Empirical Evidence and Tax Policy Design: Lessons from the Mirrlees Review

JEEA - Foundation BBVA Lecture

AEA Meetings, Atlanta

January 3rd 2010

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(longer version of lecture on AEA conference website)

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Empirical Evidence and Tax Policy Design

- First, a little background to the Mirrlees Review

- Then a discussion on the role of evidence loosely organised under five headings:

1. Key margins of adjustment to tax reform

2. Measurement of effective tax rates

3. The importance of information, complexity and salience

4. Evidence on the size of responses

5. Implications for tax design

- Focus on earnings, savings and indirect tax reform as leading examples

The Mirrlees Review
Reforming the Tax System for the 21st Century

Editorial Team

Chairman: Sir James Mirrlees

Tim Besley (LSE, Bank of England & IFS)

Richard Blundell (IFS & UCL)

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James Poterba (MIT & NBER)

with:

Stuart Adam (IFS)

Steve Bond (Oxford & IFS)

Robert Chote (IFS)

Paul Johnson (IFS & Frontier)

Gareth Myles (Exeter & IFS)

The Mirrlees Review

- Review of tax design from first principles
  - For modern open economies in general
  - For the UK in particular
- Two volumes:
  - '<u>Dimensions of Tax Design</u>': a set of 13 chapters on particular areas co-authored by IFS researchers + international experts, along with expert commentaries (MRI)
  - '<u>Tax by Design</u>': an integrated picture of tax design and reform, written by the editors (MRII)
  - http://www.ifs.org.uk/mirrleesReview/publications
- MRI on the web and now at the OUP stand…

Dimensions of Tax Design: commissioned chapters and expert commentaries (1)

- The base for direct taxation

  James Banks and Peter Diamond; Commentators: Robert Hall; John Kay; Pierre Pestieau

- Means testing and tax rates on earnings

  Mike Brewer, Emmanuel Saez and Andrew Shephard; Commentators: Hilary Hoynes; Guy Laroque; Robert Moffitt

- Value added tax and excises

  Ian Crawford, Michael Keen and Stephen Smith; Commentators: Richard Bird; Ian Dickson/David White; Jon Gruber

- Environmental taxation

  Don Fullerton, Andrew Leicester and Stephen Smith; Commentators: Lawrence Goulder; Agnar Sandmo

- Taxation of wealth and wealth transfers

  Robin Boadway, Emma Chamberlain and Carl Emmerson; Commentators: Helmuth Cremer; Thomas Piketty; Martin Weale

Dimensions of Tax Design: commissioned chapters and expert commentaries (2)

- International capital taxation

  Rachel Griffith, James Hines and Peter Birch Sørensen; Commentators: Julian Alworth; Roger Gordon and Jerry Hausman

- Taxing corporate income

  Alan Auerbach, Mike Devereux and Helen Simpson; Commentators: Harry Huizinga; Jack Mintz

- Taxation of small businesses

  Claire Crawford and Judith Freedman

- The effect of taxes on consumption and saving

  Orazio Attanasio and Matthew Wakefield

- Administration and compliance, *Jonathan Shaw, Joel Slemrod and John Whiting; Commentators: John Hasseldine; Anne Redston; Richard Highfield*

- Political economy of tax reform, *James Alt, Ian Preston and Luke Sibieta; Commentator: Guido Tabellini*

Why another Review?

Changes in the world (since the Meade Report)

Changes in our understanding (..)

Increased empirical knowledge (..)

Increased empirical knowledge: – some examples

- labour supply responses for individuals and families
  - at the intensive and extensive margins
  - by age and demographic structure
- taxable income elasticities
  - top of the income distribution using tax return information
- consumer responses to indirect taxation
  - importance of nonseparability and variation in price elasticities
- intertemporal responses
  - consumption, savings and pensions
- Income uncertainty
  - persistence and magnitude of earnings shocks over the life-cycle
- ability to (micro-)simulate marginal and average rates
  - simulate 'optimal' reforms

Empirical Evidence and Tax Policy Design

1. Key margins of adjustment to tax reform

2. Measurement of effective tax rates

3. The importance of information, complexity and salience

4. Evidence on the size of responses

5. Implications for tax design

   Here I will focus on earnings, indirect and savings taxation:

- Leading examples of the mix of theory and evidence

- Key implications for tax design

- Earnings taxation, in particular, takes most of the strain in distributional adjustments of other parts of the reform package
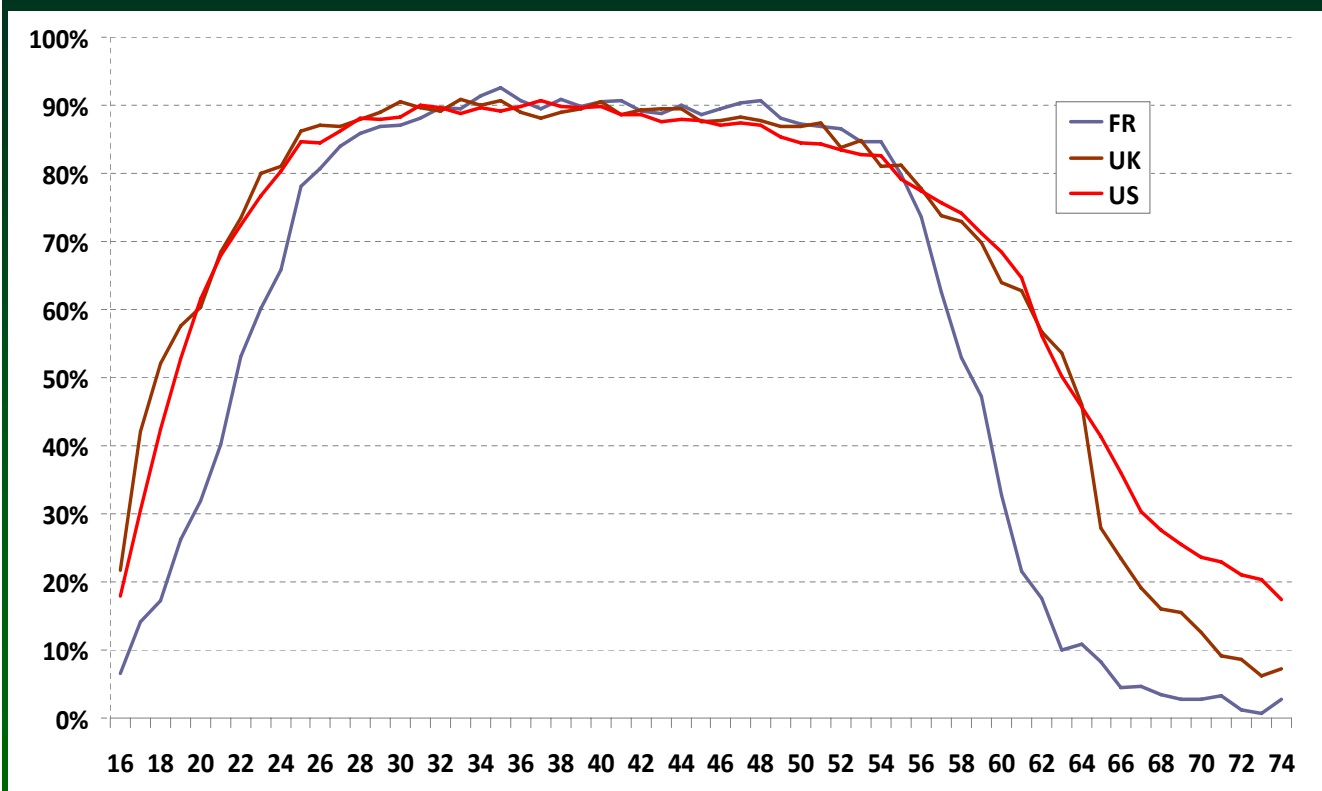
Key Margins of Adjustment

- Intensive and extensive margins of labour supply

- Taxable income and forms of remuneration

- Consumer demand mix

- Savings-pension portfolio mix

- Housing equity

- Human capital

- Organisational form

- Debt-equity mix for companies
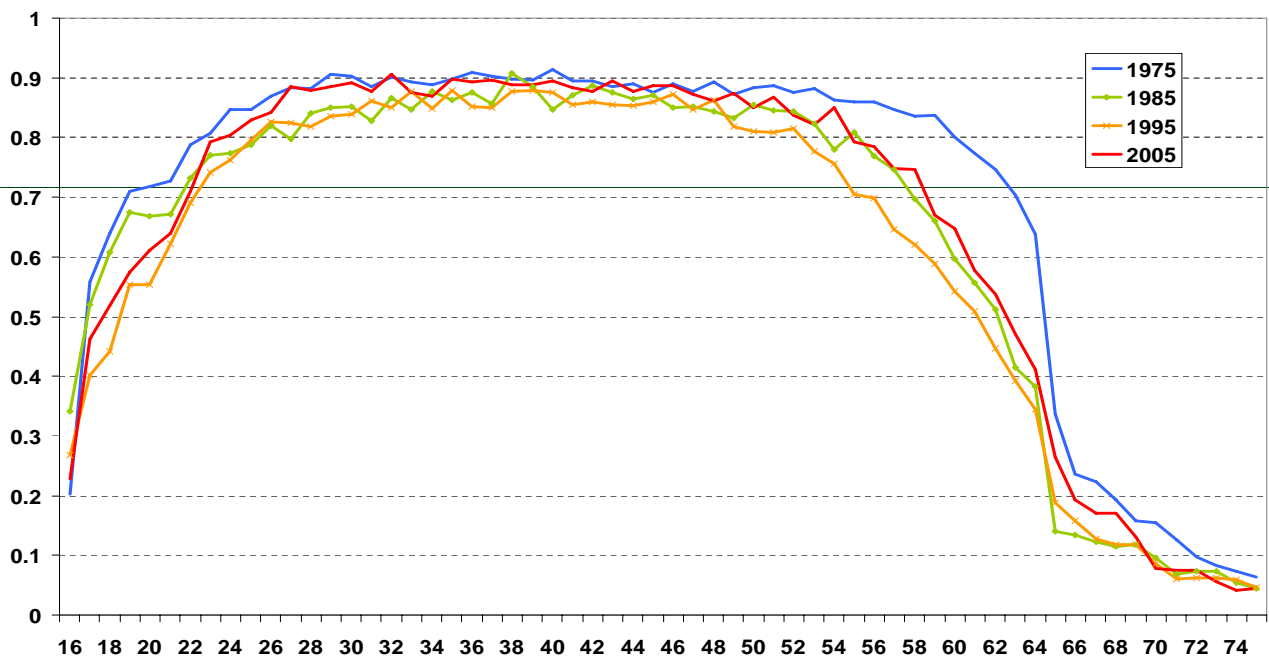
- Company/R&D location

Key Margins of Adjustment

- Extensive and intensive margins of labour supply

- What do they look like?

  - Getting it right for men
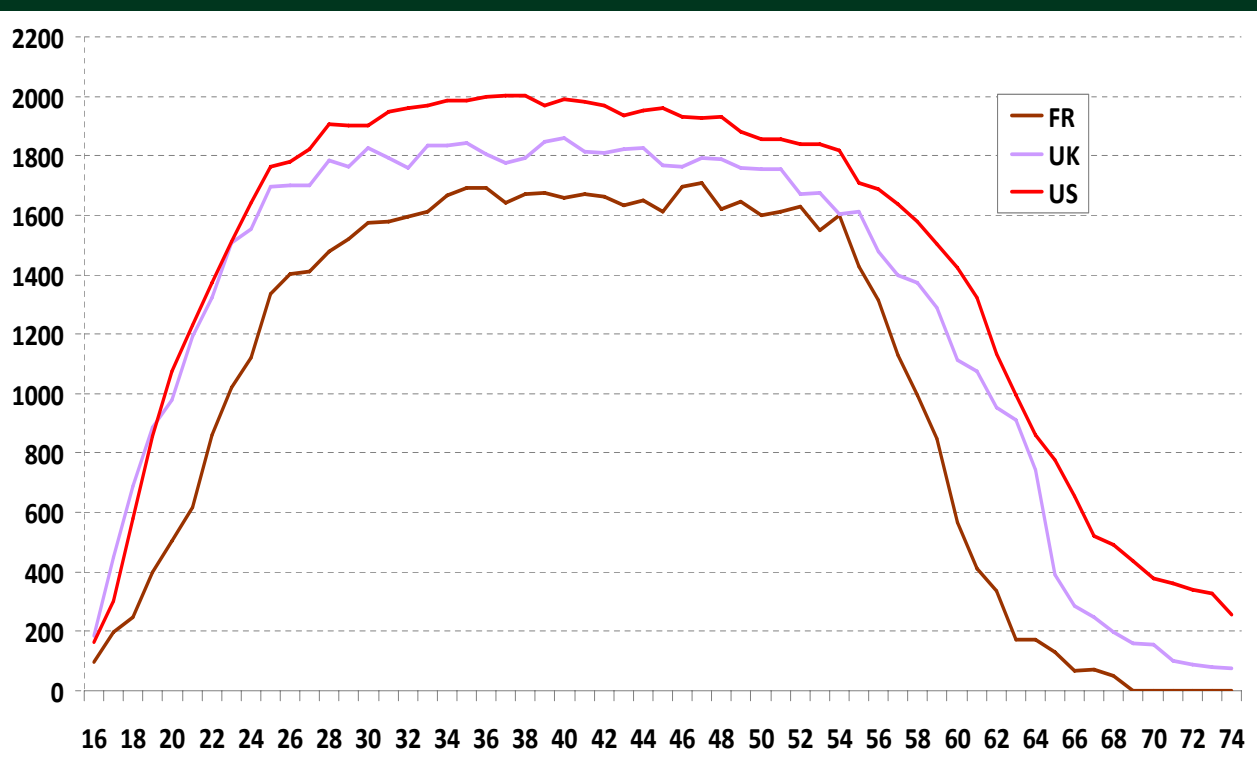
Male Employment by age – US, FR and UK 2007

FR
UK
US

Bozio, Blundell and Laroque

Male Employment by age UK: 1975 - 2005

Data: UK LFS.

Bozio, Blundell and Laroque

Male Hours by age - US, FR and UK 2005
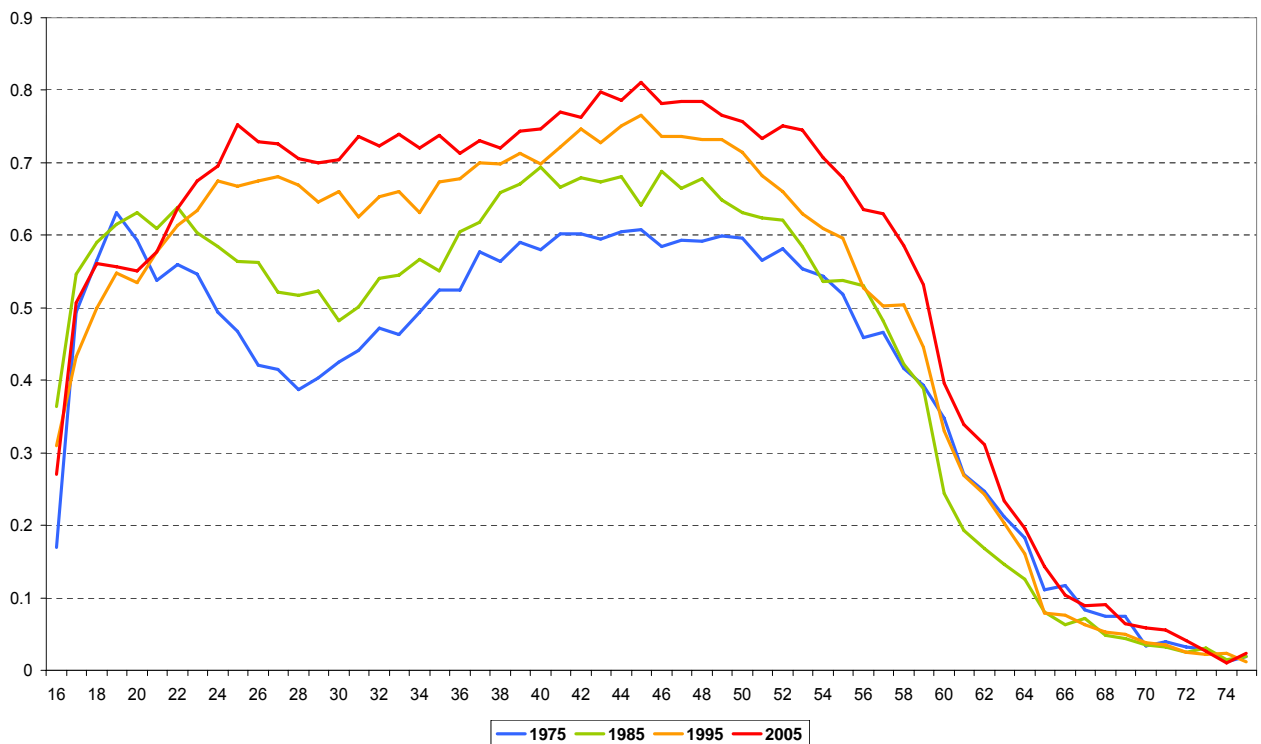
Bozio, Blundell and Laroque

Key Margins of Adjustment

- Extensive and extensive margins
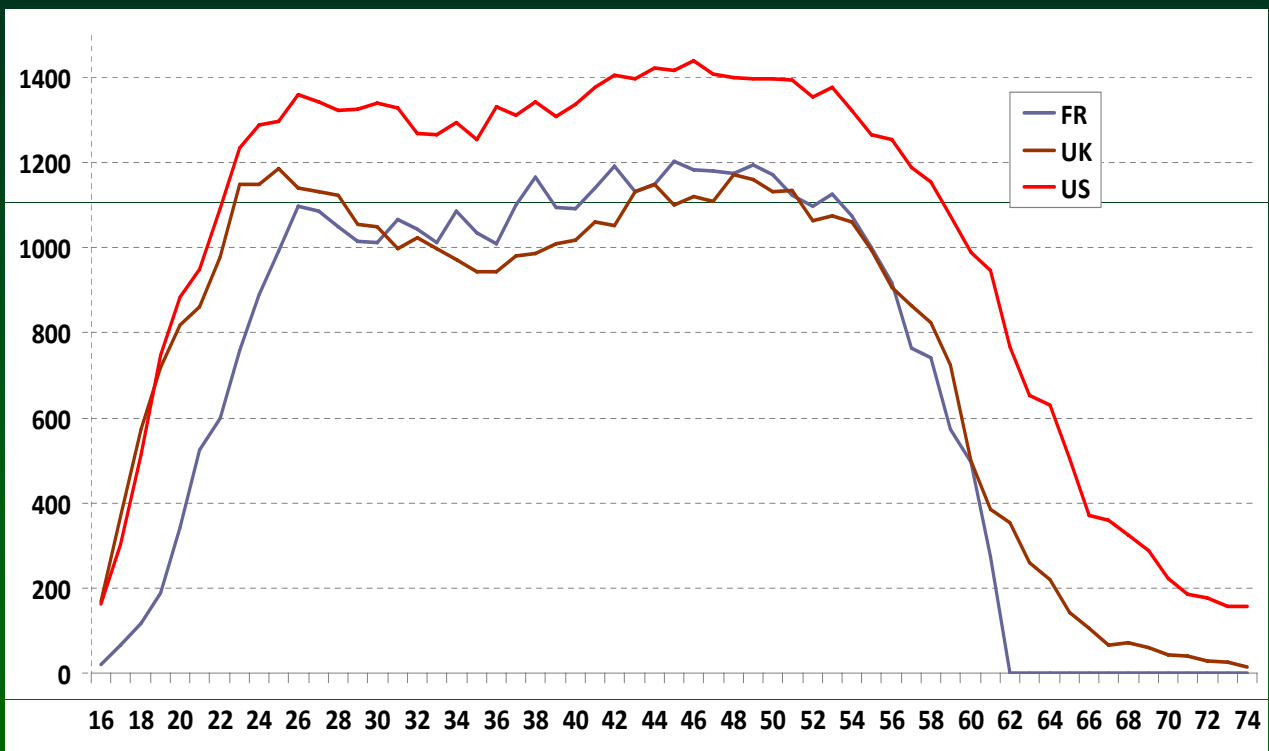
- What do they look like?

  - Female employment and hours

Female Employment by age in the UK - 1975 - 2005

Source: LFS.

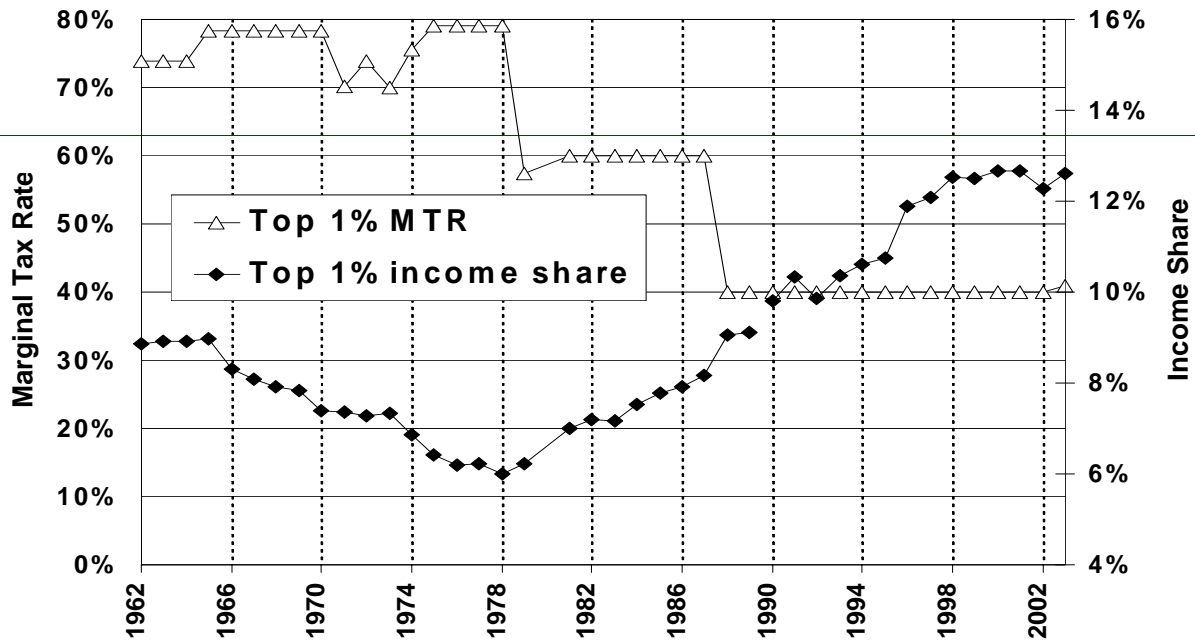## Female Hours by age – US, FR and UK 2005

Bozio, Blundell and Laroque

Why is this important for tax design?
Implications for the design of tax rates on earnings

1. Suggests where should we look for responses to tax reform.
2. Some key lessons from recent tax design theory (Saez,..)
- Importance of extensive labour supply margin (Heckman, Rogerson, Wise, ..)
- A 'large' extensive elasticity can 'turn around' the impact of declining social weights
  - implying a higher transfer to low wage workers than those out of work
  - a role for tax credits
3. But how do individuals perceive the tax rates on earnings implicit in the tax credit and benefit system - salience?
  - are individuals more likely to 'take-up' if generosity increases?
  - how does labour supply in couples respond?
4. Importance of margins other than labour supply
  - taxable income elasticities (at the top)

Top incomes and taxable income elasticities

A. Top 1% Income Share and MTR, 1962-2003

(Some other) Key Margins of Adjustment

- Consumer demand responses

  – responses to differential taxation of across commodities

- Savings-pension portfolio mix

  – 'Life-cycle' accumulation of savings and pension contributions

- Forms of remuneration

  – CGT reforms and the non-alignment with labour income rates

- Organisational form

  – UK chart on incorporations and tax reforms
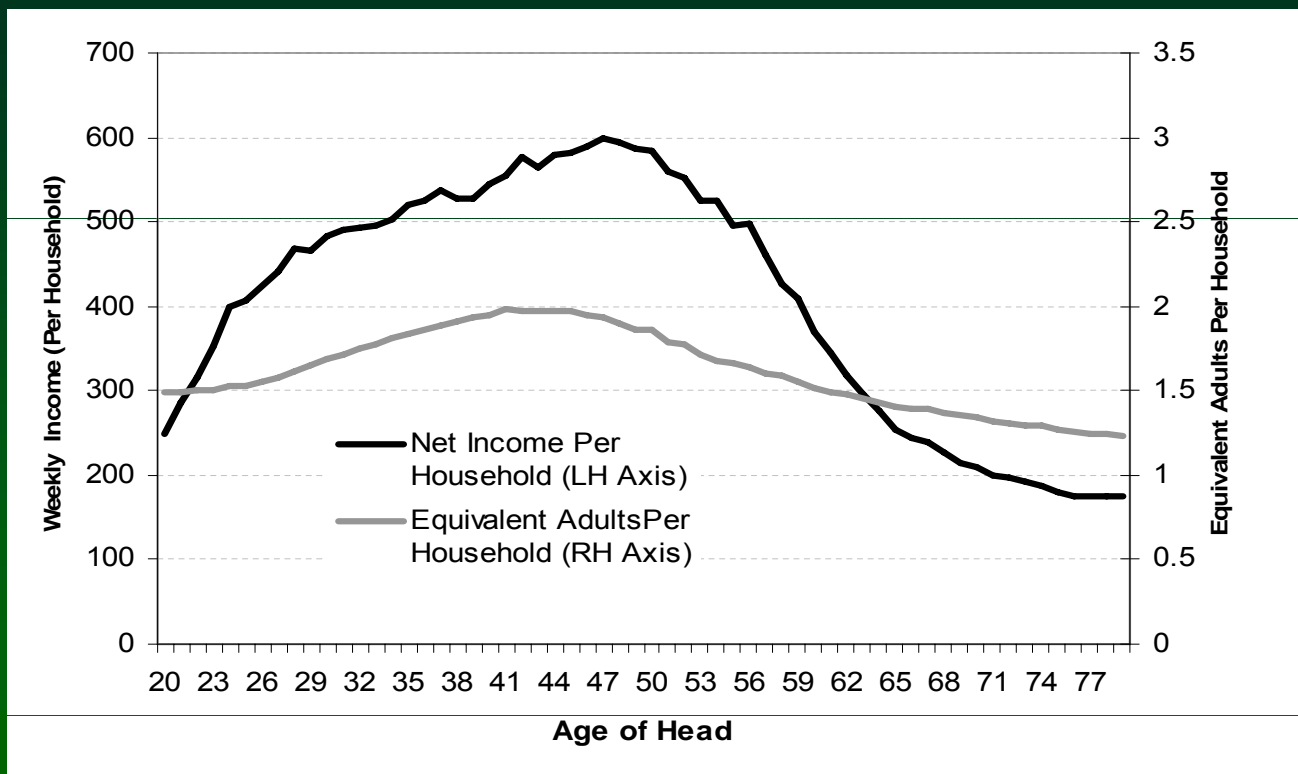
- **Look in the Review documents….**

Consumer demand behaviour

- Three key empirical observations:

- Non-separabilities with labour supply are important
  - but mainly for childcare and work related expenditures
  - updated evidence in MRI

- Price elasticities differ with total expenditure/wealth
  - responses and welfare impact differs across the distribution
  - new evidence published in Ecta last year

- Issues around salience of indirect taxes
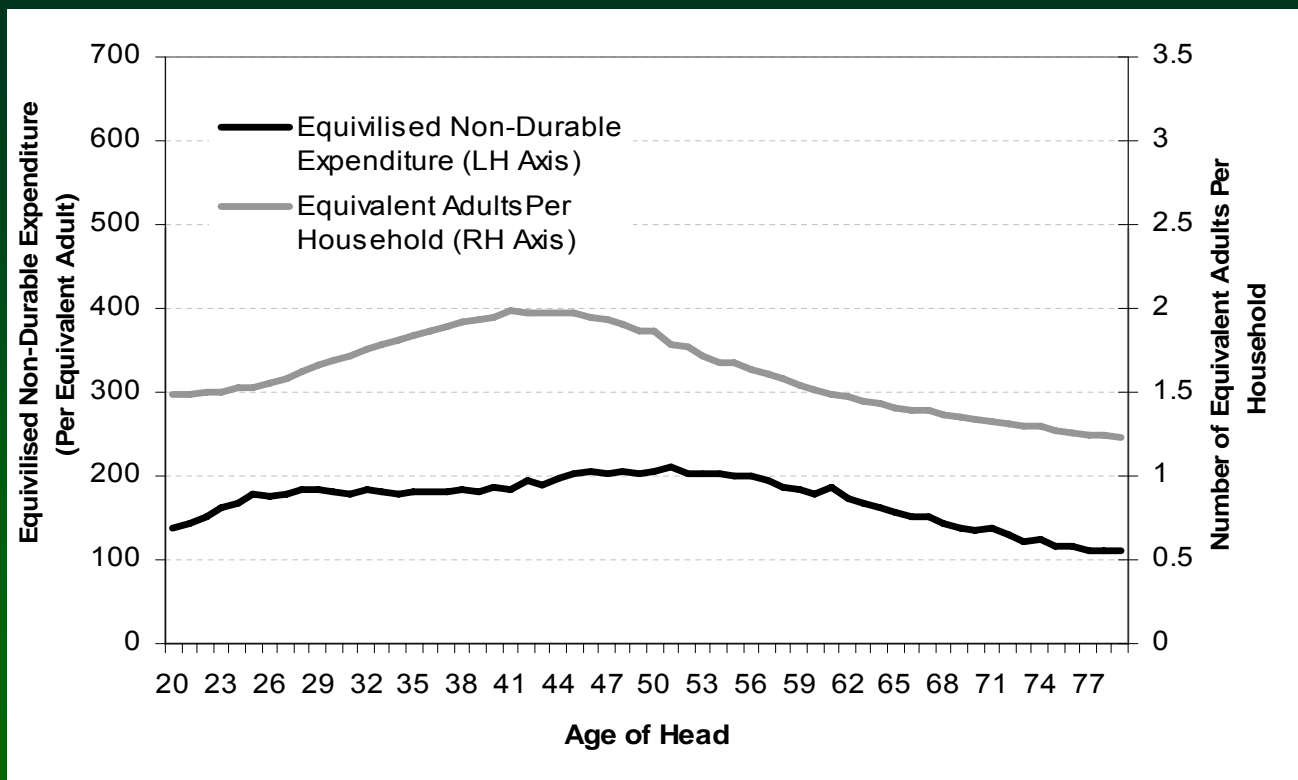 - Chetty et al (*AER*)

Savings and Pensions

- When the life-cycle model works
  - How much life-cycle consumption/needs smoothing goes on?

Net Income, Number of Equivalent Adults per Household

Source: UK FES 1974-2006

Consumption and Needs

Source: UK FES 1974-2006

Savings and Pensions

- How much life-cycle consumption/needs smoothing goes on?
    - permanent/ transitory shocks to income across wealth distribution (Blundell, Pistaferri and Preston *(AER))*
    - consumption and savings at/after retirement (BBT *(AER)*)
    - how well do individuals account for future changes?
        - UK pension reform announcements Attanasio & Rohwedder (*AER*)
        - Liebman, Luttmer & Seif *(AER)*
    - Intergeneration transfers - Altonji, Hayashi & Kotlikoff, etc
- Temporal preferences, ability, cognition, framing..
    - Banks & Diamond (MRI chapter); Diamond & Spinnewijn, Saez,..
- Earnings/skill uncertainty – across life-cycle and business cycle
    - Role in dynamic fiscal policy arguments for capital taxation Kocherlakota; Golosov, Tsyvinski & Werning, ..
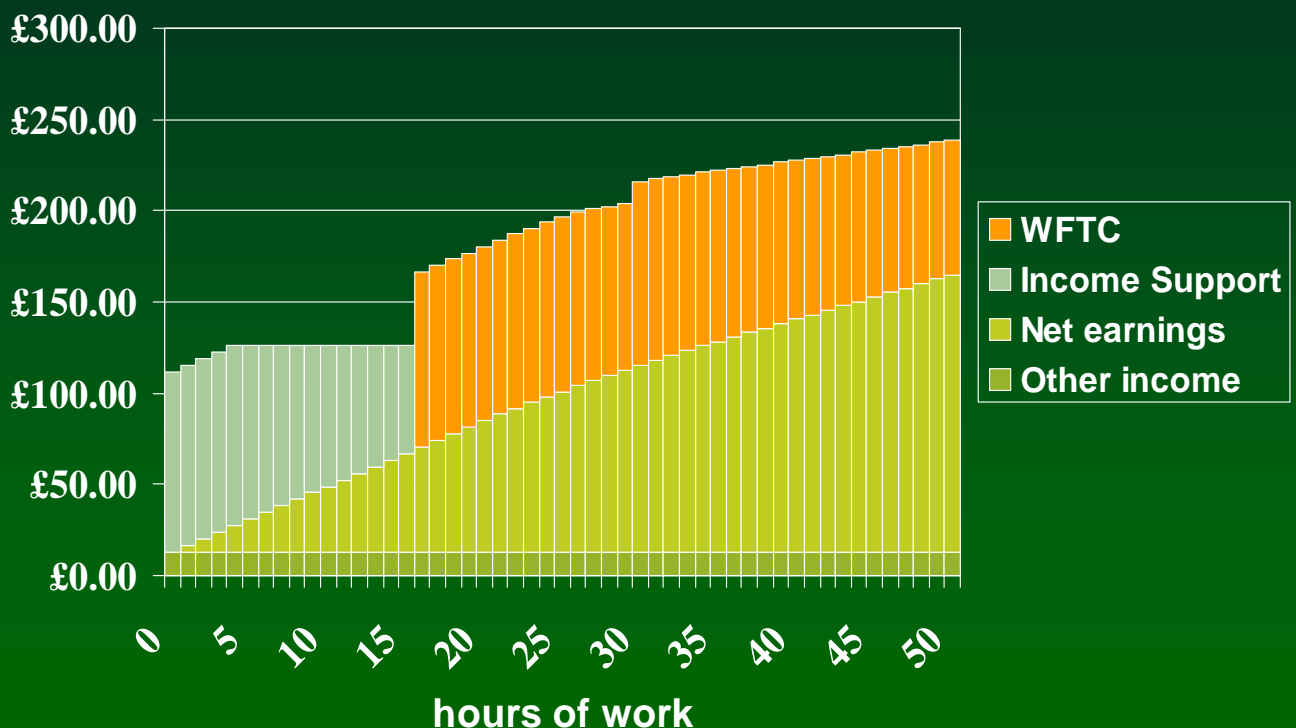
Implications for Reform

- Tax Rates on Earnings

- Indirect Taxation

- Corporate Taxation

- Taxation of Savings

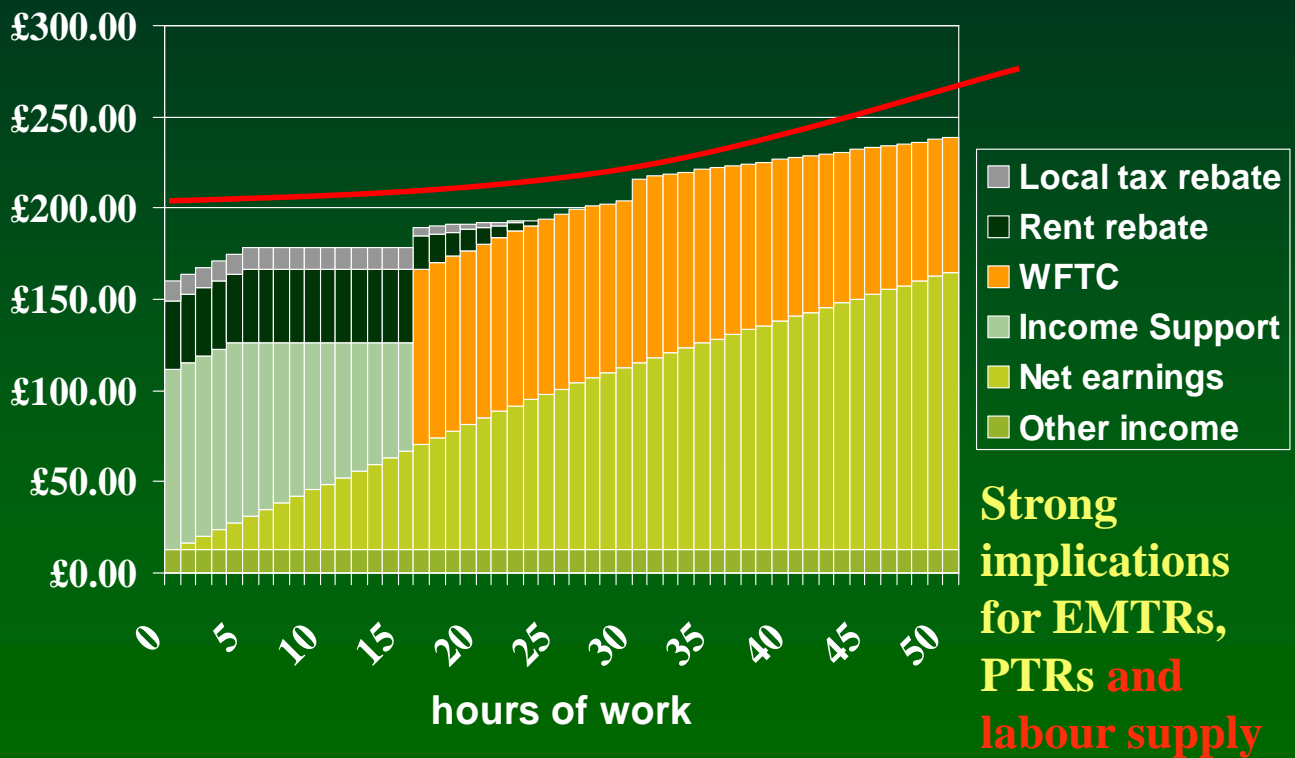- An integrated and revenue neutral analysis of reform…

Tax rates on lower incomes

Main defects in current welfare/benefit systems

- Participation tax rates at the bottom remain very high in UK and elsewhere

- Marginal tax rates in the UK are well over 80% for low income working families because of phasing-out of means-tested benefits and tax credits

  - Working Families Tax Credit + Housing Benefit + etc

  - and interactions with the income tax system

  - For example, we can examine a typical budget constraint for a single mother…

The interaction of WFTC with other benefits in the UK

The interaction of WFTC with other benefits in the UK

Legend:
- Local tax rebate
- Rent rebate
- WFTC
- Income Support
- Net earnings
- Other income

Strong implications for EMTRs, PTRs and labour supply

What about the size of labour supply responses?

Structural Model Elasticities – lower educated lone parents

(a) Youngest Child Aged 11-18

Earnings	Density	Extensive	Intensive
0	0.3966		
80	0.1240	0.5029	0.5029
140	0.1453	0.7709	0.3944
220	0.1723	0.7137	0.2344
300	0.1618	0.4920	0.0829
Participation elasticity		1.1295	

Note: Similar strong extensive margin responses for men in 'pre-retirement' period using structural retirement models and for married women with children.

Blundell and Shephard (2008)

Importance of take-up and information/hassle costs

Variation in take-up probability with entitlement to FC/WFTC

What about the size of labour supply responses?

Structural Model Elasticities – lower educated lone parents

(c) Youngest Child Aged 0-4
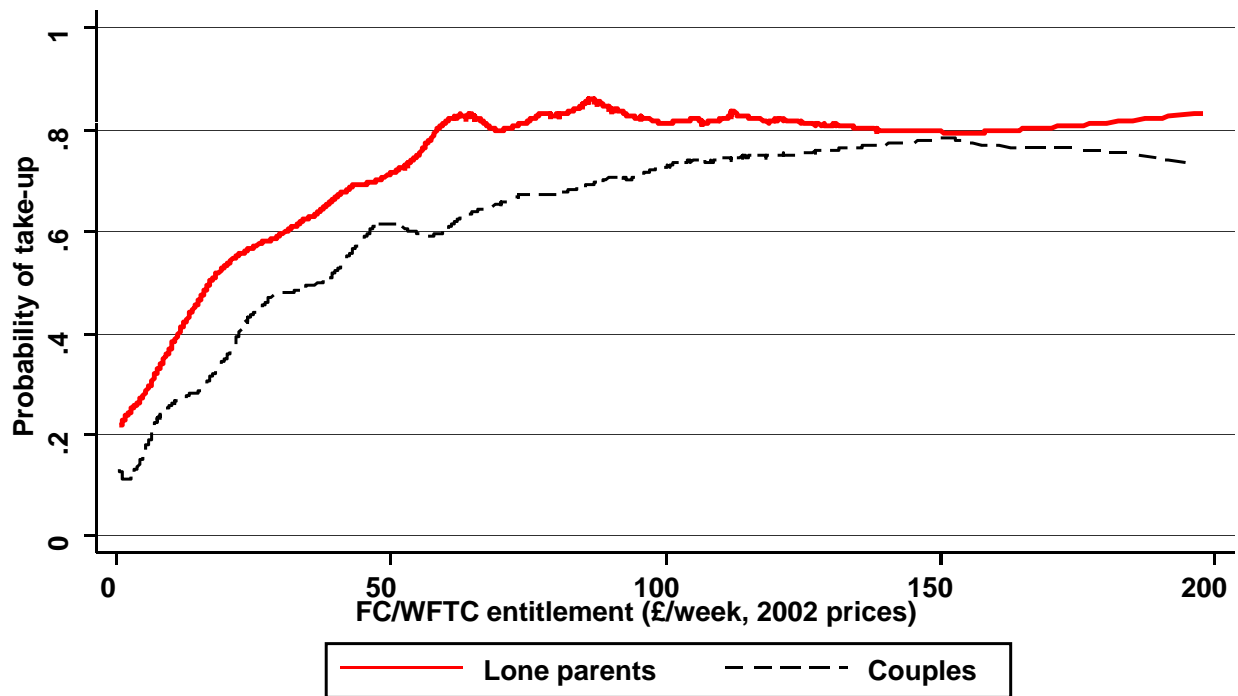
Earnings	Density	Extensive	Intensive
0	0.5942		
80	0.1694	0.2615	0.2615
140	0.0984	0.6534	0.1570
220	0.0767	0.5865	0.1078
300	0.0613	0.4984	0.0834
Participation elasticity		0.6352	

Differences in intensive and extensive margins by age and demographics have strong implications for the design of the tax schedule...   But how reliable are the structural elasticities?

WFTC Reform Evaluation: Matched Difference-in-Differences

Average Impact on % Employment Rate of Single Mothers

Single Mothers	Marginal Effect	Standard Error	Sample Size
Family Resources Survey	3.5	1.55	25,163
Labour Force Survey	3.6	0.55	233,208

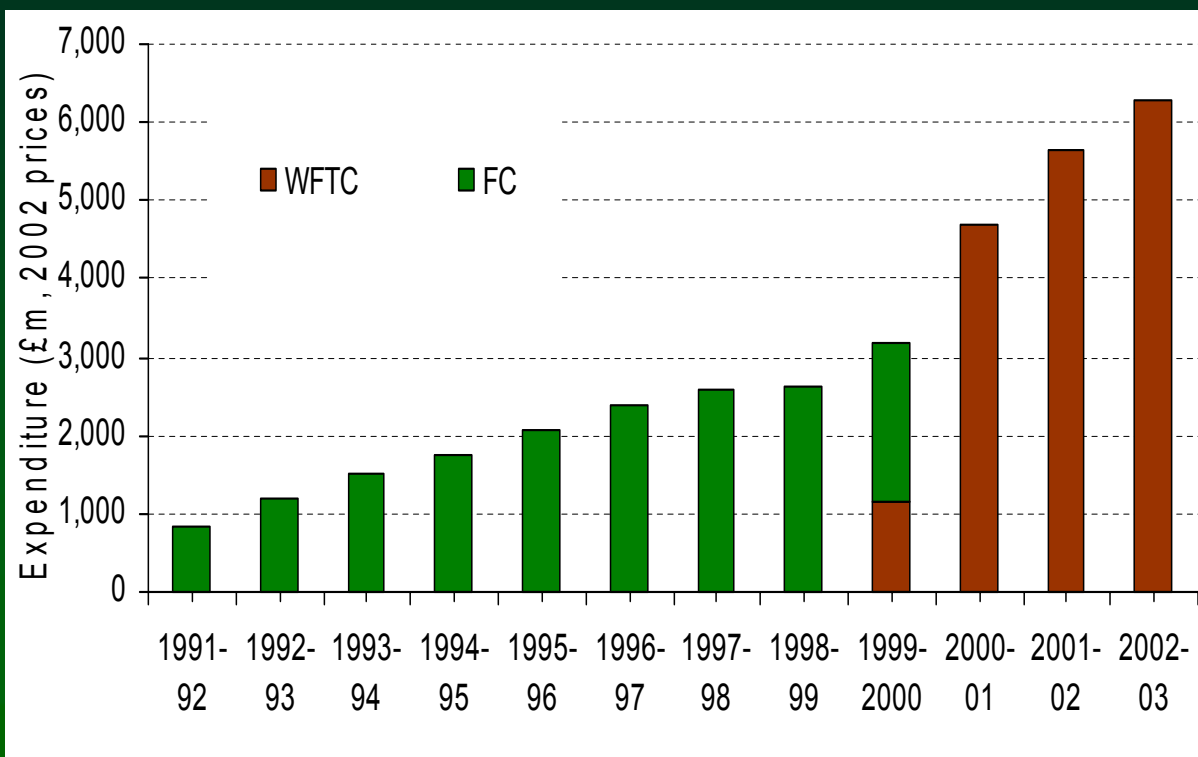Data: FRS, 45,000 adults per year, Spring 1996 – Spring 2002.

Base employment level: 45% in Spring 1997.

Outcome: employment. Average impact x 100, employment percentage.

Matching Covariates: age, education, region, ethnicity,..
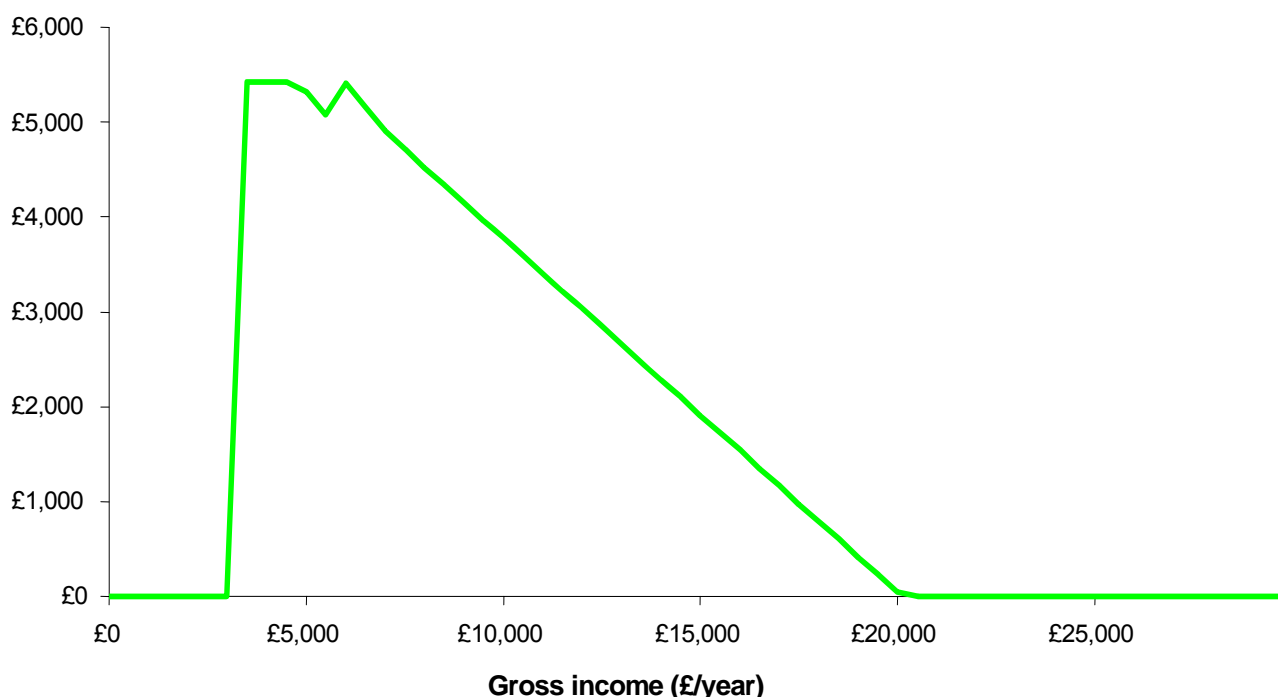
Drop: Summer 1999 – Spring 2000 inclusive

Expenditure on in-work programmes in the UK

The UK Working Families Tax Credit

- Hours condition
  - at least 16 or more hours per week
- family eligibility
  - children (in full time education or younger)
- income eligibility
  - if a family's <u>net</u> income is below a certain threshold
  - adult credit plus age-dependent amounts for each child
  - if above a threshold then credit is tapered away at 55% per extra pound of net income - previously 70%

The UK Working Families Tax Credit

Gross income (£/year)

The US EITC and the UK WFTC compared

- Puzzle: WFTC about twice as generous as the US EITC but with about half the impact. Why?

Structural Simulation of the WFTC Reform:

WFTC Tax Credit Reform

	All	y-child 0 to 2	y-child 3 to 4	y-child 5 to 10	y-child 11 to 18
Change in employment rate:	5.95	3.09	7.56	7.54	4.96
	0.74	0.59	0.91	0.85	0.68
Average change in hours:	1.79	0.71	2.09	2.35	1.65
	0.2	0.14	0.23	0.34	0.2

– 'large' impact relative to quasi-experiment results

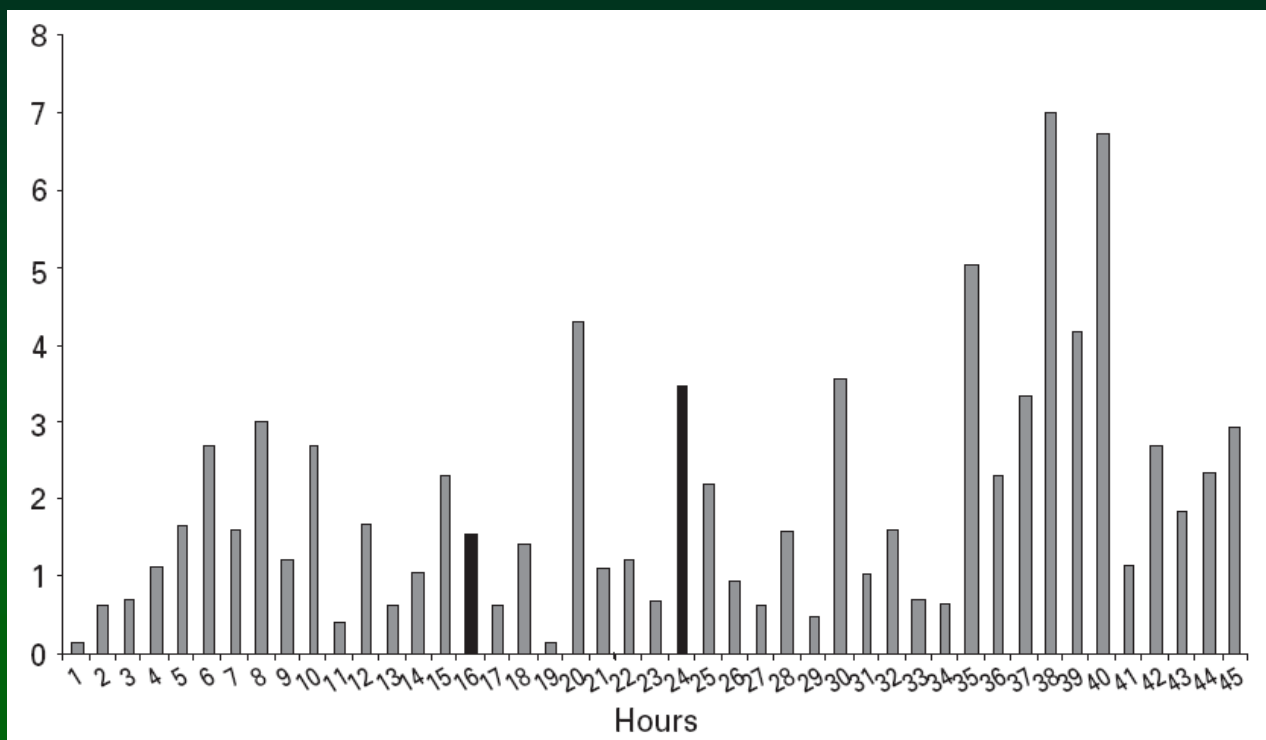Notes: Simulated on FRS data; Standard errors in italics.

Blundell and Shephard (2008)

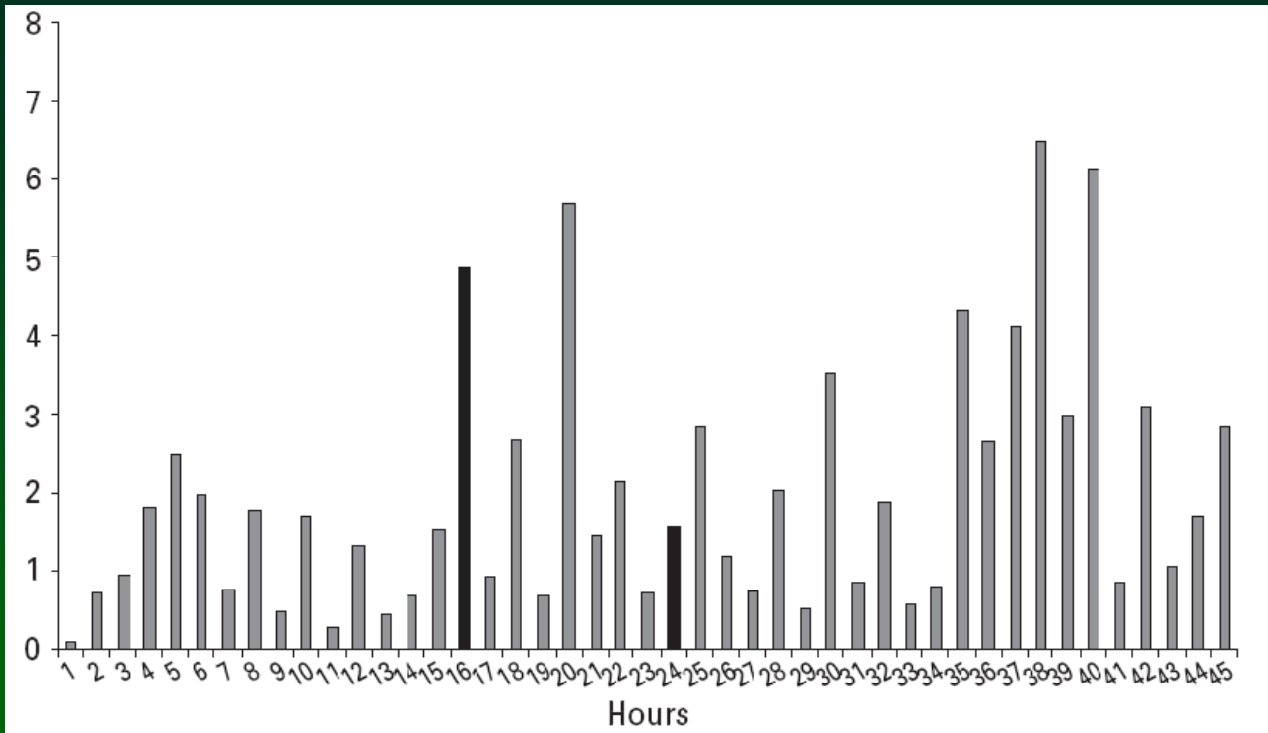## Structural Simulation of the WFTC Reform:

Impact of all Reforms

	All	y-child 0 to 2	y-child 3 to 4	y-child 5 to 10	y-child 11 to 18
Change in employment rate:	3.68	0.65	4.53	4.83	4.03
	0.84	0.6	0.99	0.94	0.71
Average change in hours:	1.02	0.01	1.15	1.41	1.24
	0.23	0.21	0.28	0.28	0.22

- matches with the quasi-experimental results
- shows the importance of getting the effective tax rates right
- shows the structural model predictions are quite accurate
- also use longer changes in after tax wages across different groups to identify structural responses (BDM, Ecta 1998)

Hours' distribution for lone parents, 1990
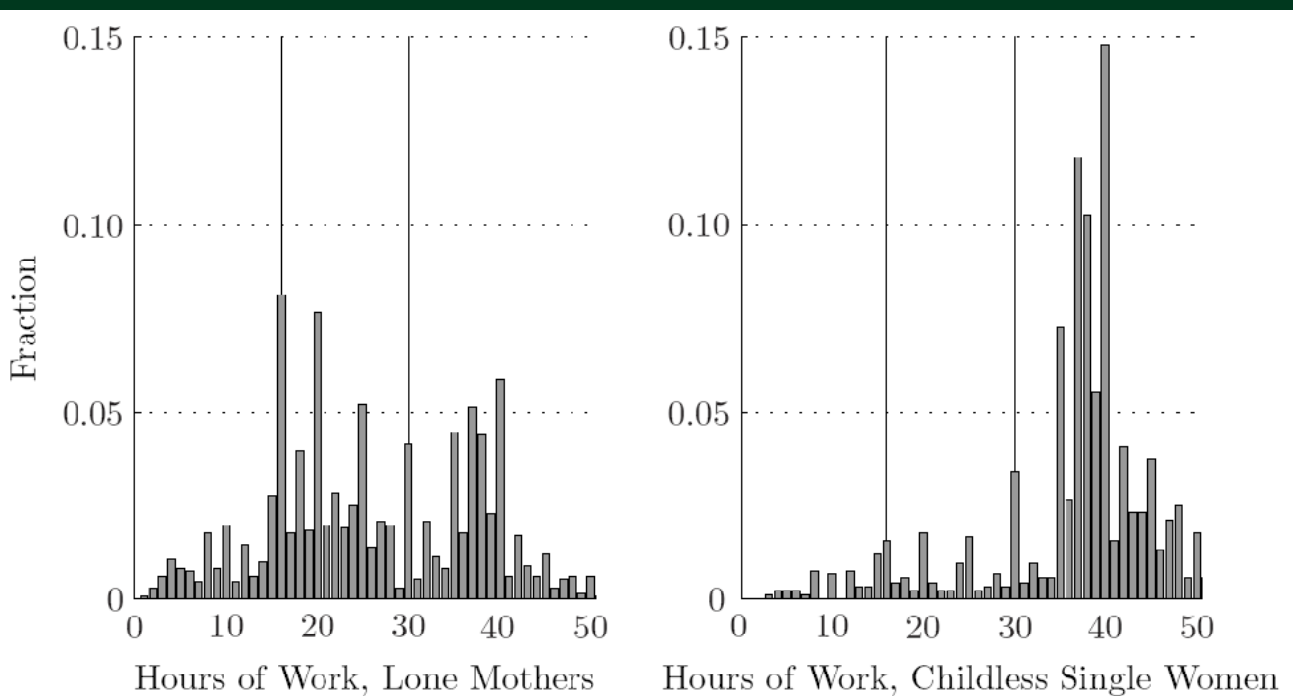

Blundell and Shephard (2008)

Hours' distribution for lone parents, 1993

Blundell and Shephard (2008)

Can the reforms explain weekly hours worked?
Single Women (aged 18-45) - 2002

Blundell and Shephard (2008)

An optimal design framework

Social welfare, for individuals of type X

$$W = \sum_{w,X} \int \int_{\varepsilon} \Gamma(U(wh^* - T(w,h^*;X), h^*; X, \varepsilon)) dF(\varepsilon) dG(w, X)$$

where Γ is the 'social welfare' transformation.

The tax structure $T(.)$ is chosen to maximise W, subject to:

$$\sum_{w,X} \int \int_{\varepsilon} T(wh^*, h^*; X) dF(\varepsilon) dG(w; X) = \overline{T}(= -R)$$

for a given R.

Control preference for equality by transformation function:
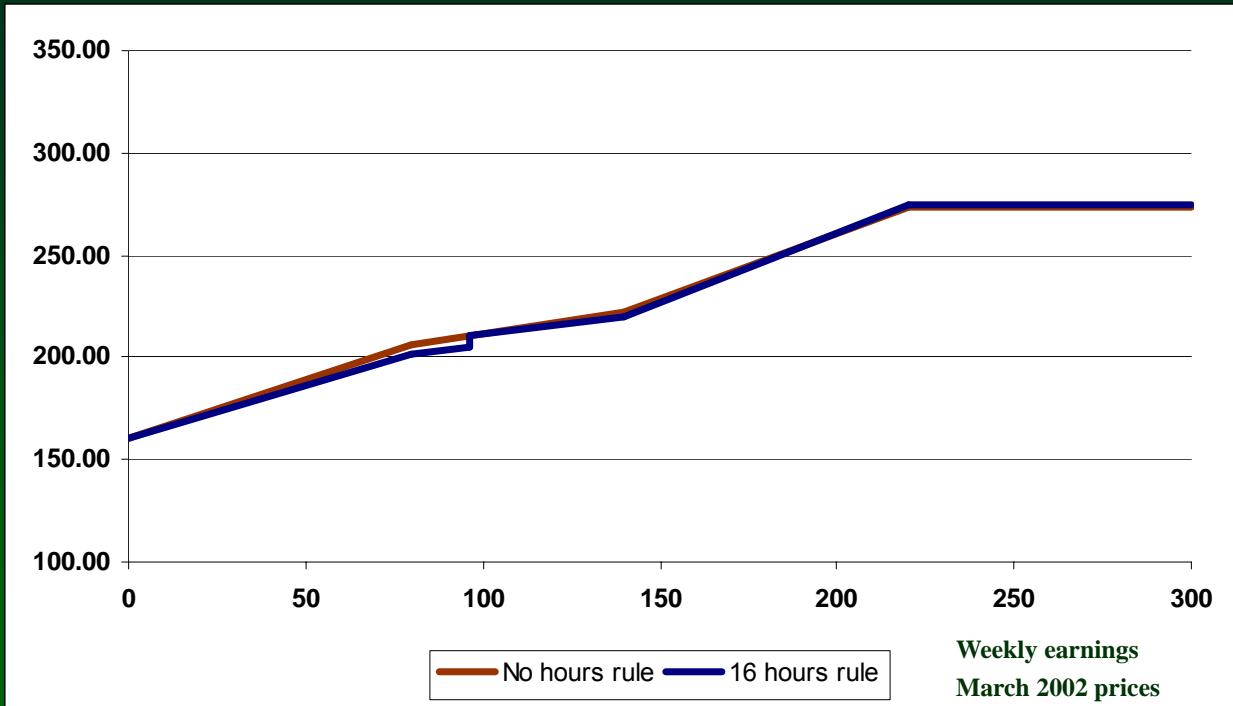
$$\Gamma(U \mid \theta) = \frac{1}{\theta}\left\{ (\exp U)^{\theta} - 1 \right\}$$

When θ is negative, the function favors the equality of utilities.

Define $u(j) = u(c_j, h_j; X, \varepsilon)$. If $\theta < 0$ then the integral over (Type I extreme-value) state specific errors is given by:
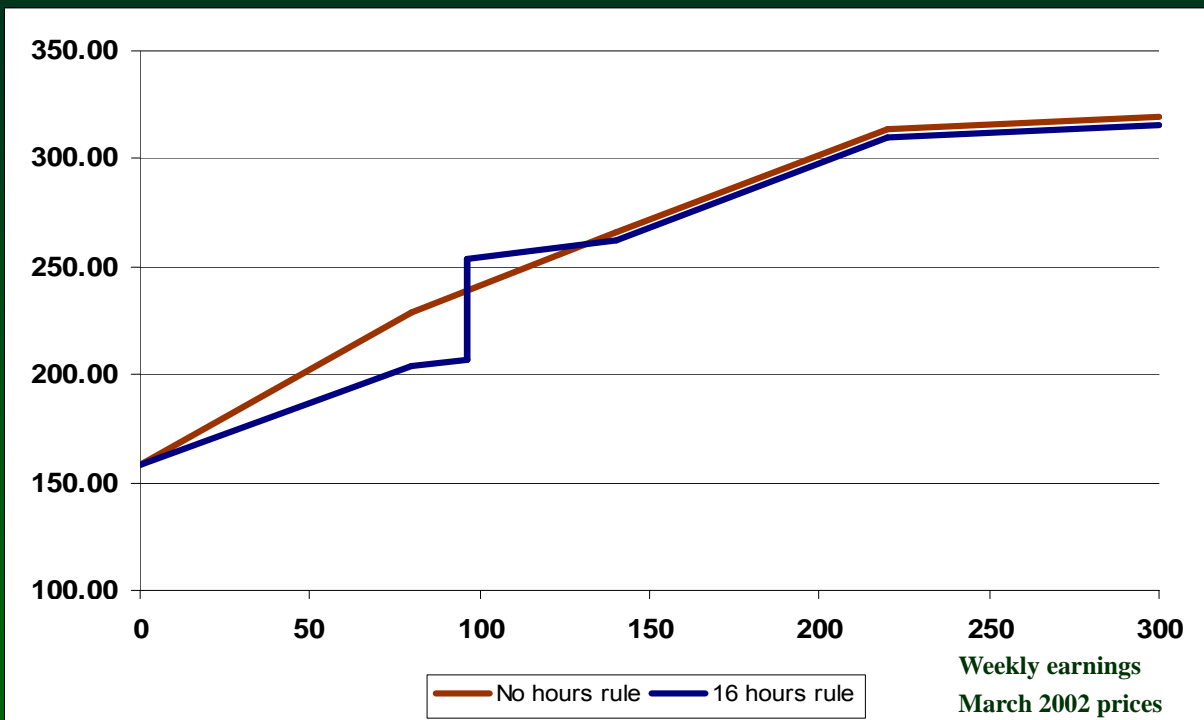
$$\frac{1}{\theta}\left[\Gamma(1 - \theta) \cdot (\exp u(j))^{\theta} - 1 \right]$$

Implied Optimal Schedule, Youngest Child Aged 0-4

Weekly earnings
March 2002 prices

Blundell and Shephard (2008)

Implied Optimal Schedule, Youngest Child Aged 5-10
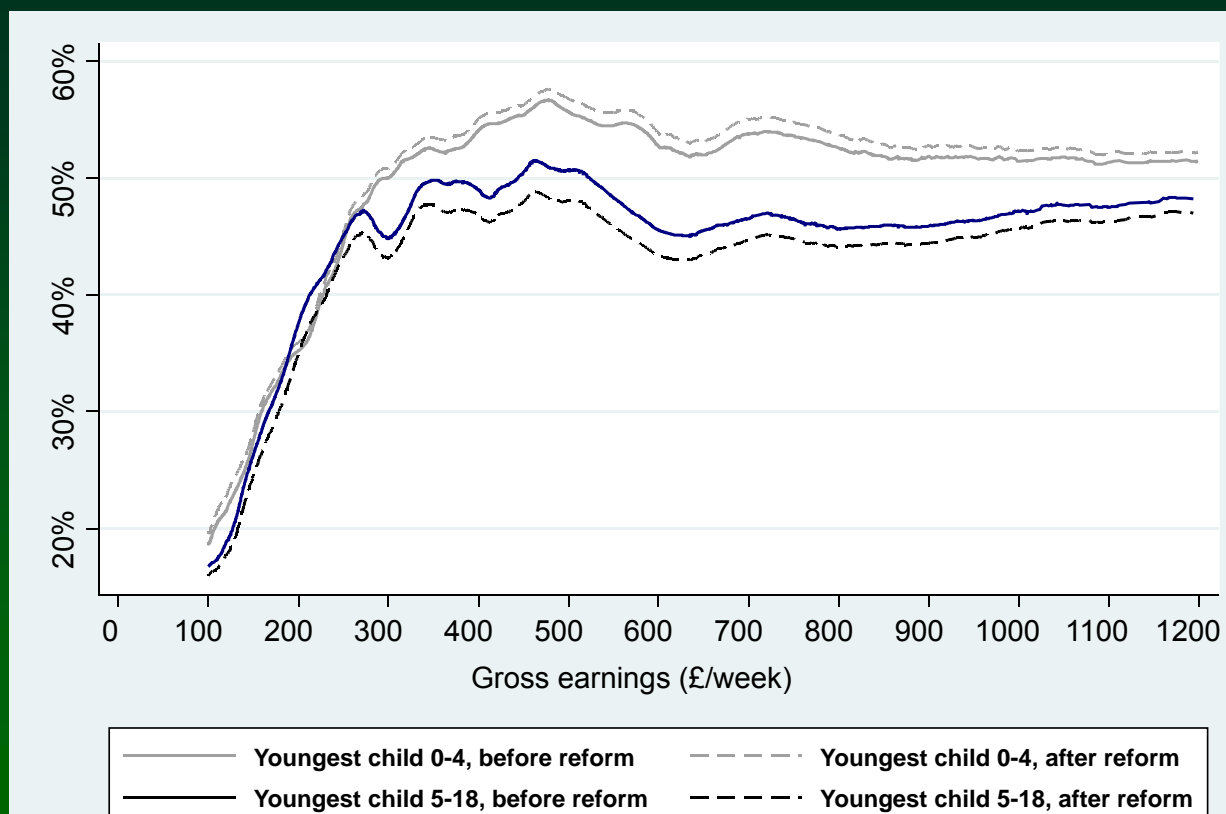
Weekly earnings
March 2002 prices

Blundell and Shephard (2008)

Implications for Tax Rates

- Change transfer/tax rate structure to match lessons from 'new' optimal tax analysis and empirical evidence:

- Lower marginal rates at the bottom

    - means-testing should be less aggressive

    - at least for some groups =>

- Age-based taxation

    - distinguish by age of youngest child for mothers/parents

    - pre-retirement ages

- Hours rules? – at full time, welfare gains depend on monitoring

- Impact of reforms on PTRs and EMTRs (MRII) →

Effect of child age revenue neutral reforms on average PTRs across the earnings distribution, by age of youngest child

Legend:
- Youngest child 0-4, before reform
- Youngest child 0-4, after reform
- Youngest child 5-18, before reform
- Youngest child 5-18, after reform

Effect of early retirement revenue neutral reforms on average PTRs across the earnings distribution, by age
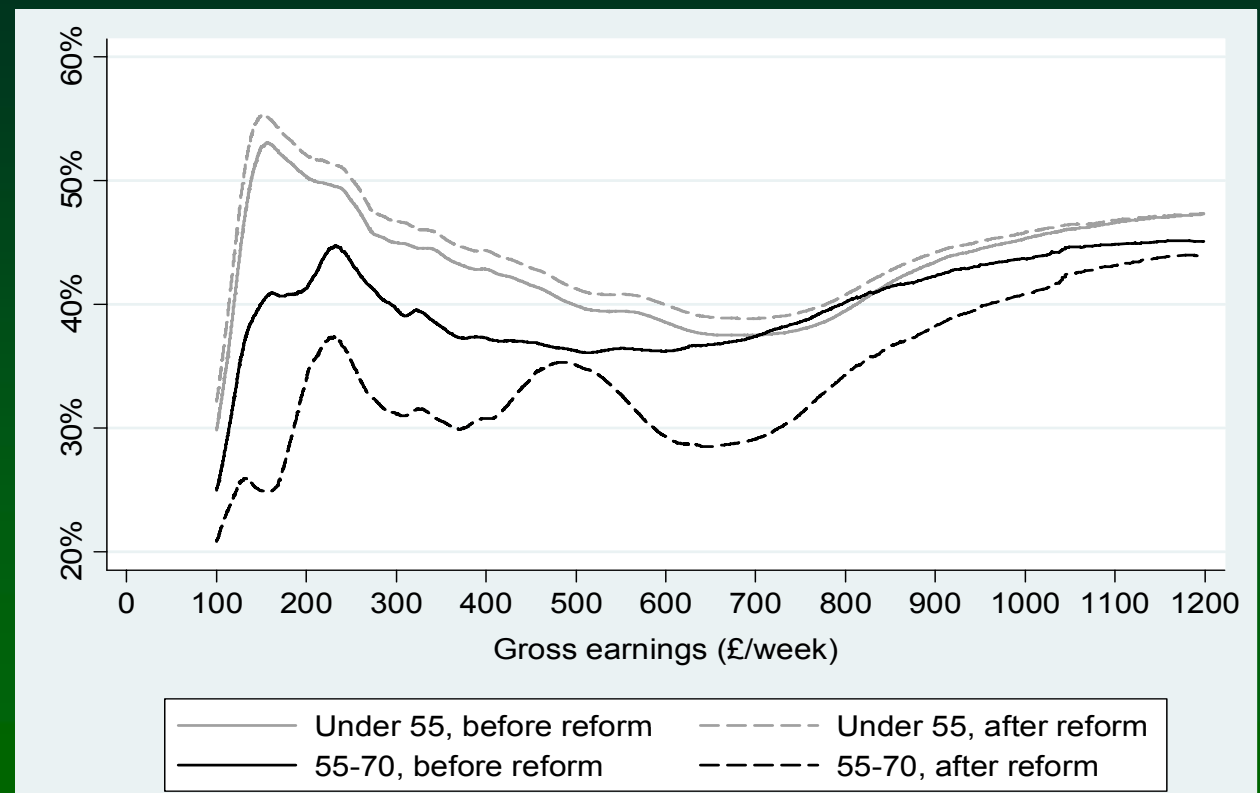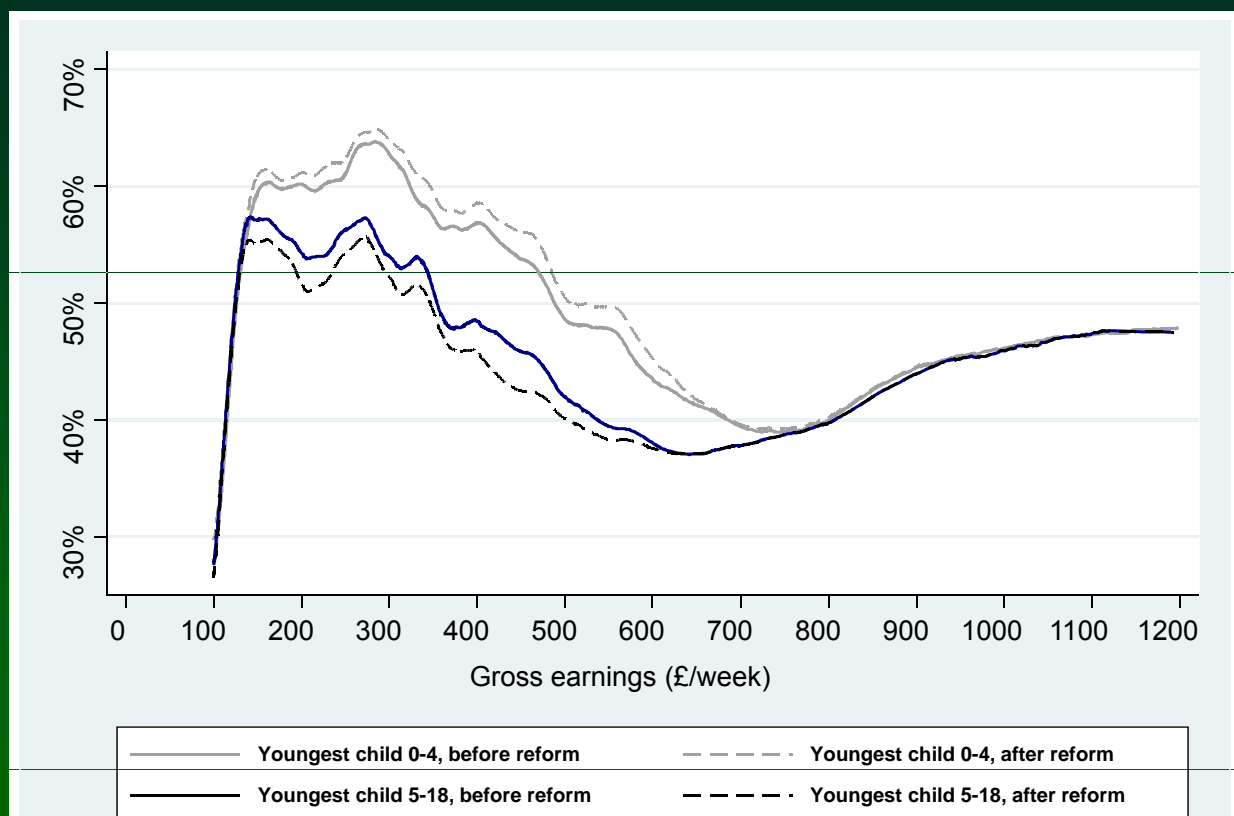

Effect of early retirement revenue neutral reforms on average EMTRs across the earnings distribution, by age

Effect of child age revenue neutral reforms on average EMTRs across the earnings distribution, by age of youngest child

Legend:
- Youngest child 0-4, before reform
- Youngest child 0-4, after reform
- Youngest child 5-18, before reform
- Youngest child 5-18, after reform

Implications for Tax Rates

- These child-age tax reforms redistribute to families with younger children and increase employment by 40,000, aggregate earnings up by £.7m

- Important employment increases also from pre-retirement age tax reforms
  - retirement incentives highlight the interaction between the taxation of earnings and the taxation of savings and pensions =>

- Effective tax rates on earnings are a combination of the tax rate on earnings and on savings/pensions
  - how do individual's perceive pension contributions?
  - assumptions about intertemporal behaviour are so critical
  - Leibman, Luttmer and Seif suggest extensive margin... return to this

- What about the design of tax rates on high earnings?

Taxable income elasticities

An 'optimal' top tax rate (Brewer, Saez and Shephard, MRI)

e – taxable income elasticity

$t = 1 / (1 + a \cdot e)$ where a is the Pareto parameter.

Estimate e from the evolution of top incomes in tax return data following large top MTR reductions in the 1980s

Estimate a($\approx$ 1.8) from the empirical distribution

Table: Taxable Income Elasticities at the Top

	Simple Difference (top 1%)	DD using top 5-1% as control
1978 vs 1981	0.32	0.08
1986 vs 1989	0.38	0.41
1978 vs 1962	0.63	0.86
2003 vs 1978	0.89	0.64
Full time series	0.69	0.46
	(0.12)	(0.13)

With updated data the estimate remains in the .35 - .55 range with a central estimate of .46, but remain quite fragile

Note also the key relationship between the size of elasticity and the tax base (Slemrod and Kopczuk, 2002)

Pareto distribution as an approximation to the income distribution

Change in tax revenue as a result of changing marginal income tax rate applying to the top 2%

Reforming Tax Rates

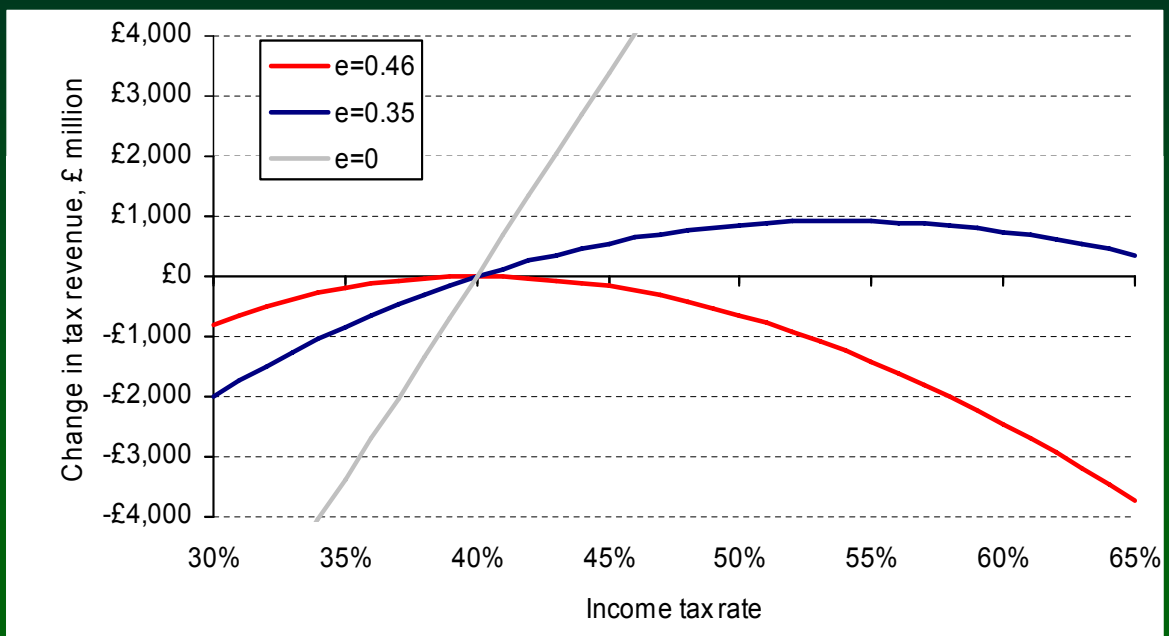- Change transfer/tax rate structure to match lessons from 'new' optimal tax analysis
    - limits to tax rises at the top, but
        - anti-avoidance, domicile rules, .. - tax base reforms
        - revenue shifting
    - lower marginal rates at the bottom
        - means-testing should be less aggressive
- Age-based taxation
    - distinguish by age of youngest child
    - pre-retirement ages
- Integrate different benefits and tax credits
    - improve administration, transparency, take-up, facilitate coherent design
- Undo distributional effects of the rest of the package…

Indirect Taxation

- Evidence on consumer behaviour => exceptions to uniformity
    - Childcare strongly complementary to paid work
    - Various work related expenditures (QUAIDS on FES, MRI)
    - Human capital expenditures
    - 'Vices': alcohol, tobacco, betting, possibly unhealthy food have externality / merit good properties ➜ keep 'sin taxes'
    - Environmental externalities (three separate chapters in MRII)
- These do not line up well with existing structure of taxes
    - ⇒ Broadening the base – many zero rates in UK VAT
- Compensating losers, even on average, is difficult
    - Worry about work incentives too
    - Work with set of direct tax and benefit instruments as in earnings tax reforms

Indirect Taxation – UK case

Zero-rated:	Estimated cost (£m)
Food	11,300
Construction of new dwellings	8,200
Domestic passenger transport	2,500
International passenger transport	150
Books, newspapers and magazines	1,700
Children's clothing	1,350
Drugs and medicines on prescription	1,350
Vehicles and other supplies to people with disabilities	350
Cycle helmets	10
Reduced-rated:	
Domestic fuel and power	2,950
Contraceptives	10
Children's car seats	5
Smoking cessation products	10
Residential conversions and renovations	150
VAT-exempt:	
Rent on domestic dwellings	3,500
Rent on commercial properties	200
Private education	300
Health services	900
Postal services	200
Burial and cremation	100
Finance and insurance	4,500

Impact on budget share of an additional hour worked

Conditional on income and prices

Bread and Cereals	Negative
Meat and Fish	Negative
Dairy products	Negative
Tea and coffee	Negative
Fruit and vegetables	Negative
Food eaten out	Positive
Beer	Positive
Wine and spirits	Positive
Domestic fuels	Negative
Household goods and services	Positive
Adult clothing	Positive
Childrens' clothing	Negative
Petrol and diesel	Positive
Leisure goods and services	Positive

Source: QUAIDS on UK FES, MRI

Compensation package involves:
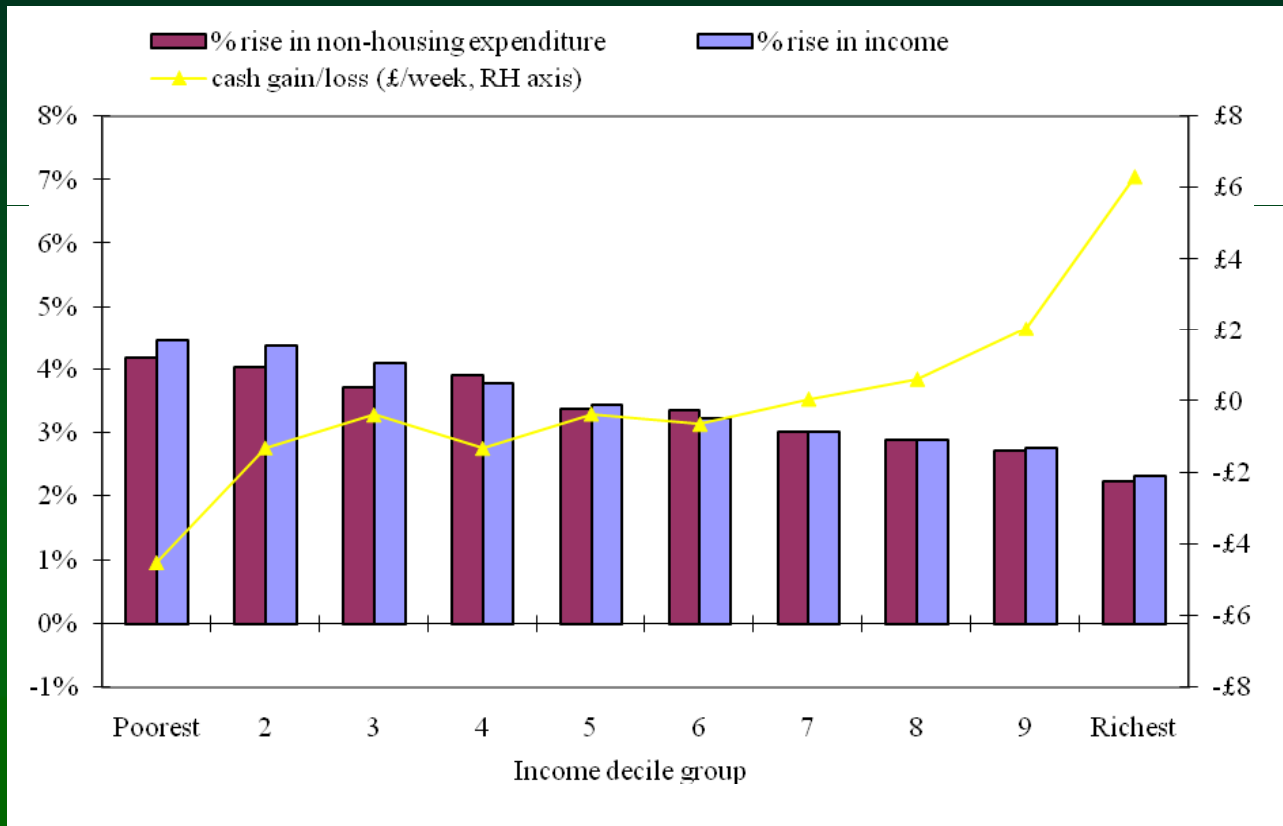
- A 3.1% increase in all benefits and tax thresholds.

- A 6.2% increase for the main means-tested benefits, and for the working tax credit for non-parents.

- An additional 16.9% rise (so giving 20% in total) in child benefit. This rises from £20 to £24 a week for the first child, and from £13.20 to £15.80 a week for additional children.

- A further £600 increase in the income tax allowance for the under 65s, and an increase of £1,200 for the over 65s. This change has the effect of taking 1¼ million people out of income tax.

- A £3,200 cut in the limit for basic rate tax and the upper earnings limit for National Insurance. This leaves these limits £1,000 below the current nominal level.

Effect of base broadening reform with earnings tax reform compensation, by expenditure decile
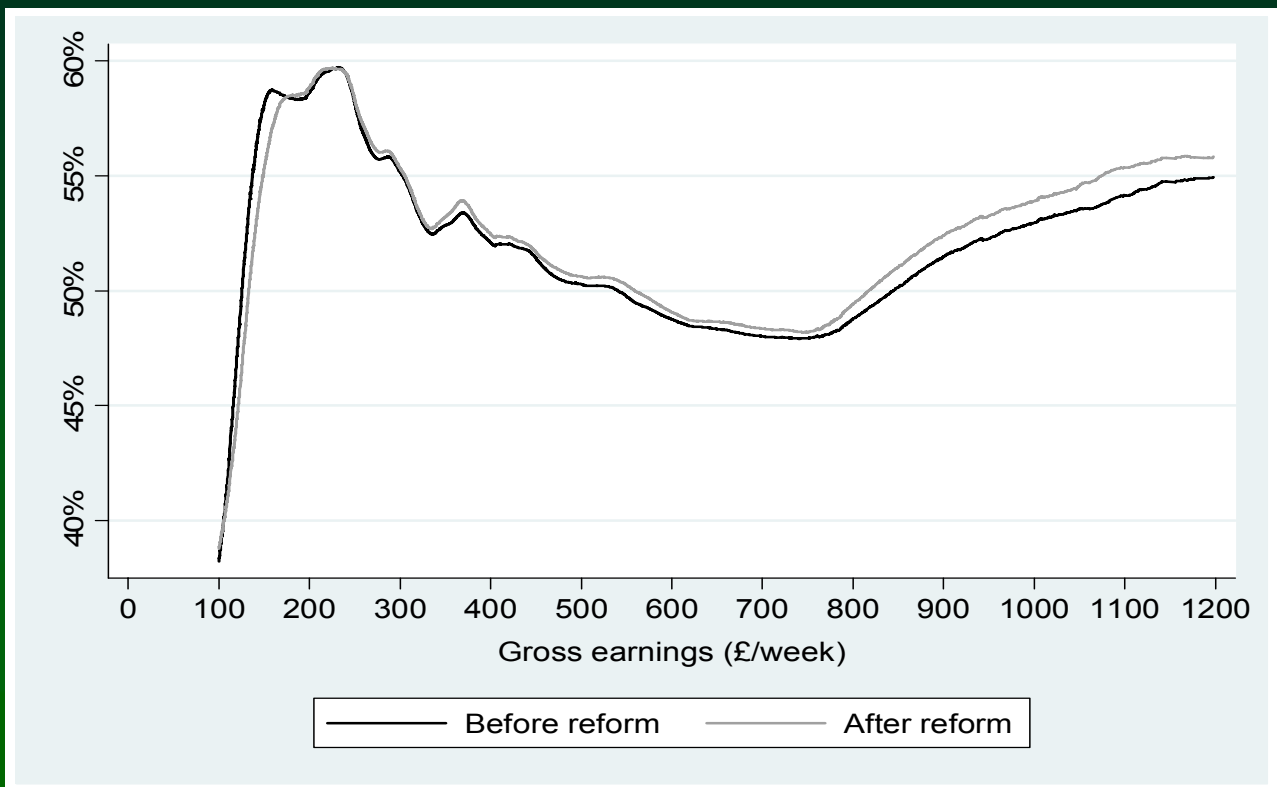
Effect of base broadening reform with earnings tax instruments as compensation (MRII), by income decile

Reform revenue neutral and designed to leave effective tax rates on earnings unchanged
EMTR: before and after indirect tax reform

Reform revenue neutral and designed to leave effective tax rates on earnings unchanged
PTR: before and after indirect tax reform

Legend: Before reform — After reform

Broadening the base of indirect taxation

- Empirical results suggest current indirect tax rates do not line up with any reasonable justification and are a poor way of delivering redistribution given the other tax instruments available

  - Interpretation of results is that we can implement a reform package manages to achieve compensation while also avoiding significant damage to work incentives.

  - On average the *EMTR* rise by less than a quarter of a percentage point and the *PTR* by less than half a percentage point.

  - little change in work incentives at any earnings level

- Quite sizable welfare gains from removing distortions =>

Welfare gains - Distribution of EV/x by ln(x)

Source: MRII

The shape of a reform package

- Broaden VAT base

  - keep childcare differentiation, sin taxes + reformed environmental taxes/permits, etc

- Reforms to the income tax / benefit rate schedule

  - Apply lessons from empirical evidence on response elasticities

  - Compensate for distributional effects of reform package

- Interaction with taxation of corporate profits and the taxation of saving

Interaction with Corporate Taxation

- Exempt normal rate to give neutrality between debt and equity

  - move toward a source-based ACE system

  - recognising that taxing corporate rents on a destination-basis may be more attractive in the longer term, particularly if significant revenues from source-based corporate taxes eventually prove to be unsustainable

- A progressive rate structure for the shareholder income tax, (rather than the flat rate proposed by GHS in MRI)

  - with progressive tax rates on labour income, progressive rates are also required on shareholder income to avoid differential tax treatments of incorporated and unincorporated firms

  - a lower progressive rate structure on shareholder income than on labour income reflects the corporate tax already paid

Interaction with Corporate Taxation

- Suitable rate alignment between tax rates on corporate income, shareholder income and labour income

  - deals with many issues in the MRI evidence on small business taxation

- Note current rates on labour income (top 45%) and capital gains (18%)!

Interaction with the Taxation of Saving

- Organising principal around which we begun was the 'expenditure tax' as in Meade/Bradford but with adaptations

  - coherent approach to taxation of earnings and savings over the life-cycle – lifetime base

  - provides a framework for the integration of capital income taxation with corporate taxation

  - capital gains and dividends treated in the same way and overcomes 'lock-in' incentive from CGT

  - can incorporate progressivity and captures excess returns

- taxing saving is an inefficient way to redistribute

  - assuming that the decision to delay consumption tells us nothing about ability to earn

- implies zero taxation of the normal return to capital

  - can be achieved through alternative forms: EET, TEE, TtE(RRA)

Fraction of wealth held in different tax treatments in UK

Decile of gross financial wealth	Range of gross financial wealth (£'000s)	Proportion of wealth held in:		
		Private pensions	ISAs	Other assets
Poorest	<1.7	0.126	0.091	0.783
2	1.7–16.6	0.548	0.138	0.315
3	16.6–39.1	0.652	0.110	0.238
4	39.1–75.9	0.682	0.108	0.210
5	75.9–122.3	0.697	0.079	0.223
6	122.3–177.2	0.747	0.068	0.185
7	177.2–245.4	0.781	0.062	0.157
8	245.4–350.3	0.818	0.046	0.136
9	350.3–511.2	0.790	0.057	0.153
Richest	>511.2	0.684	0.044	0.273
All		0.736	0.055	0.209

Source: ELSA, 2004 – at least one member aged 52-64

Unfortunately…

Conditions for zero rate on normal return can fail if:

1. Heterogeneity (e.g. high ability people have higher saving rates)
   - new evidence and theory, Banks & Diamond (MRI); Laroque, Gordon & Kopczuk; Diamond & Spinnewijn; …

2. Earnings risk and credit constraints
   - new theory and evidence on earnings ability risk, Golosov, Tsyvinski & Werning; Blundell, Preston & Pistaferri; Conesa, Kitao & Krueger
   - e.g. keep wealth low to reduce labour supply response, weaken incentive compatibility constraint

3. Outside (simple) life-cycle savings models
   - myopia; self-control problems; framing effects; information monopolies

4. Non-separability (timing of consumption and labour supply)

5. Evidence suggests a need to adapt standard expenditure tax arguments

Correct some of the obvious defects:

- Capture excess returns and rents
  - move to RRA(TtE) or EET where possible – neutrality across assets
  - TEE limited largely to interest baring accounts
  - Lifetime accessions tax across generations, if practicable.
- Pensions - allow some additional incentive to lock-in savings
  - twist implicit retirement incentives to later ages
  - current tax free lump sum in UK is too generous and accessed too early
- Housing
  - add VAT style property tax on consumption (rH)
  - excess returns? Currently TEE in UK – difficult without LVT issues
- Broaden VAT base
- Reforms to the income tax / benefit rate schedule
  - Apply lessons from empirical evidence on response elasticities
  - Compensate for other reforms

Empirical Evidence and Tax Policy Design: Lessons from the Mirrlees Review

Five building blocks for the role of evidence in tax design….

- Key margins of adjustment to tax reform

- Measurement of effective tax rates

- The importance of information, complexity and salience

- Evidence on the size of responses

- Implications for tax design

see

http://www.ifs.org.uk/mirrleesReview
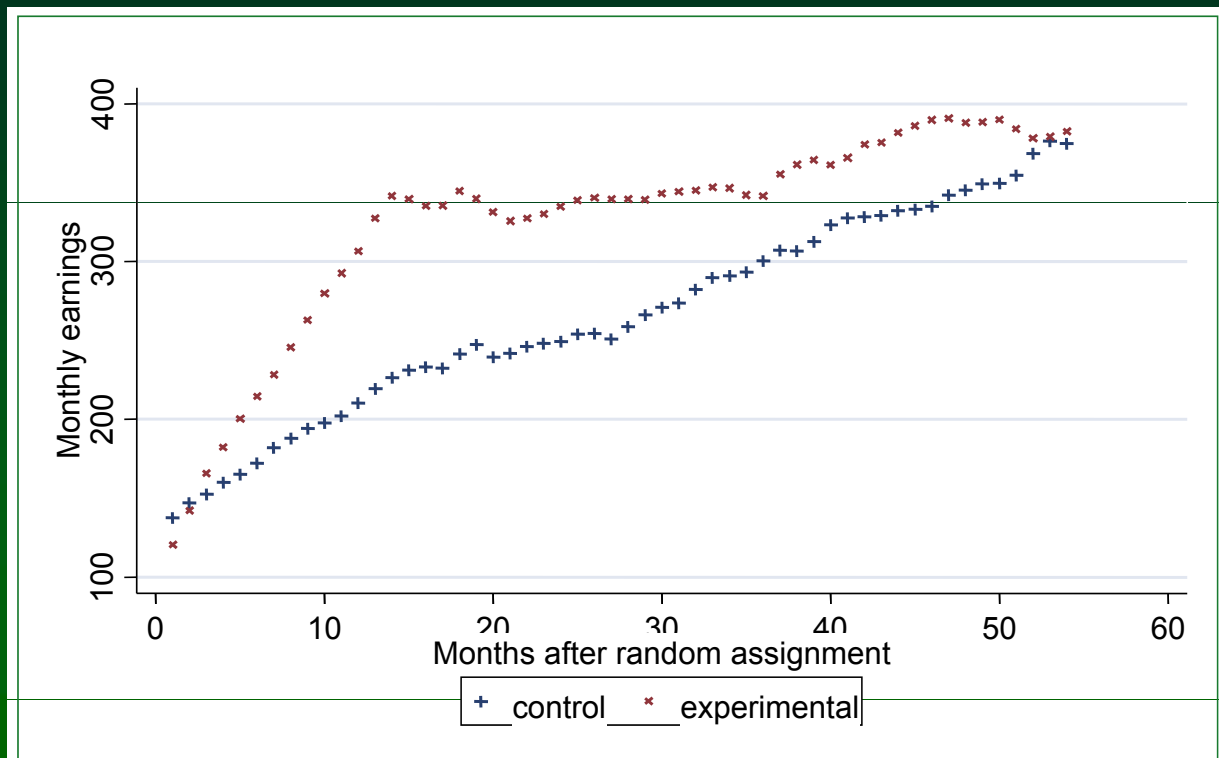
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But (too) many key issues unresolved, and with little evidence base (!)
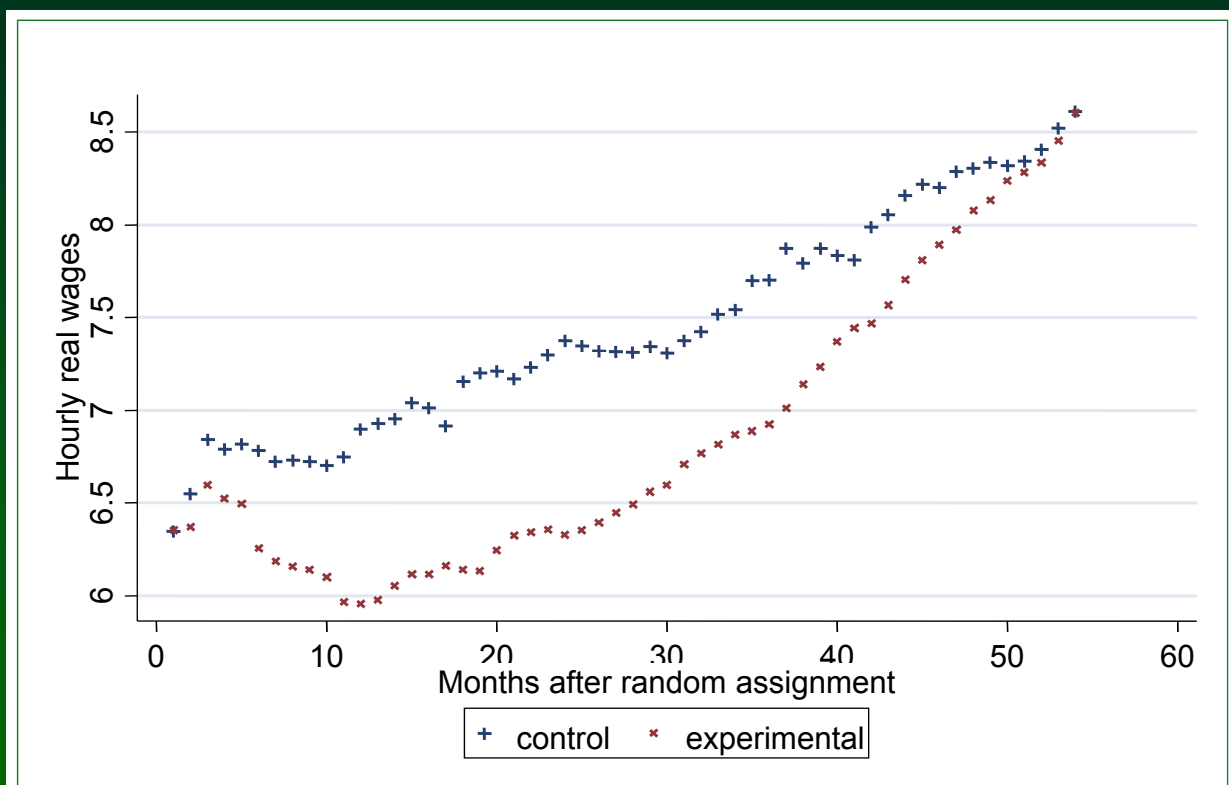
Including:

- Tax credits and earnings progression

- Distinction between dynamic and static policies

- Human capital investment bias and savings taxation

- Taxation of financial services

- Some transition issues and capitalisation

- ….

SSP: Monthly earnings by months after RA

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and dynamic effects on wages and productivity?

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Dynamic Effects from the Canadian SSP

- Earnings and employment line up with control group after time limit is exhausted

- Little evidence of employment enhancement or wage progression

- Other evidence, Taber etc, show some progression but quite small

- Key area of research

- Some more optimistic results for some recent UK policies

- What about age-based policies?

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ETRs for basic-rate taxpayer (BRT) and higher-rate taxpayer (HRT)

Asset		Effective tax rate (%)	
		BRT	HRT
ISA (cash or stocks and shares)		0	0
Cash deposit account		33	67
Employee contribution to pension	(invested 10 years)	–21	–53
	(invested 25 years)	–8	–21
Employer contribution to pension	(invested 10 years)	–115	–102
	(invested 25 years)	–45	–40
Owner-occupied housing		0	0
Stocks and shares[b]	(invested 10 years)	10	35
	(invested 25 years)	7	33

Effective tax rates on returns to pension saving

Asset		Effective tax rate (%)
Employee contribution to a pension		
Tax rate in work	Tax rate in retirement	
Basic rate (20%)	Basic rate (20%)	–21
Higher rate (40%)	Higher rate (40%)	–53
Higher rate (40%)	Basic rate (20%)	–122
Basic rate (20%)	Pension credit taper (40%)	46
Tax credit taper (59%)	Basic rate (20%)	–260
Tax credit taper (59%)	Pension credit taper (40%)	–189

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