- Take the *Mirrlees Review* as an example
  - an integrated picture of tax design and reform, published in 2011  
<http://www.ifs.org.uk/mirrleesReview>
- Comprehensive review of reform, drawing on:
  - new evidence, new theory, a new economic environment
- View the tax system as a whole
  - earnings and direct tax; savings, capital and corporate taxation, ..
- For developed open economies
  - the UK as the running experiment
- In this talk I draw on two other studies (references in paper)
  - *Empirical Evidence and Tax Reform; JEEA 2012*
  - *Labour Supply, Human Capital and Welfare Reform; NBER 2013*
- Additional question: To what extent do dynamic ‘longer-run’ issues change our view of earnings tax reform?

# Empirical Foundations of Supply-Side Economics

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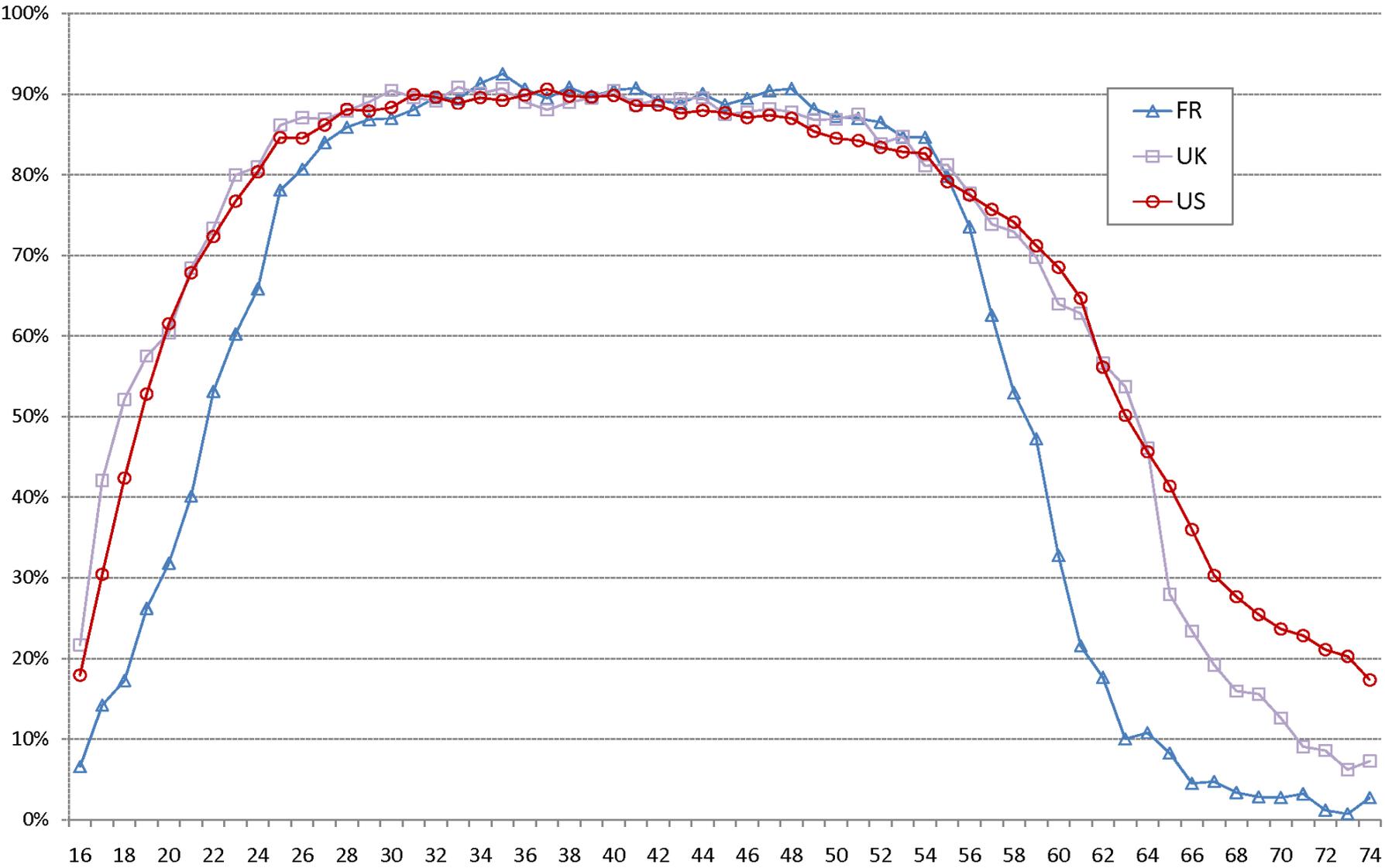
- How should we assemble the empirical foundations for tax policy design?
- What have we learned ... so far?
- Consider the role of evidence under five headings:
  1. Key margins of adjustment to reform
  2. Measurement of effective incentives
  3. The importance of information and complexity
  4. Evidence on the size of responses
  5. Implications for policy design
- Use these to build an empirically based agenda for reform
  - > an efficient redesign of tax policy....

# 1. Key margins of adjustment to reform

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- A 'descriptive' analysis of the key aspects of observed behaviour
- Where is it that individuals, families and firms are most likely to respond?
  - e.g. the margins of labour market adjustment.

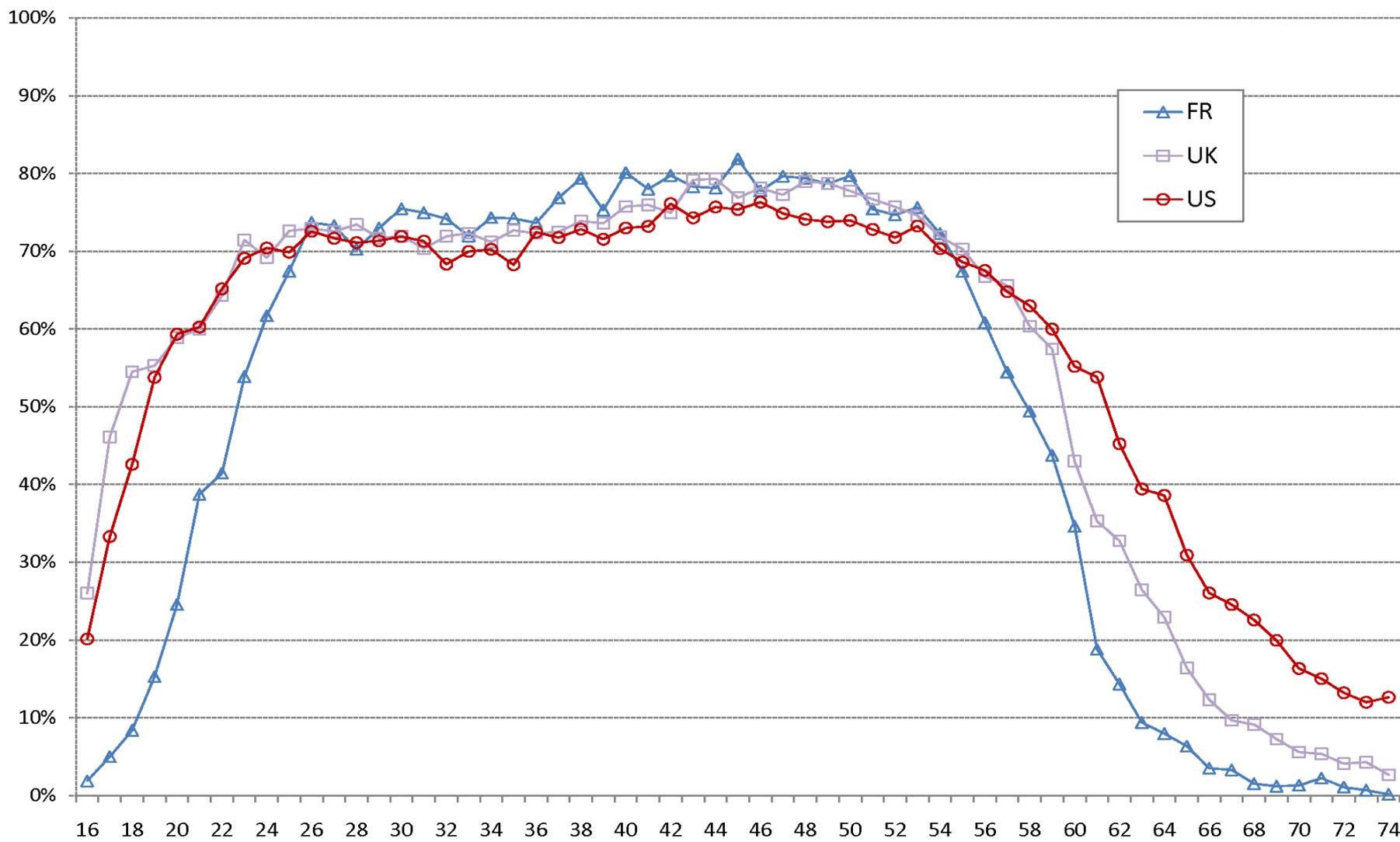
# Employment for men by age – FR, UK and US 2007



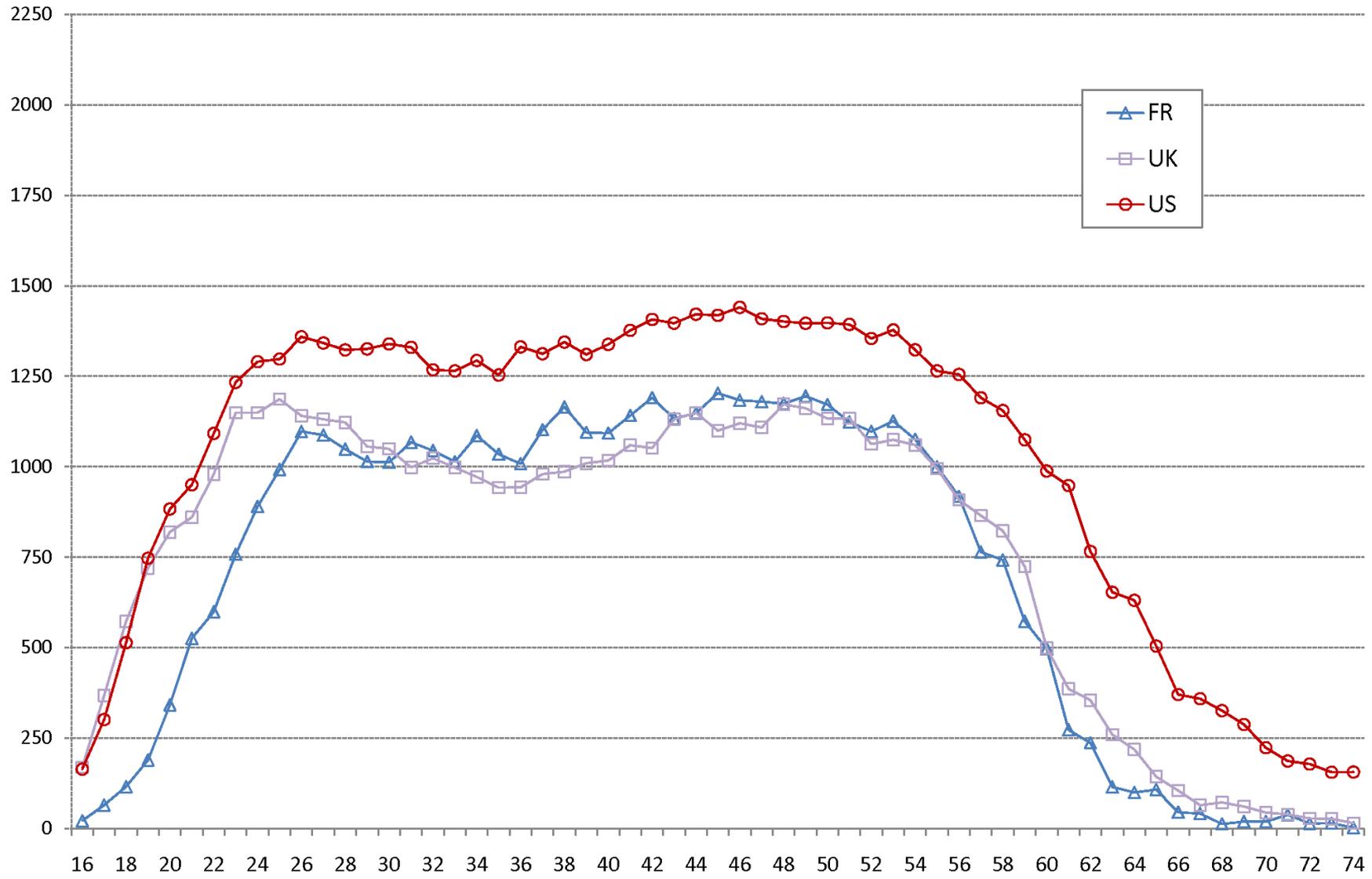
Blundell, Bozio and Laroque (2011)

and for women .....

# Female Employment by age – US, FR and UK 2007

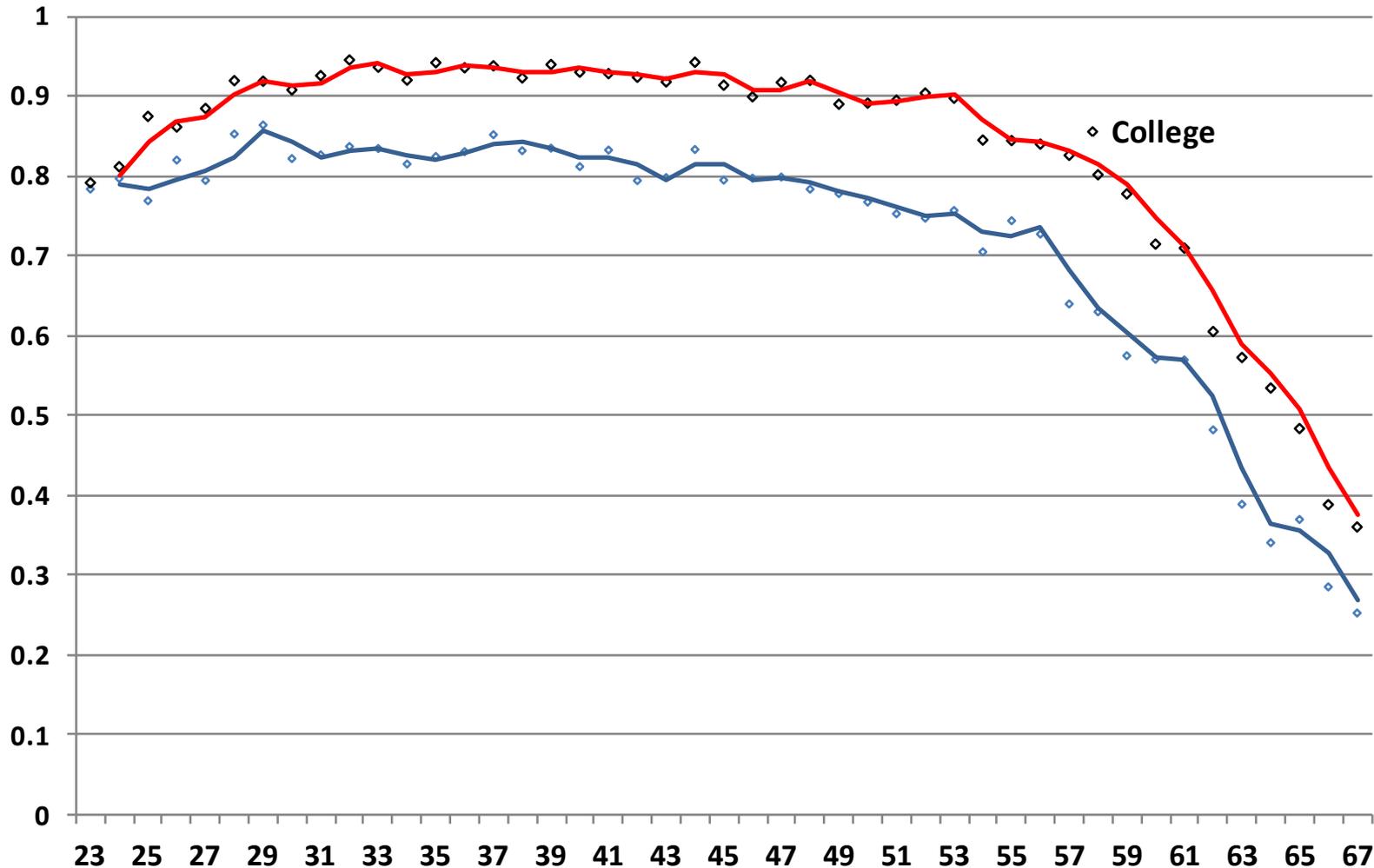


# Female Total Hours by age – US, FR and UK 2007

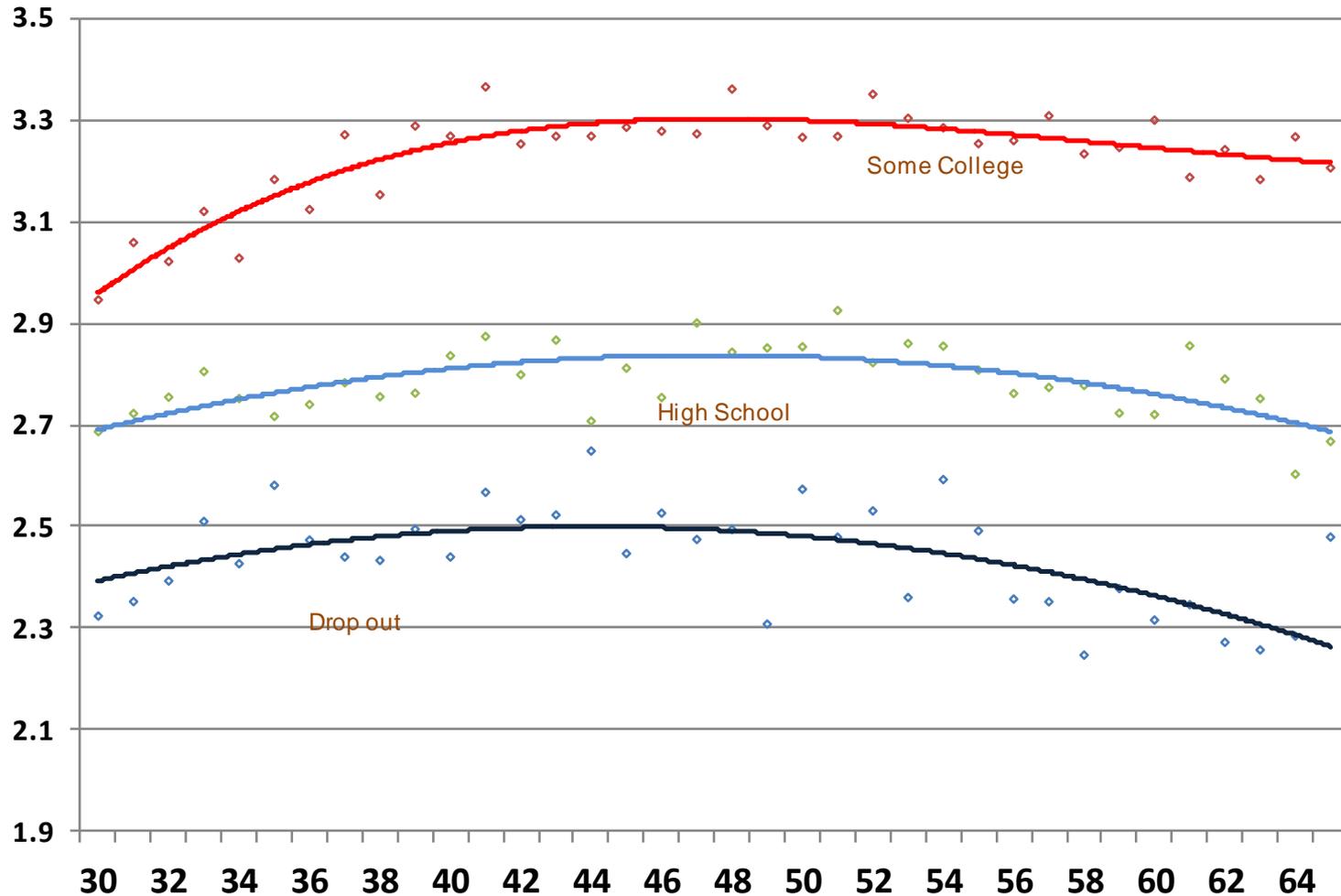


Blundell, Bozio and Laroque (2011)

# Employment for men by education and age –US 2007



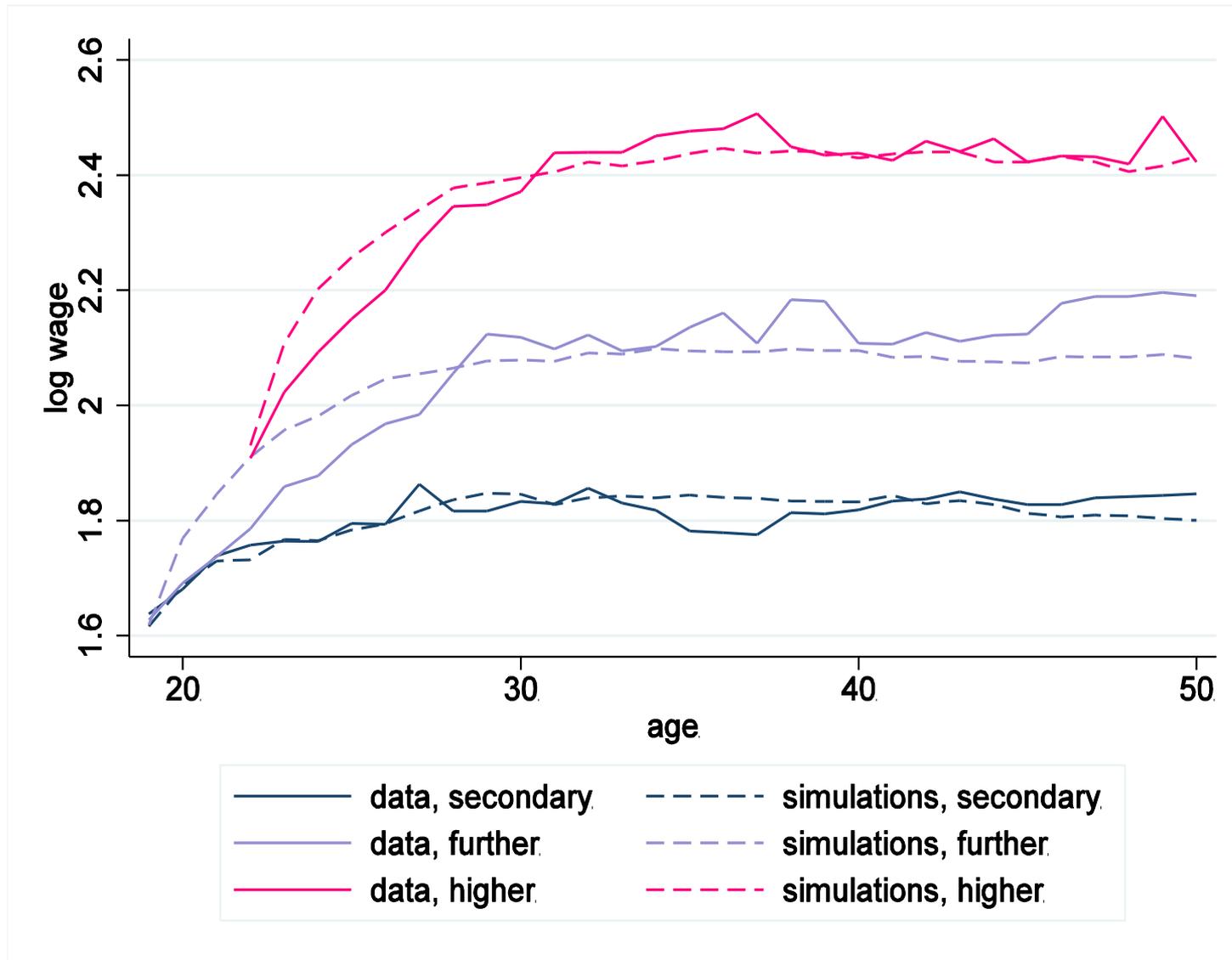
# Wages by education and age – US Men



Notes: PSID, 1996-2010, mean log wage by age, cohort effects removed

Source: Blundell, Pistaferri and Saporta (2013)

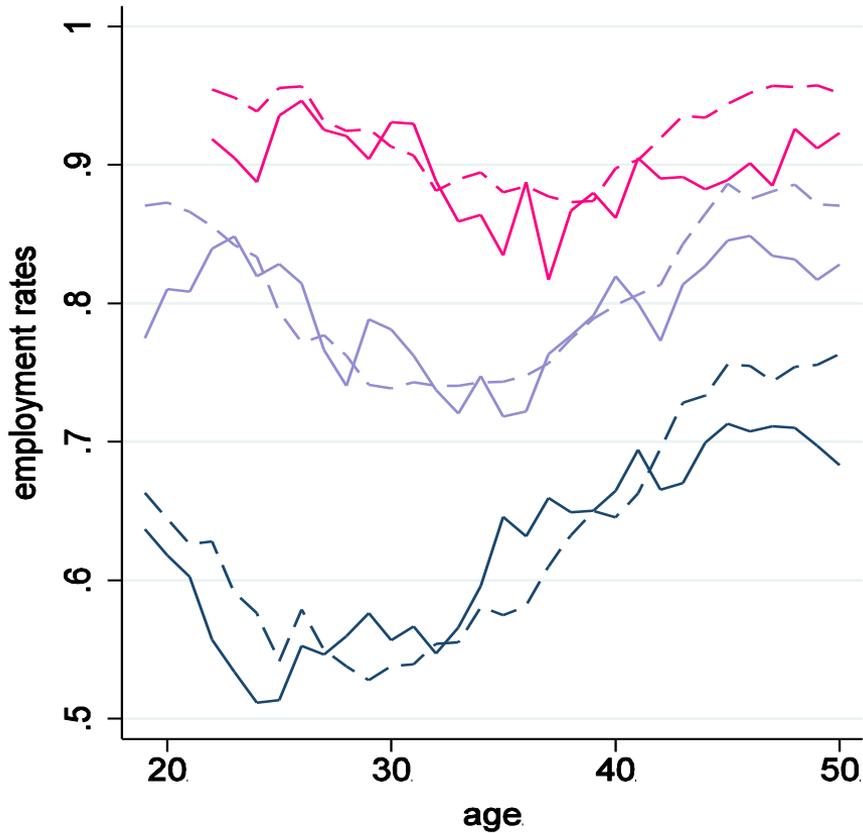
# Wages by education and age – UK Women, BHPS



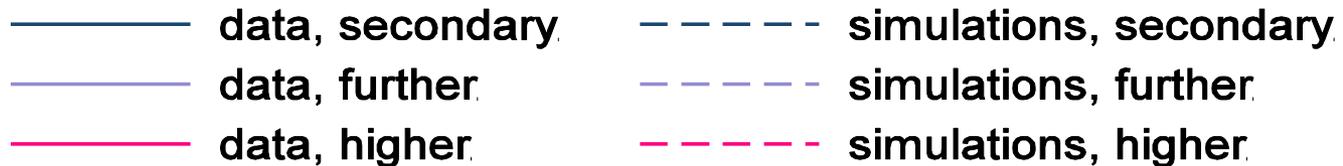
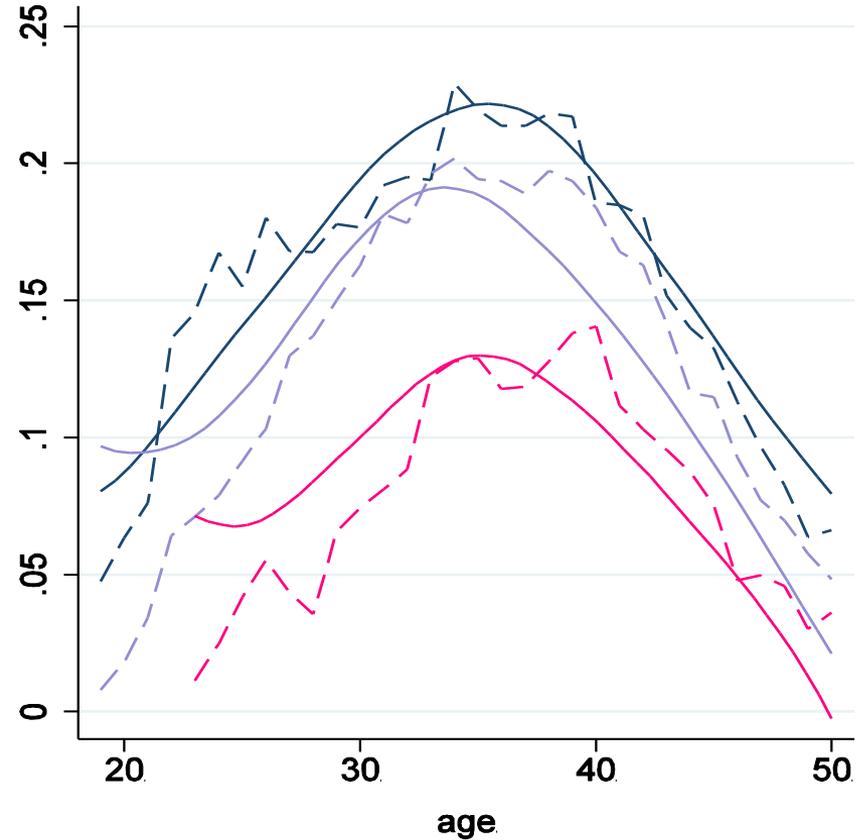
Source: Blundell, Dias, Meghir and Shaw (2013)

# Women's employment - UK

## All employment

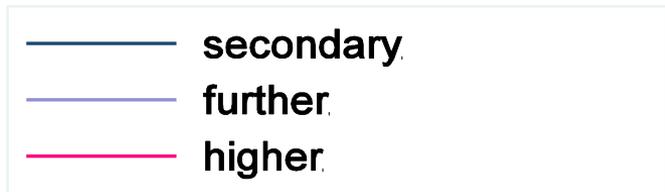
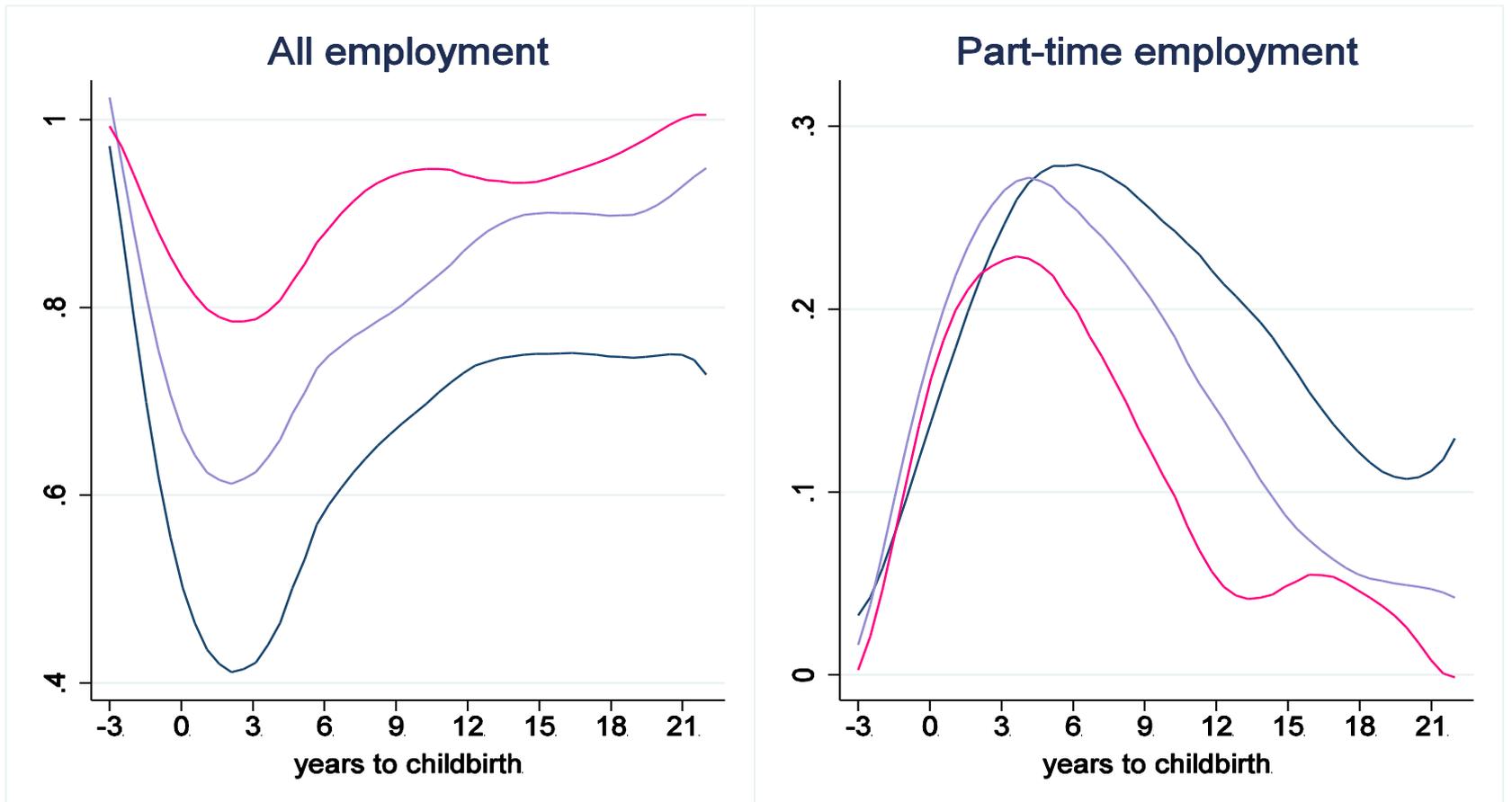


## Part-time employment



Source: Blundell, Dias, Meghir and Shaw (2013)

# Women's employment after childbirth - UK



Source: Blundell, Dias, Meghir and Shaw (2013)

# Summary so far...key facts

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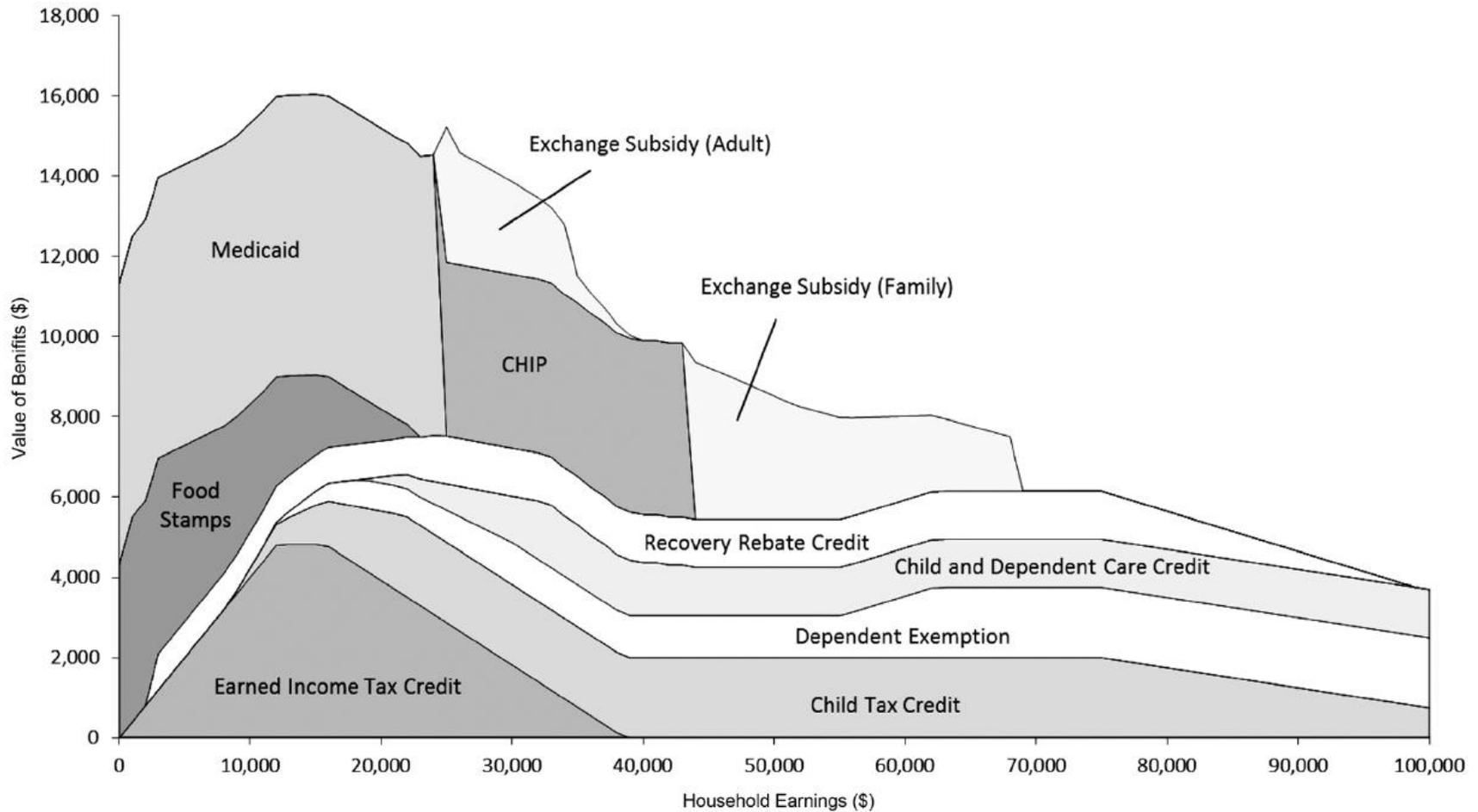
- A lifetime view of employment and hours
  - differences accentuated at particular ages and for particular demographic groups.
  - higher attachment to the labor market for higher educated, career length matters.
- Wages grow stronger and longer over the lifetime for higher educated
  - human capital accumulation during work is shown to be complementary to education
  - essential to explain employment and wage profiles for those with more education.
- Other key facts noted in the paper include growth of high employment incomes and consequent impact on inequality

## 2. Measurement of effective incentives

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- Precisely how is the policy likely to impact on the incentives facing the key players?
- e.g. overlapping taxes, tax credits and welfare benefits.
  - What are the ‘true’ effective tax rates on (labor) earnings?

# Universally Available Tax and Transfer Benefits (US Single Parent with Two Children, 2008)

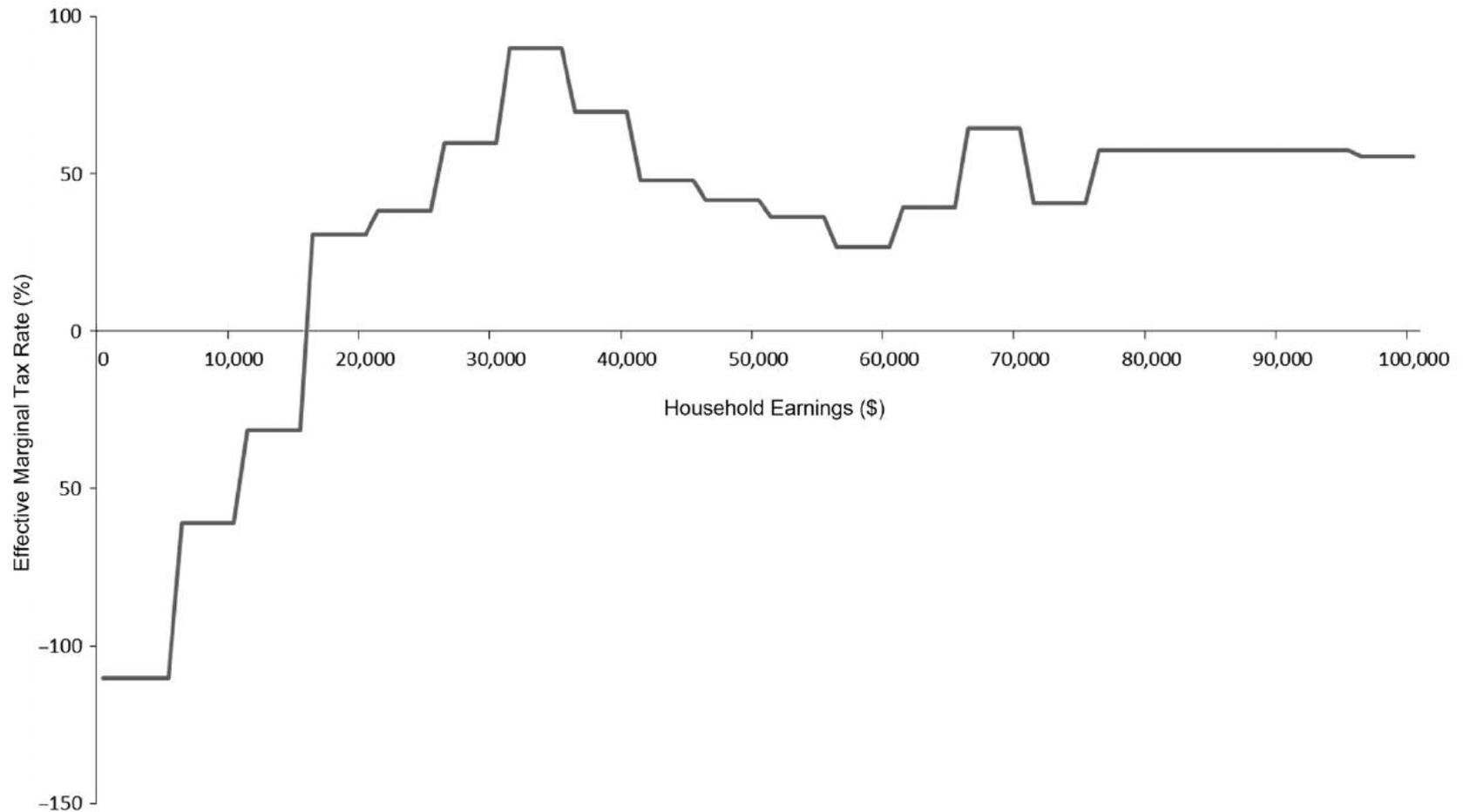


Source: Urban Institute (NTJ, Dec 2012).

Notes: Value of tax and value transfer benefits for a single parent with two children.

# Effective Marginal Tax Rates

(US Single Parent with Two Children in Colorado, 2008)

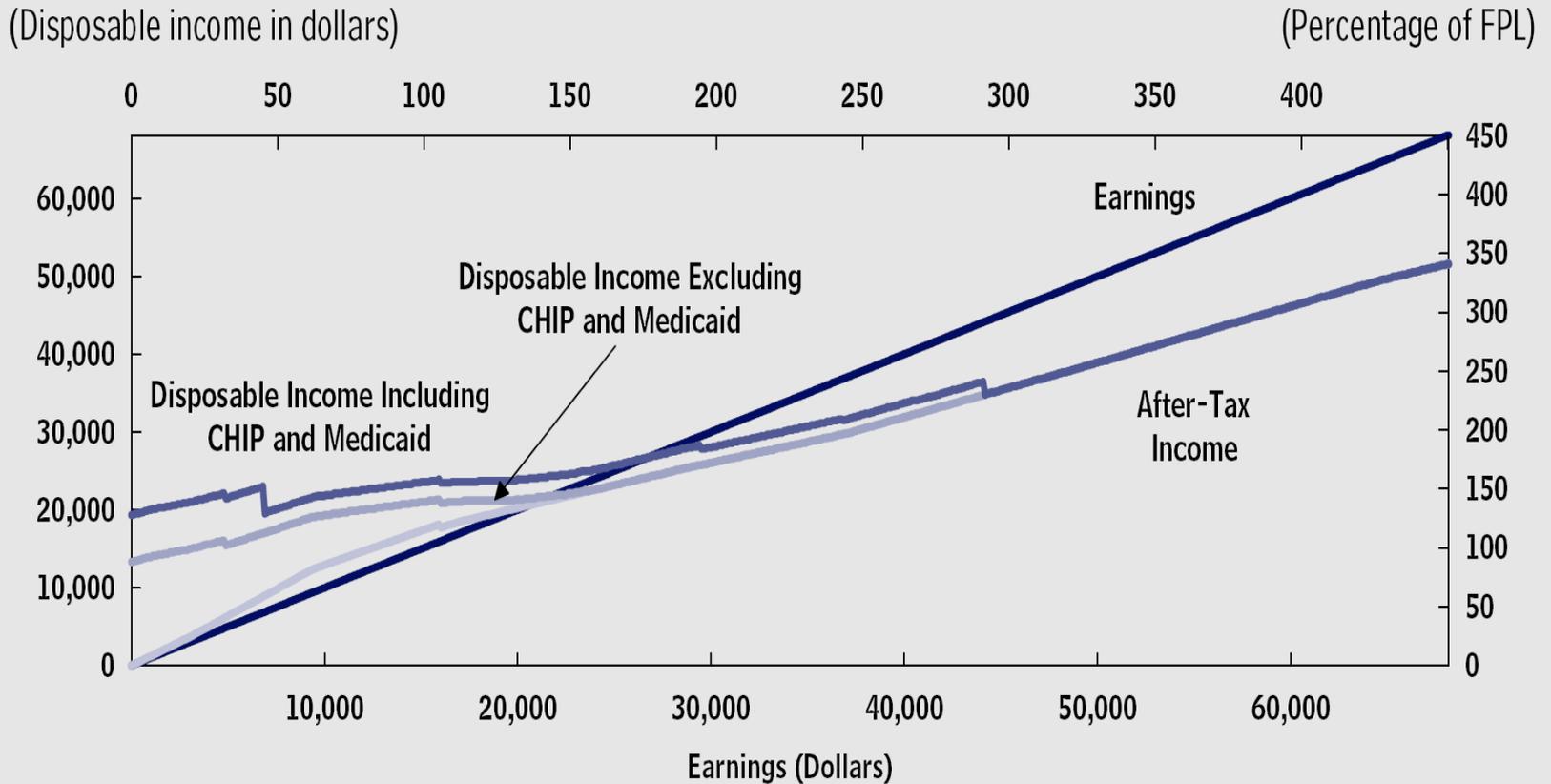


Source: Urban Institute (NTJ, Dec 2012).

Notes: Value of tax and value transfer benefits for a single parent with two children.

# Budget Constraint for Single Parent: US 2012

**Relationship Between Earnings and Disposable Income for a Hypothetical Single Parent with One Child in 2012**

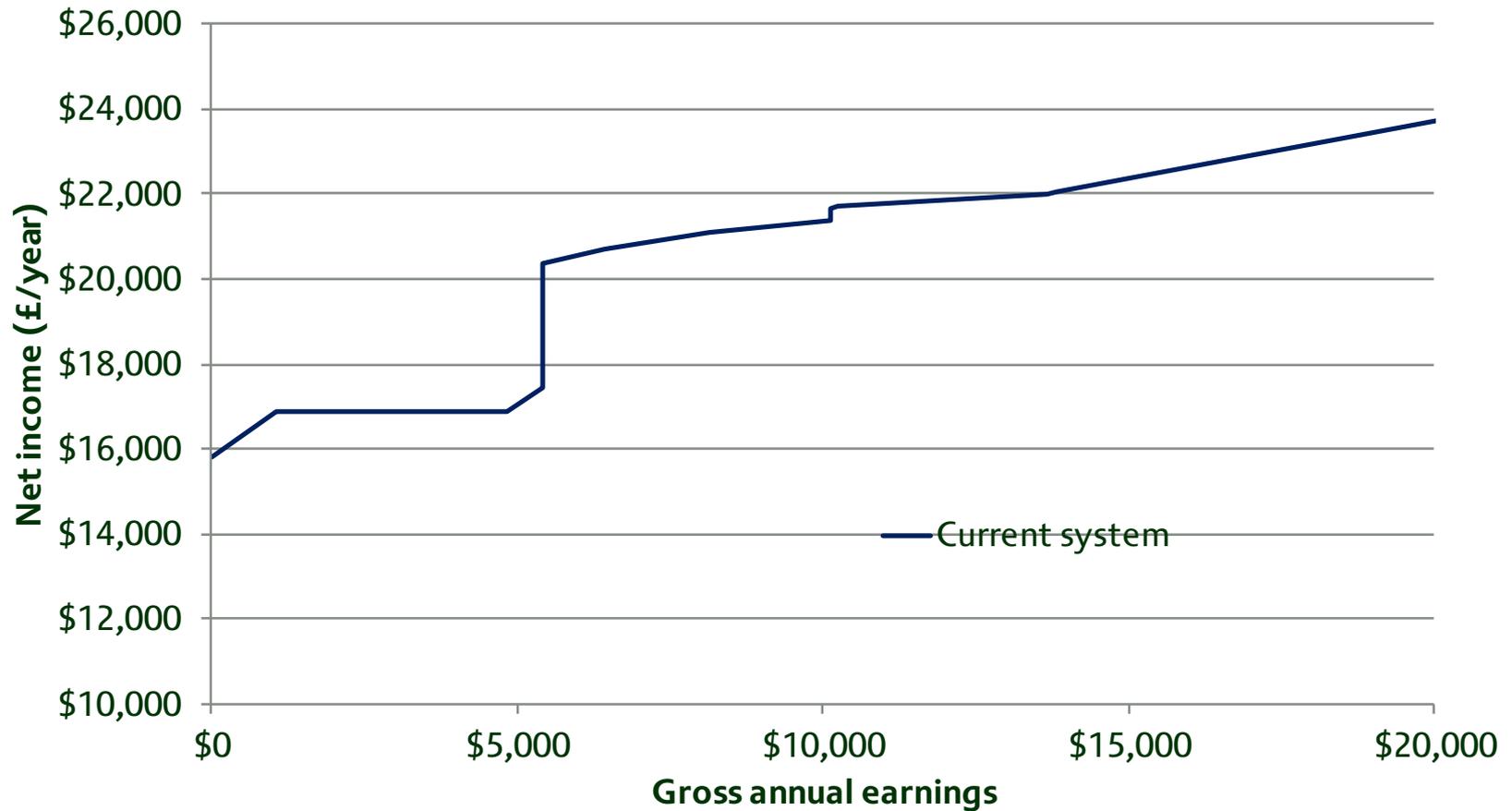


Source: Congressional Budget Office based on survey data from the Census Bureau.

Source: CBO (2012).

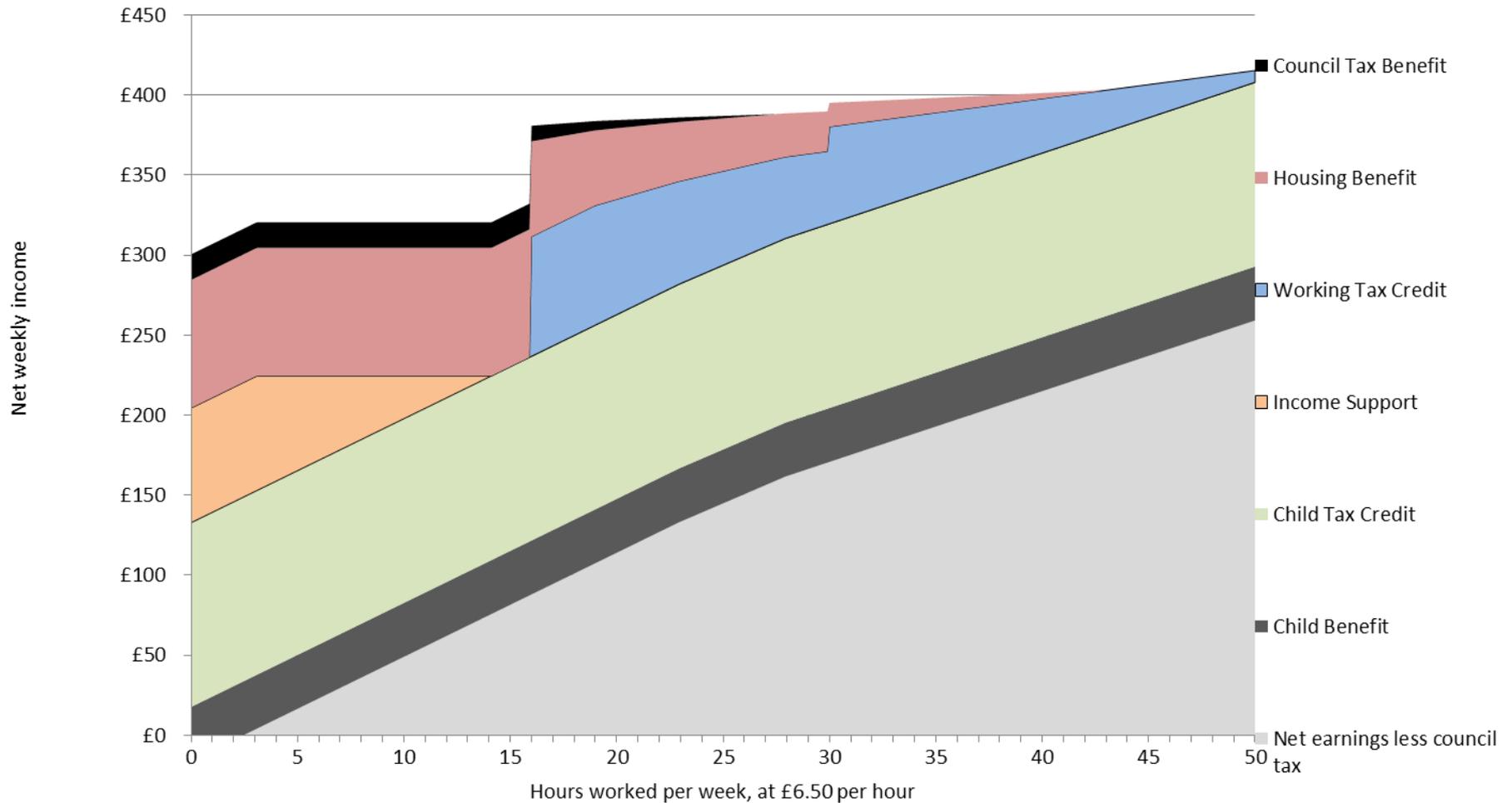
Notes: This example assumes that the taxpayer files as a head of household, has one child, and qualifies for both the EITC and the CTC.

# Budget Constraint for Single Parent: UK 2011



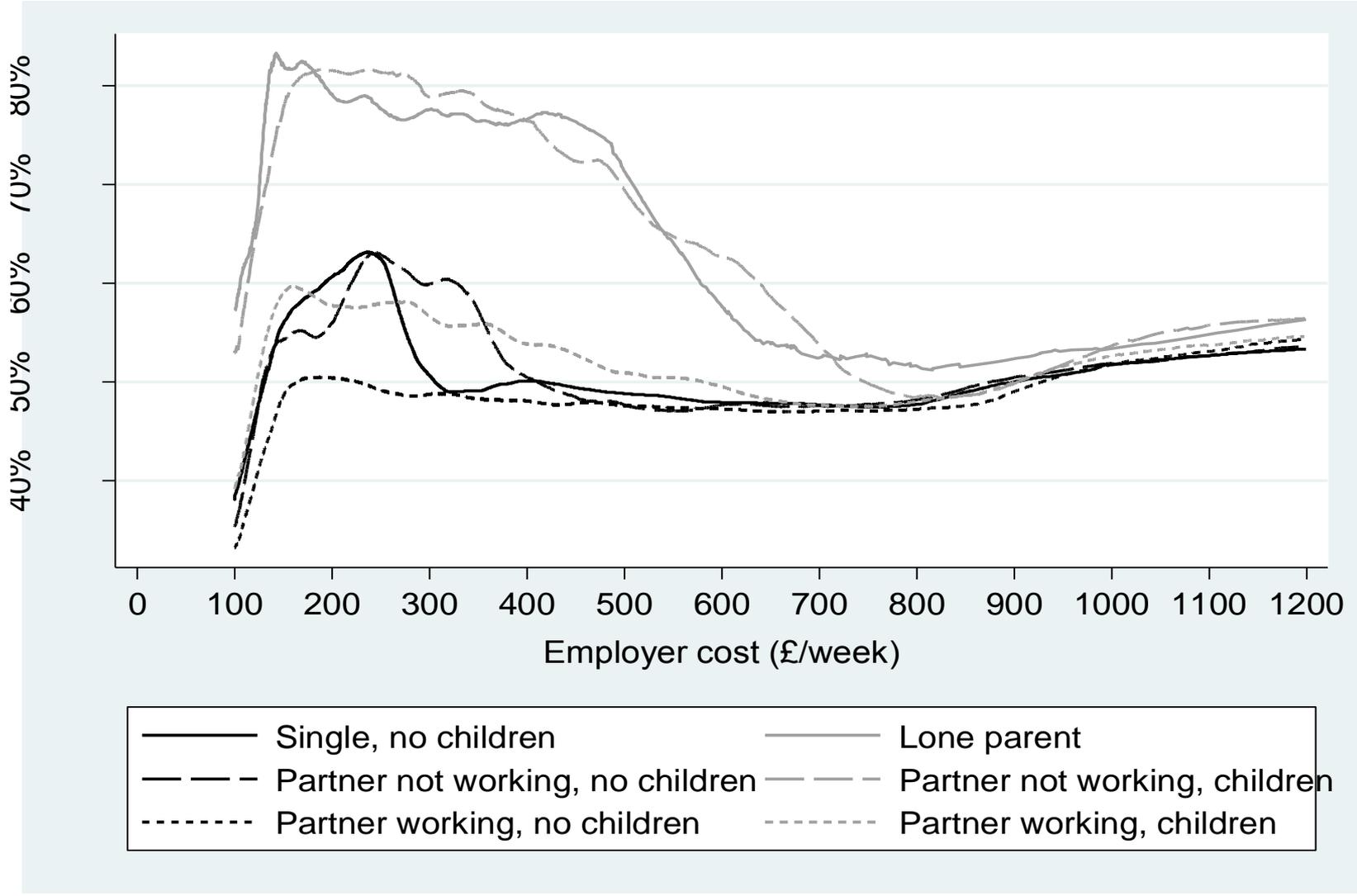
Notes: wage £6.50/hr, 2 children, no other income, £80/wk rent. Ignores council tax and rebates

# Budget Constraint for Single Parent: UK 2011

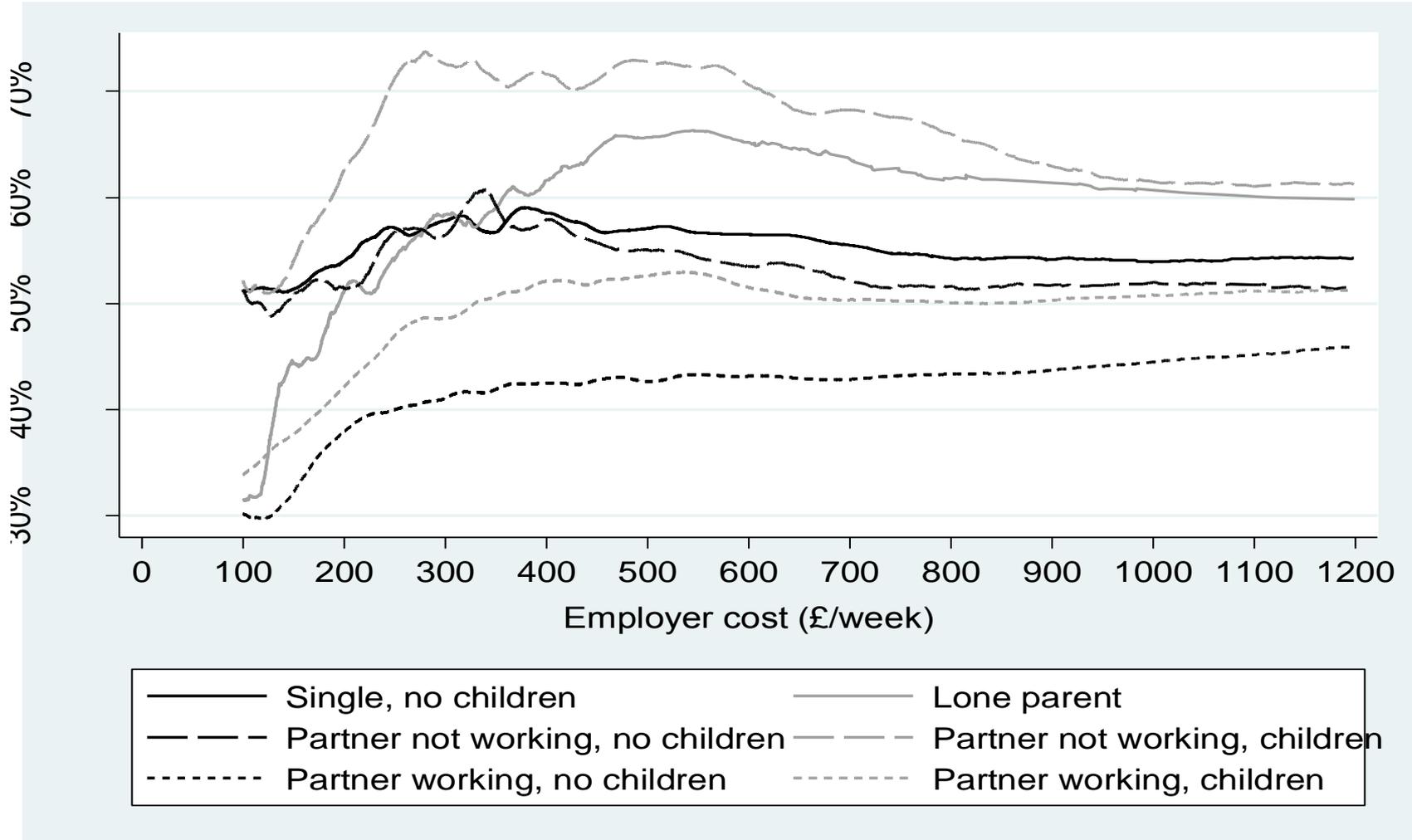


Notes: wage £6.50/hr, 2 children, no other income, £80/wk rent. Ignores council tax and rebates

# Average EMTRs for different family types: UK 2011

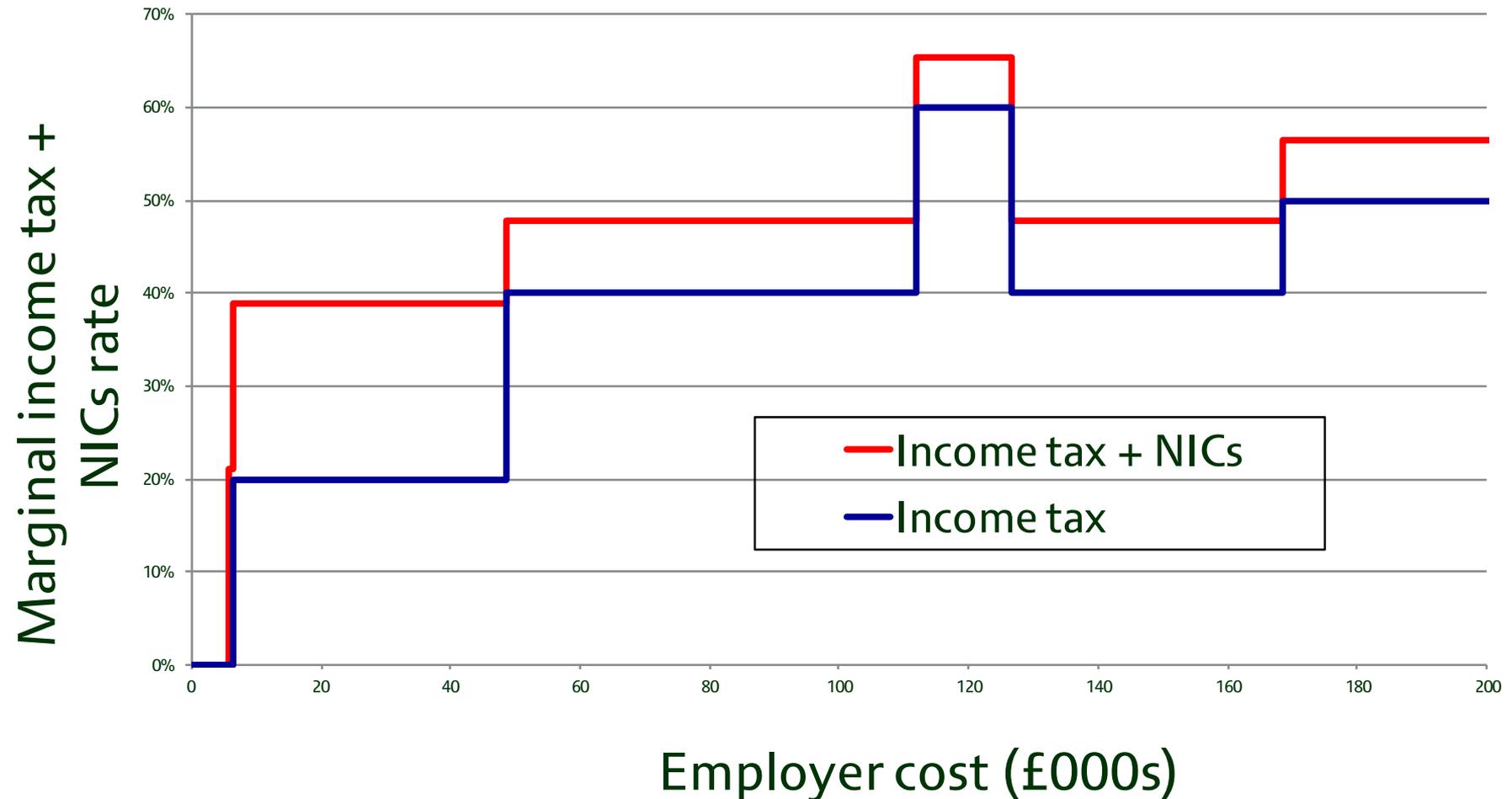


# Average PTRs for different family types: UK 2011



# Marginal rates for higher earners

## Income tax schedule for those aged under 65, UK 2010–11



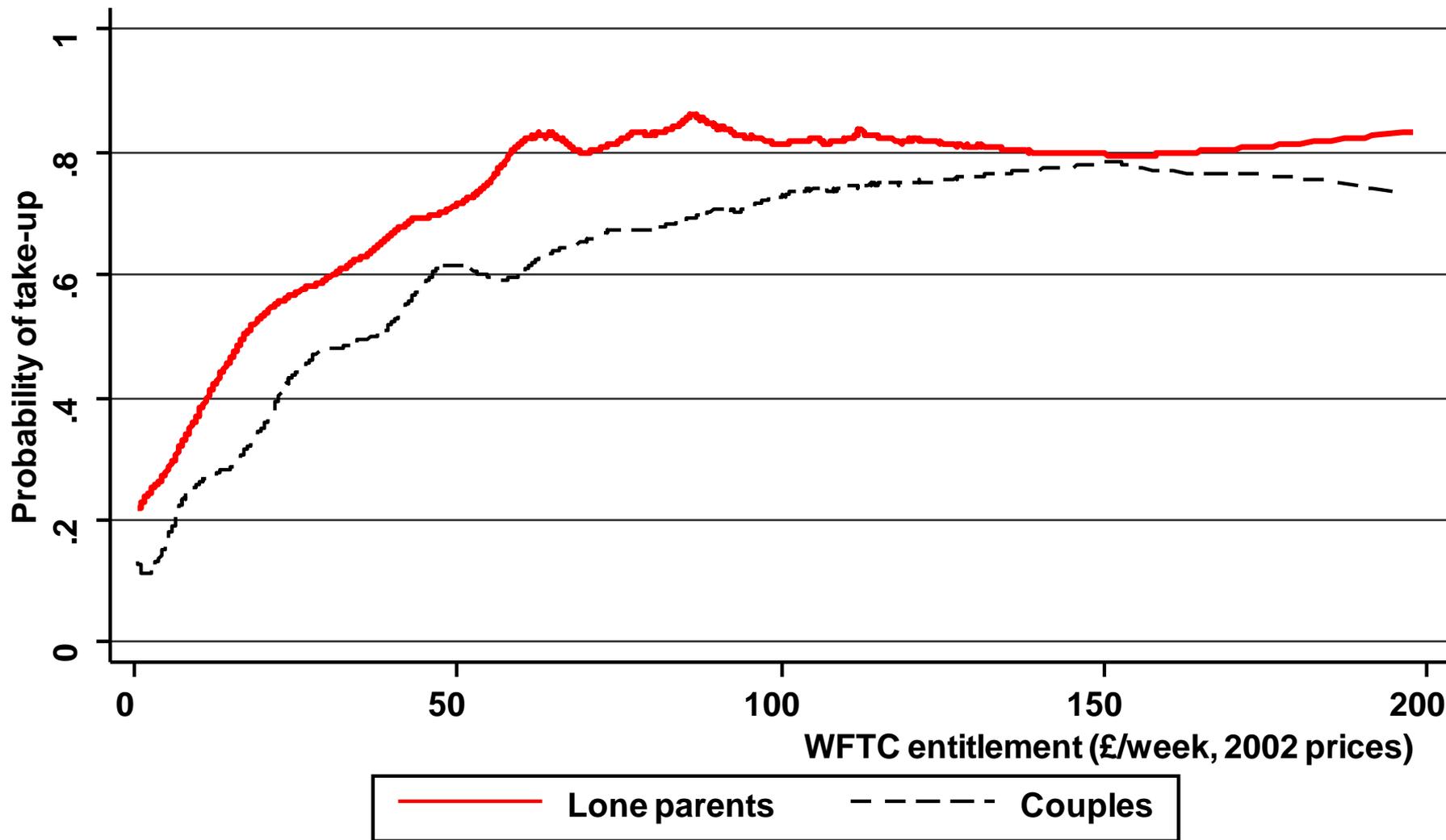
Source: Mirrlees Review (2011)

### 3. The importance of information and complexity

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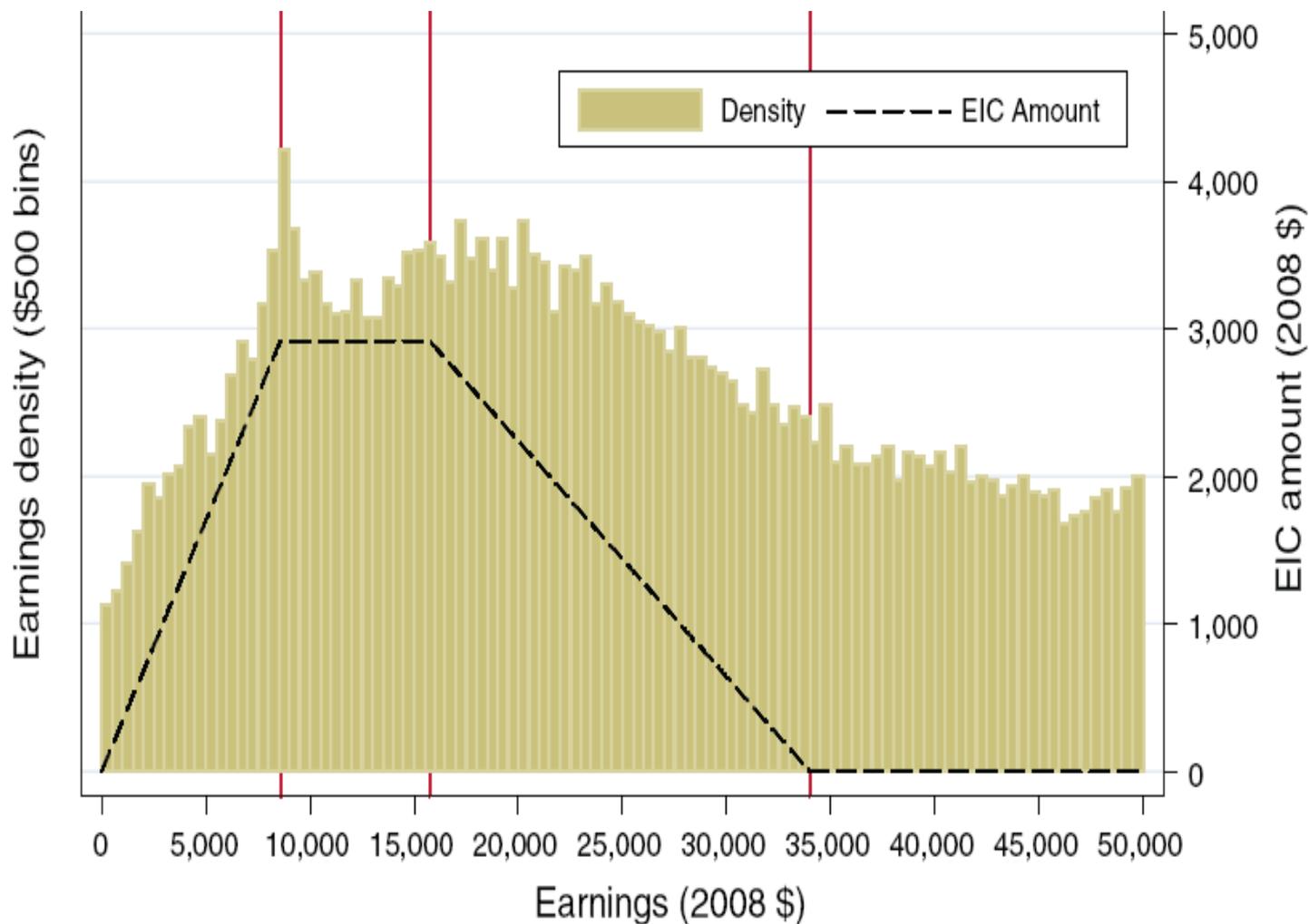
- How is the policy likely to be understood by the agents involved?
- For example, how 'salient' are the various tax incentives in the policy reform?
  - 'Take-up' among eligible families
  - 'Bunching' at kink points

# Variation in tax credit 'take-up' with value of entitlement



# Bunching at Tax Kinks and the EITC

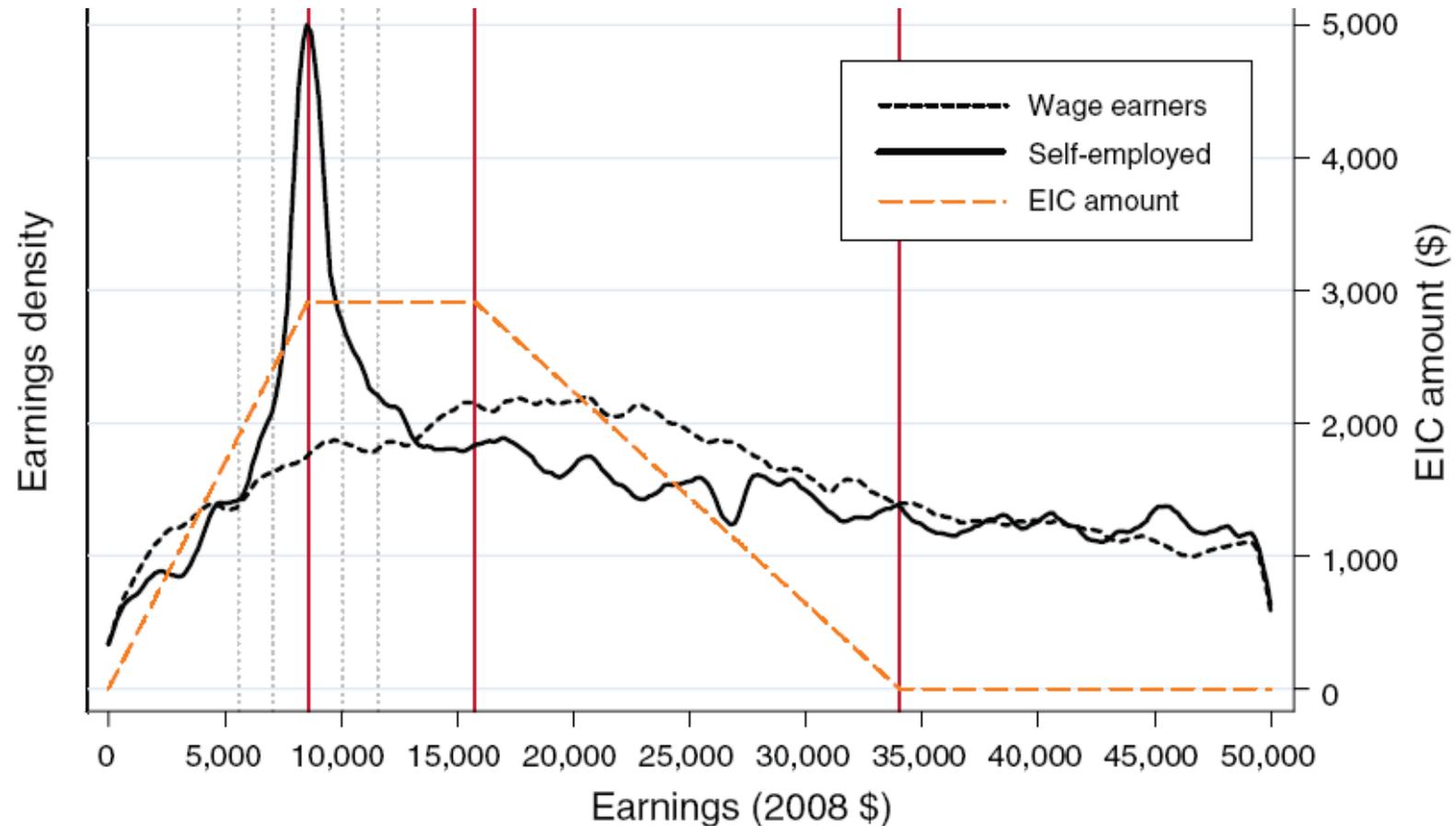
## One child families: US



Source: Saez (2010)

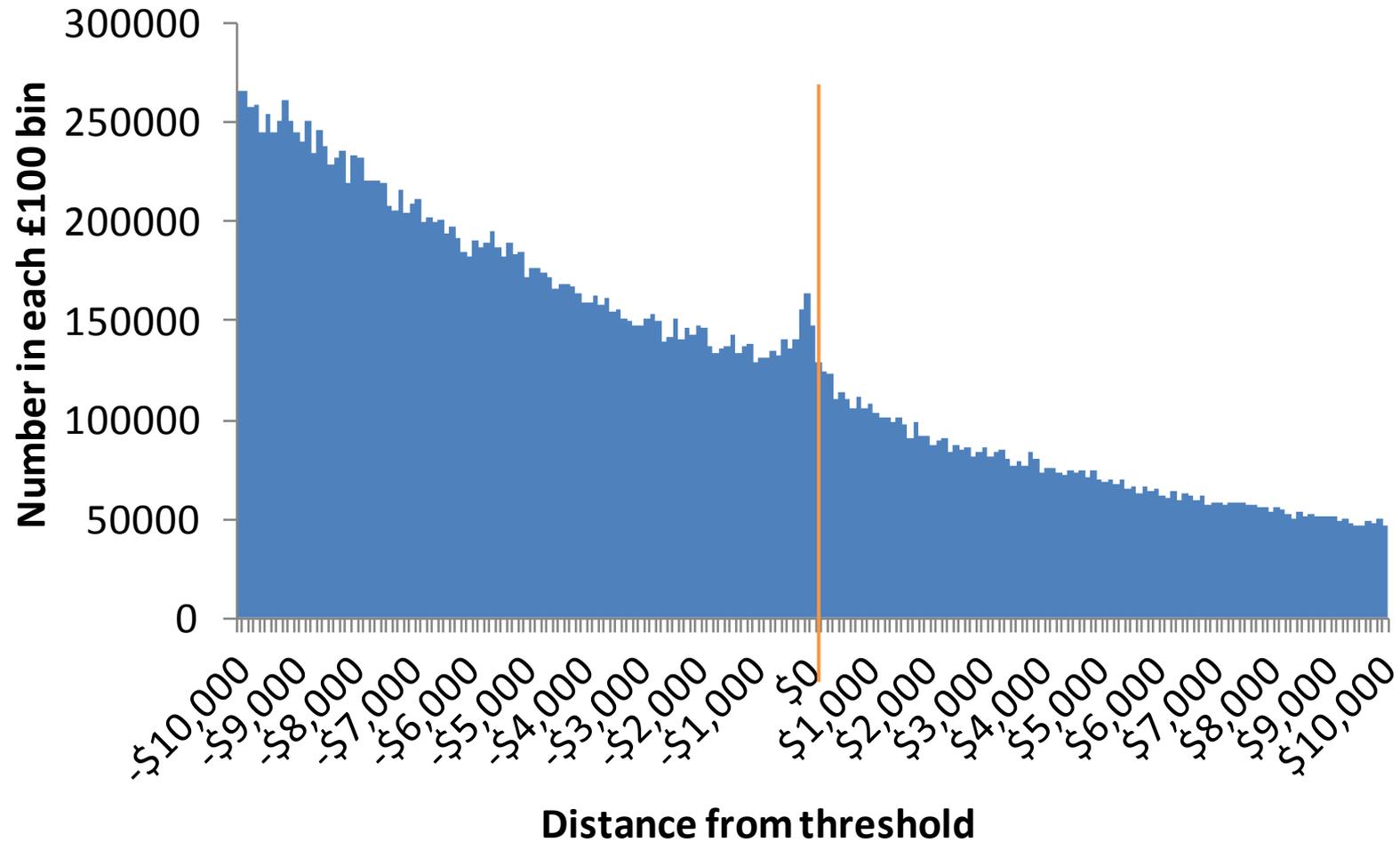
# Bunching at Tax Kinks and the EITC

## One child families: US

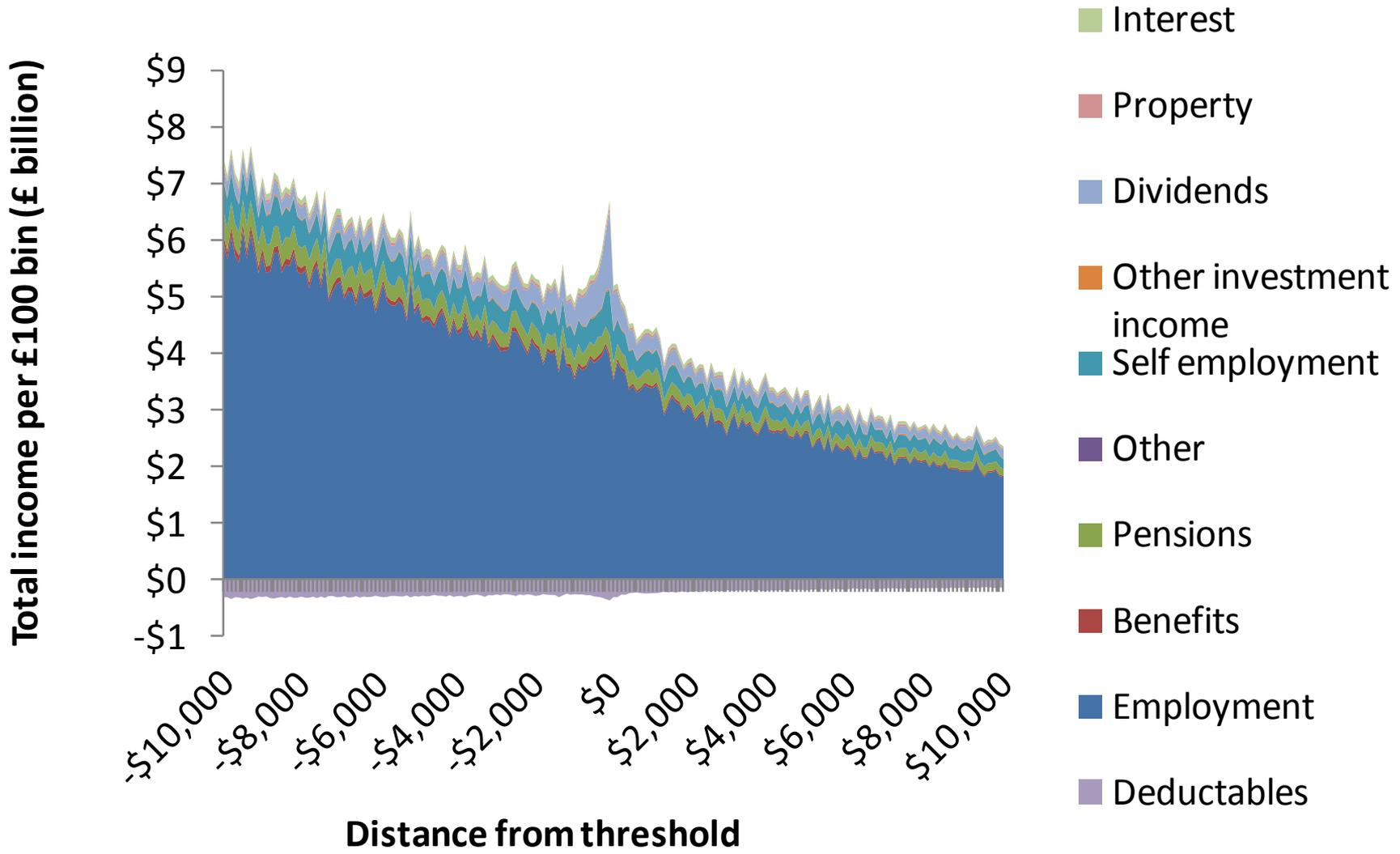


Source: Saez (2010)

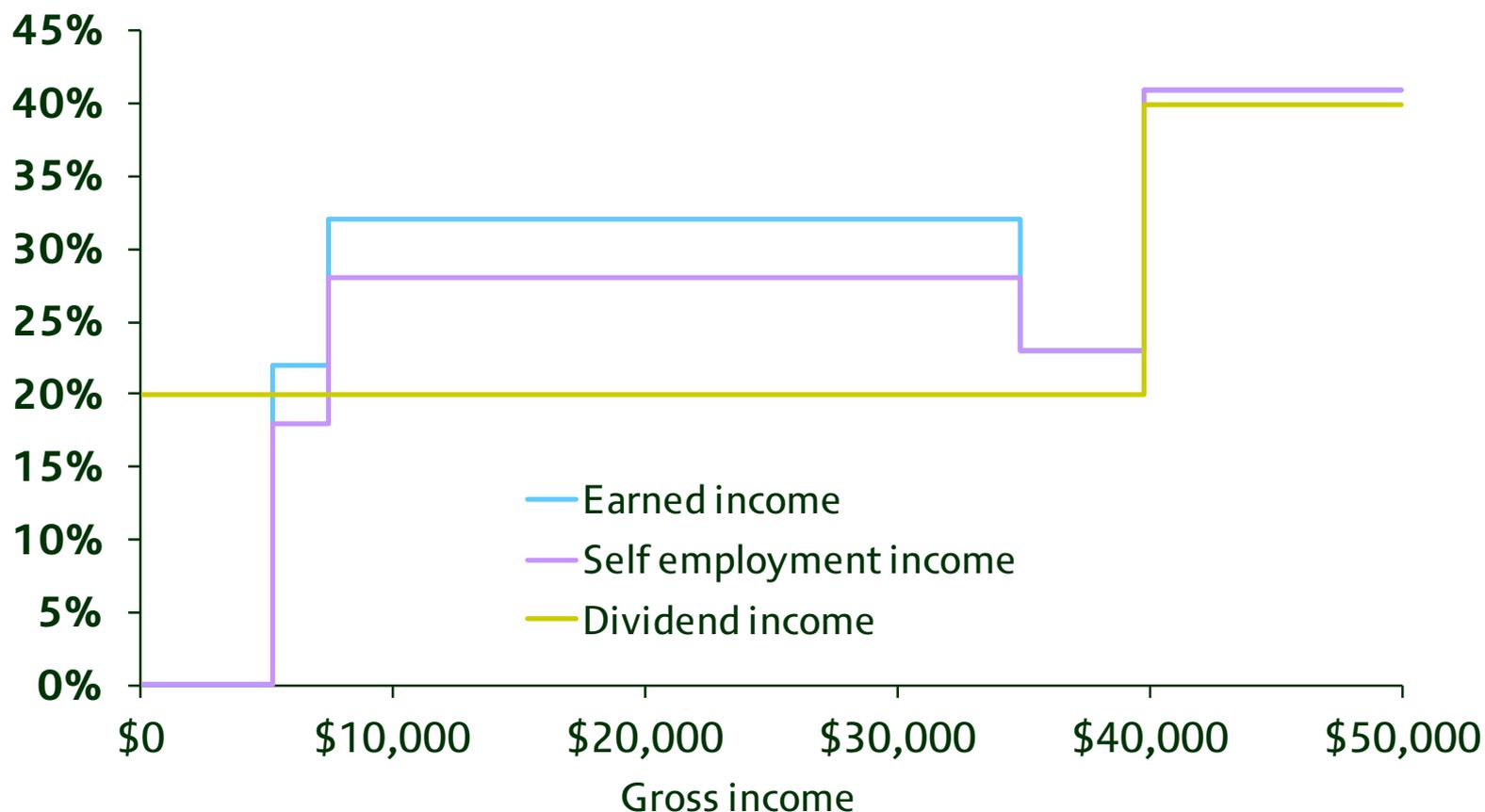
# Bunching at the higher rate threshold, UK 2007–08



# Composition of income around the higher rate tax threshold



# Marginal tax rates by income level, UK 2007–08



Note: assumes dividend from company paying small companies' rate. Includes income tax, employee and self-employed NICs and corporation tax.

## 4. Evidence on the size of responses

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- This is where the rigorous econometric analysis of structure and causality comes into play
- Eclectic use of two approaches:
  1. Quasi-experimental/RCT/reduced form evaluations of the impact of (historic) reforms
    - robust but limited in scope
  2. A 'structural' estimation based on the pay-offs and constraints faced by individuals and families
    - comprehensive in scope and allow simulation, but fragile.
    - need to account for life-cycle facts, effective tax rates, and salience/stigma.

- Incentive effects: labour supply elasticities vary in key ways by education group, family type and age. No single number!
  - large at specific points in the working life and for specific types
- Experience matters: especially for those with more than basic formal education - and often only in full-time jobs
  - can explain 'success' of simpler simulations of reforms for low-wage workers
- Education choices: a small but key impact of redistributive taxes
  - on return to education and on the insurance value of education
- Information, stigma and salience matter
  - larger responses for large reforms that are well understood
- Taxable income is responsive for self-employed and top earners
  - but often reflects tax shifting and avoidance
- More specifics =>

## Younger Workers

- Extensive margin responses for 'permanent' changes in net income are low ( $\approx .15$ ) at young ages for college educated
  - But much higher ( $\approx .9$ ) for mothers with basic education and kids in 3-7 age range, and larger than intensive elasticities which are more modest ( $\approx .5$ )
  - 'static' models work surprisingly well for low educated but need to account for 'take-up'.

## Human capital effects

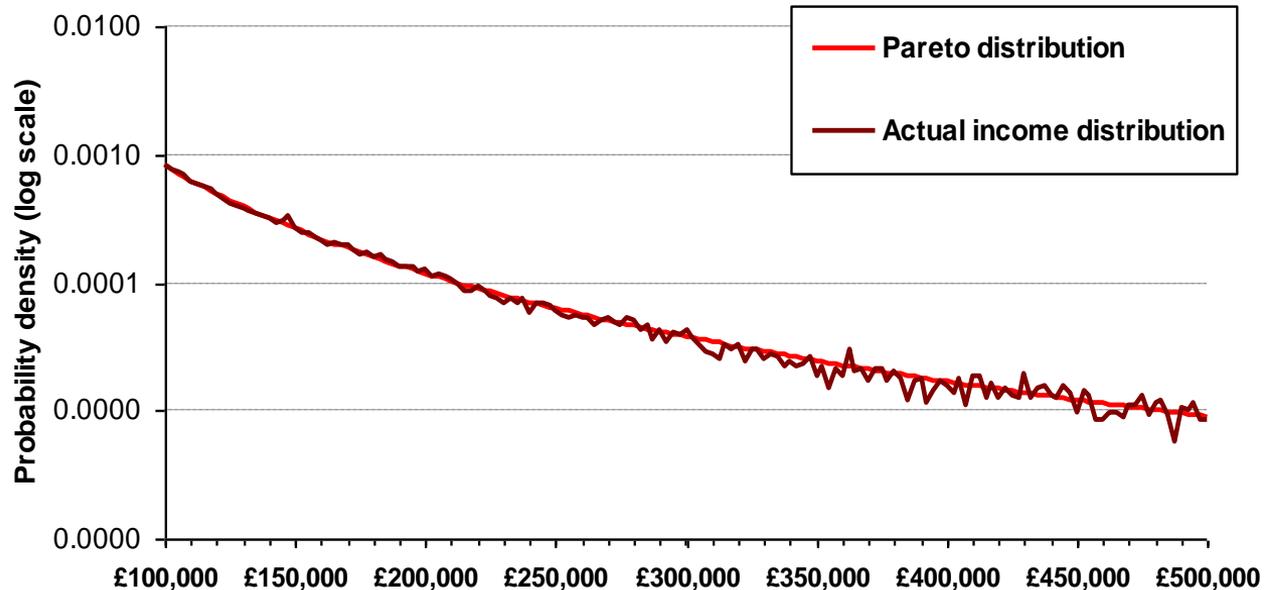
- Two forms of human capital – schooling and on-the-job investment
  - the hourly wages of those with more education are higher, and grow faster and for longer into the working life - formal education complements experience capital
  - for educated young workers, employment generates valuable experience, unlikely to respond to tax incentives during career, rather effect career length and retirement.

## Older workers...

- Elasticities increase for 60+ age group for both men and women
  - appear to remain higher for women at both margins
  - elasticities increase as mandatory retirement restrictions/earnings tests are lifted and actuarial fairness introduced
  - joint retirement matters above pure incentives
- Lower educated are responsive to incentives in disability insurance, social security and medical insurance.
- Higher educated more responsive too at these ages
  - larger density of workers around the work/no-work margin
  - wage and wealth effects become important
- Response elasticities are sizable but do not appear to explain all the recent rises in employment at older ages in UK and US.

# Taxable income...for top earners

- Captures additional avoidance and tax shifting responses
  - the ‘elasticity’ can be expected to fall as the tax base broadens
- For a given tax base we can get an idea of the Laffer rate, the revenue maximising rate, for the top bracket at least
  - $1/[1 + \text{taxable income elasticity } (e) * \text{Pareto parameter } (a)]$



- ‘a’ around 1.67 and ‘e’ around .45 for UK; Mirrlees (2011).
- ‘e’ reliable?, Ignore a variety of dynamic and structural issues.

# Five messages emerge:

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- First, it is important to take a ‘lifetime’ view
  - key points in the working life where tax incentives matter.
- Second, must account for interactions between taxes and welfare
  - effective tax rates depend on incentives in the welfare system, taxes on employers as much as in the personal tax system.
- Third, fixed costs, information costs and stigma are important
  - responses at the extensive margin differ from intensive margin
  - take-up among eligibles is costly
- Fourth, accounting for human capital investment matters
  - educational investments enhance human capital at work
  - incentives for educational investments influenced by taxes
- Finally, taxable income captures avoidance/shifting opportunities.

## 5. Implications for efficient redesign of tax policy

- Current systems are unnecessarily complicated and induce too many people not to work or to work too little.
- Target work incentives where they are most effective
  - simulations in Mirrlees (2011) show key increase in work/earnings
  - reducing means-testing and improving the flows into work for lower education mothers and maintaining work for those aged 55+.
- Integrate overlapping benefits - a single integrated benefit
  - Mirrlees (2011) - 'ifs' and 'universal credit' reforms.
- Reduce disincentives at key margins for the educated
  - enhancing working lifetime and the career earnings profile
  - simulations in BDMS (2013) show significant on human capital.
- Align tax rates at the margin across income sources
- Make better use of social insurance and welfare accounts.....

# Taxation of Earnings and the Impact on Labor Supply and Human Capital

That's it for now!

- Considered the role of evidence in tax policy:
  1. Key margins of adjustment to reform
  2. Measurement of effective incentives
  3. The importance of information and complexity
  4. Evidence on the size of responses
  5. Implications for efficient redesign of tax policy
- References to specific studies listed in the paper.
- <http://www.ifs.org.uk/mirrleesReview>