Scope of the Mirrlees Review

• Comprehensive review of tax reform, drawing on:
  – new evidence
  – new (applied) theory
  – new economic environment

• View the tax system as a whole
  – savings and capital
  – earnings and direct taxation
  – indirect taxation
  – corporate taxation

• For developed open economies
  – the UK as the running experiment
The Mirrlees Review
Reforming the Tax System for the 21st Century

Chairman: Sir James Mirrlees
Tim Besley (LSE & IFS)
Richard Blundell (IFS & UCL)
Malcolm Gammie QC (One Essex Court)
James Poterba (MIT & NBER)

with:
Stuart Adam (IFS)
Steve Bond (Oxford & IFS)
Robert Chote (OBR)
Paul Johnson (IFS)
Gareth Myles (Exeter & IFS)
Two Volumes

- ‘Dimensions of Tax Design’: published April 2010
  - a set of 13 chapters on particular areas by IFS researchers + international experts, along with expert commentaries (MRI)

- ‘Tax by Design’: findings published September 2011
  - an integrated picture of tax design and reform, written by the editors (MRII)

• OUP but also open access at:
  - http://www.ifs.org.uk/mirrleesReview
We started from a structure of taxes and benefits that:

- Does not work as a system
  - Lack of joining up between welfare benefits, personal taxes and corporate taxes

- Is not neutral where it should be
  - Inconsistent savings taxes and a corporate tax system that favours debt over equity,

- Is not well designed where it should deviate from neutrality
  - A mass of different tax rates on carbon and failure to price congestion properly,

- Does not achieve progressivity efficiently
  - VAT zero and reduced rating a poor way to redistribute, and taxes and benefits damage work incentives more than necessary
In this talk I want to focus 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 and complexity
4. Evidence on the size of responses
5. Implications from theory for tax design

- Emphasis on earnings taxation, with some discussion of the taxation of consumption and savings.
Draw on new empirical evidence: – 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
  – interaction with labour supply and variation of price elasticities

• Intertemporal behaviour
  – consumption, savings and pensions
  – persistence and magnitude of earnings shocks over the life-cycle
Taxation of earnings:

- leading example of the mix of theory and evidence
- new evidence on extensive and intensive margins
- key implications for tax design

- It also takes most of the strain in distributional adjustments of other parts of the reform package

- Illustrate with VAT and savings taxation..

- Draw on additional papers (IFS Working Papers)
  - Blundell and Shephard (2012, *RESTud*)
  - Blundell, Bozio and Laroque (2011, *AER*)
  - and Blundell, Costa-Dias, Meghir and Shaw (2013)…
The extensive – intensive distinction is important for a number of reasons:

- Understanding responses to tax and welfare reform
  - Heckman, Gruber/Wise, Rogerson, etc. all highlight the importance of extensive labour supply margin
  - can be given too much weight......

- The size of extensive and intensive responses are key parameters in the recent literature on earnings tax design
  - used heavily in the *Review*.

- But the relative importance of the extensive margin is specific to particular groups
  - descriptive evidence...
Employment for men by age – FR, UK and US 2007

Blundell, Bozio and Laroque (2011)
Total Hours for men by age – FR, UK and US 2007

Blundell, Bozio and Laroque (2011)
Total Hours for men by age – FR, UK and US 1977

Blundell, Bozio and Laroque (2011)
Female Employment by age – US, FR and UK 1977

Blundell, Bozio and Laroque (2011)
Female Employment by age – US, FR and UK 2007

Blundell, Bozio and Laroque (2011)
Female Total Hours by age – US, FR and UK 2007

Blundell, Bozio and Laroque (2011)
Why is this distinction important for tax design?

• Some key lessons from recent tax design theory (Saez (2002), Laroque (2005), ..)

• A ‘large’ extensive elasticity at low earnings can ‘turn around’ the impact of declining social weights
  – implying a higher optimal transfer to low earning workers than to those out of work - earned income tax credits
  – elasticities that differ by group suggest ‘tagging’

• 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?

• Importance of margins other than labour supply/hours
  – use of taxable income elasticities as guide for top tax rates

• Importance of human capital dynamics and frictions (?)
Focus first on tax rates on lower incomes

Main (apparent) defects in current welfare/benefit systems

- Participation tax rates at the bottom remain very high in UK and elsewhere
- Marginal tax rates are well over 80% for some low income working families because of phasing-out of means-tested benefits and tax credits and interactions with the income tax system
- for example, we can examine a typical budget constraint for a single mother in the UK…
The interaction of WFTC with other benefits in the UK

Low wage lone parent

- WFTC
- Income Support
- Net earnings
- Other income

hours of work
The interaction of WFTC with other benefits in the UK

Strong implications for EMTRs, PTRs and labour supply
Average EMTRs for different family types

- Single, no children
- Partner not working, no children
- Partner working, no children
- Lone parent
- Partner not working, children
- Partner working, children
Average PTRs for different family types

- Single, no children
- Lone parent
- Partner not working, no children
- Partner not working, children
- Partner working, no children
- Partner working, children
Can the tax structure explain weekly hours worked?

Single Women (aged 18-45) - 2002

Blundell and Shephard (2012)
Hours’ distribution for lone parents, before WFTC

Blundell and Shephard (2012)
Hours’ distribution for lone parents, after WFTC

Blundell and Shephard (2012)
Hours trend for low ed lone parents in UK
Employment trends for low ed lone parents
Employment trends for lone parents in UK

Quasi experiment - matching and anticipation
WFTC Reform: Quasi-experimental impact measurement (matched diff-in-diff)

Average Impact on % Employment Rate of Single Mothers

<table>
<thead>
<tr>
<th>Single Mothers</th>
<th>Marginal Effect</th>
<th>Standard Error</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Resources Survey</td>
<td>5.2</td>
<td>1.55</td>
<td>25,163</td>
</tr>
<tr>
<td>Labour Force Survey</td>
<td>5.4</td>
<td>0.55</td>
<td>233,208</td>
</tr>
</tbody>
</table>

Data: FRS, 45,000 adults per year, Spring 1996 – Spring 2002.
Base employment level: 45% in Spring 1998.
Matching Covariates: age, education, region, ethnicity,..
An Empirical Analysis in Two Parts

- The **first part** (impact) is a positive (empirical) analysis of household decisions – two steps involved:
  
  i. Quasi-experimental/RCT evaluation of the impact of (historic) reforms
      - robust but limited in scope
  
  ii. A ‘structural’ estimation based on a general discrete response model with (unobserved) heterogeneity
      - comprehensive in scope but potentially fragile

- The **second part** (optimality) is the normative analysis or optimal policy analysis, requires structural model estimates
  
  - Consider design of the tax schedule with (un)observed heterogeneity and unobserved productivity
Key features of the structural model

**main elements:**

- **budget constraint** - tax/tax-credit and benefit interactions
- **preferences** - multinomial choice across discrete hours
- **heterogeneity** - demographics, ethnicity, etc; unobs. het.
- **fixed costs of work** - obs. and unobs. het.
- **childcare costs and prices** - key ‘fixed costs’ of work
- **stigma/hassle costs** - take-up versus eligibility; unobs het.
Structural Model Estimated Elasticities – lone parents

(a) Youngest Child Aged 5-10

<table>
<thead>
<tr>
<th>Weekly Earnings</th>
<th>Density</th>
<th>Extensive</th>
<th>Intensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.4327</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0.1575</td>
<td>0.280 (.020)</td>
<td>0.085 (.009)</td>
</tr>
<tr>
<td>150</td>
<td>0.1655</td>
<td>0.321 (.009)</td>
<td>0.219 (.025)</td>
</tr>
<tr>
<td>250</td>
<td>0.1298</td>
<td>0.152 (.005)</td>
<td>0.194 (.020)</td>
</tr>
<tr>
<td>350</td>
<td>0.028</td>
<td>0.058 (.003)</td>
<td>0.132 (.010)</td>
</tr>
<tr>
<td>Employment elasticity</td>
<td></td>
<td>0.820 (.042)</td>
<td></td>
</tr>
</tbody>
</table>

Sample description and estimation results in Blundell and Shephard (2012)
(b) Youngest Child Aged 11-18

<table>
<thead>
<tr>
<th>Weekly Earnings</th>
<th>Density</th>
<th>Extensive</th>
<th>Intensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.3966</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0.1240</td>
<td>0.164 (.018)</td>
<td>0.130 (.016)</td>
</tr>
<tr>
<td>150</td>
<td>0.1453</td>
<td>0.193 (.008)</td>
<td>0.387 (.042)</td>
</tr>
<tr>
<td>250</td>
<td>0.1723</td>
<td>0.107 (.004)</td>
<td>0.340 (.035)</td>
</tr>
<tr>
<td>350</td>
<td>0.1618</td>
<td>0.045 (.002)</td>
<td>0.170 (.015)</td>
</tr>
</tbody>
</table>

*Employment elasticity* 0.720 (.036)
### Structural Model Estimated Elasticities – lone parents

(c) Youngest Child Aged 0-4

<table>
<thead>
<tr>
<th>Weekly Earnings</th>
<th>Density</th>
<th>Extensive</th>
<th>Intensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5942</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0.1694</td>
<td>0.168 (.017)</td>
<td>0.025 (.003)</td>
</tr>
<tr>
<td>150</td>
<td>0.0984</td>
<td>0.128 (.012)</td>
<td>0.077 (.012)</td>
</tr>
<tr>
<td>250</td>
<td>0.0767</td>
<td>0.043 (.004)</td>
<td>0.066 (.010)</td>
</tr>
<tr>
<td>350</td>
<td>0.0613</td>
<td>0.016 (.002)</td>
<td>0.035 (.005)</td>
</tr>
</tbody>
</table>

*Participation elasticity* 0.536 (.047)

- Differences in intensive and extensive margins by age and demographics have strong implications for the tax schedule...
- Use quasi-experiments to assess the structural estimates.
Structural Simulation of the WFTC Reform:

Impact of all Reforms (WFTC and Income Support)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>y-child</th>
<th>y-child</th>
<th>y-child</th>
<th>y-child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0 to 2</td>
<td>3 to 4</td>
<td>5 to 10</td>
<td>11 to 18</td>
</tr>
<tr>
<td>Change in employment rate:</td>
<td>5.3</td>
<td>0.65</td>
<td>5.53</td>
<td>6.83</td>
<td>4.03</td>
</tr>
<tr>
<td></td>
<td>0.84</td>
<td>0.6</td>
<td>0.99</td>
<td>0.94</td>
<td>0.71</td>
</tr>
<tr>
<td>Average change in hours:</td>
<td>1.02</td>
<td>0.01</td>
<td>1.15</td>
<td>1.41</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>0.23</td>
<td>0.21</td>
<td>0.28</td>
<td>0.28</td>
<td>0.22</td>
</tr>
</tbody>
</table>

- compare with experiment or quasi-experiment: 
  .21 (.73), chi-square p-value .57
V. How do we think about an optimal design?

- Assume we want to redistribute ‘£R’ to a particular group, what is the ‘optimal’ way to do this?

- Recover optimal tax/credit schedule:
  - three key ingredients: (i) estimated response elasticities, (ii) empirical distribution of earnings, and (iii) welfare weights
  - For example, use Saez/Diamond approximation in terms of extensive and intensive elasticities at (increasing) points in the earnings distribution:

\[
\frac{T_i - T_{i-1}}{c_i - c_{i-1}} = \frac{1}{e_i k_i} \sum_{j \geq i} k_j \left[ 1 - g_j - \eta_j \frac{T_j - T_0}{c_j - c_0} \right].
\]

- But this approximation assumes zero income effects
Complement with design based on the microeconometric model

- Assume earnings and some limited characteristics, e.g. age, are all that is observable to the tax authority.

The tax structure \( T(.) \) is chosen to maximise

\[
W = \int \int Y(U(c(h^*; T(w, h^*; X), h^*; X, \varepsilon))dF(\varepsilon)dG(X)
\]

subject to:

\[
\int \int T(wh^*, h^*; X)dF(\varepsilon)dG(X) \geq \bar{T} (= -R)
\]

for a given \( R \).
Control preference for equality by

$$\gamma(U \mid \theta) = \frac{1}{\theta}\{(\exp U)^\theta - 1\}$$

when $\theta$ is negative, the function favors the equality of utilities.

**Objective:** robust policies for fairly general social welfare weights, document the weights in each case (Table 7, Blundell and Shephard, 2012)
Key findings (under range of $\theta$ considered here):

- Pure tax credits at low earnings for those with young school aged children
  - similar arguments for those in pre-retirement ages
- A shift of out of work support towards families with younger children:
  - an optimal tax schedule with ‘tagging’ according to age of children.
- Implies a ‘life-cycle rearrangement’ of tax incentives and welfare payments to match elasticities
- Hours eligibility rules in tax credits?
  - Welfare gains are small and sensitive
- Human capital and experience effects?
At the top too the UK income tax system lacks coherence

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

![Graph showing income tax schedule]
Suppose we want to maximise the review collected – what should the tax rate on the top income bracket be?

An ‘optimal’ top tax rate ‘$t$’

$$e – \text{taxable income elasticity}$$

$$t = \frac{1}{1 + a \cdot e}$$

where $a$ is the Pareto parameter.

Estimate $a \approx 1.67$ from the empirical distribution

Estimate $e \approx 0.46$ from the evolution of top incomes in tax return data
Pareto distribution as an approximation to the income distribution

Pareto parameter quite accurately estimated at 1.67
=> revenue maximising tax rate for top 1% of 56%.
Top incomes and taxable income elasticities

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

Source: MR1, UK SPI (tax return data)
## Taxable Income Elasticities at the Top

<table>
<thead>
<tr>
<th>Period Comparison</th>
<th>Simple Difference (top 1%)</th>
<th>DD using top 5-1% as control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978 vs 1981</td>
<td>0.32</td>
<td>0.08</td>
</tr>
<tr>
<td>1986 vs 1989</td>
<td>0.38</td>
<td>0.41</td>
</tr>
<tr>
<td>1978 vs 1962</td>
<td>0.63</td>
<td>0.86</td>
</tr>
<tr>
<td>2003 vs 1978</td>
<td>0.89</td>
<td>0.64</td>
</tr>
<tr>
<td>Full time series</td>
<td>0.69</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.13)</td>
</tr>
</tbody>
</table>

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

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

- lower some marginal rates
  - means-testing should be less aggressive
  - tagging by age of youngest child
  - and at pre-retirement ages

- integrate different benefits and tax credits
  - improve administration, transparency, take-up, facilitate coherent design and salience

- limits to tax rises at the top, but
  - base reforms - anti-avoidance, domicile rules, revenue shifting
  - alignment of personal and corporate tax rates can then:
    - equalise tax treatment of different sources of income and reduce incentives to convert labour income into dividend income/capital gains
Taxation of Savings

- Move to a generalised expenditure tax treatment of savings (EET or TtE) – don’t distort life-cycle saving.

- Capture excess returns and rents
  - move to RRA (or EET) where possible – neutrality across asset returns and capital gains
  - 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
Interaction with Corporate Taxation

• A progressive rate structure for the shareholder income tax,
  – 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

• Tax rate alignment between tax rates on corporate income, shareholder income and labour income
  – exempt normal rate to give neutrality between debt and equity
The shape of the reform package:

- Reforms to the income tax / benefit rate schedule
  - introduce a single integrated benefit
  - apply lessons from empirical evidence on response elasticities
- Broaden VAT base
  - VAT on financial services, food and clothing
- Capture excess returns and rents
  - RRA(TtE) or EET where possible – neutrality across assets
  - TEE limited largely to interest baring accounts, housing?
- Pensions - some additional incentive to lock-in savings
  - twist implicit retirement incentives to later ages
- Align tax rates across sources of income
  - Forms of remuneration, capital income, ..
Empirical Evidence and Tax Reform: 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
VAT and financial services

- Consumption of financial services should be taxed
- Exemption causes serious problems
  - Financial services too cheap for households, too expensive for firms
  - Costs around £7bn (though insurance premium tax recoups £2bn)
- Can’t be taxed through standard VAT mechanism
- But there are equivalent alternatives
  - Cash-flow tax, Tax Calculation Accounts, Financial Activities Tax,...
- Need detailed study to find the most practical option
Congestion charging

- Congestion charging could have big benefits
  - Government estimates potential welfare gains at 1% of national income

- In contrast, fuel duty and vehicle excise duty not well targeted
  - But far too high to justify by carbon emissions alone

- And will get even worse
  - Increased fuel efficiency; shift to electric cars?

- National road pricing should replace some of fuel duty

- A premium on acting quickly
  - Before lose what little we have
  - And while still a quid pro quo to offer
Taxing consumption of housing services

• Housing should be taxed like other consumption
  – But not currently subject to VAT
• Could either tax new build, or stream of consumption
• From where the UK starts, the latter makes more sense
• Tax the annual consumption value of housing: substitute for VAT
• Looks like a sensibly reformed council tax
  – Based on up-to-date valuations (rather than 1991 values)
  – Proportional to values (rather than pointlessly regressive and banded)
  – No discounts for single occupancy (rather than 25% discount)
• And replace stamp duty on housing in the process
  – Initially on a revenue-neutral basis
A ‘housing services tax’
Note: rough guide only – see Chapter 16 for details

Current property value

Council tax bill
Housing services tax bill
(Some) Additional References (see also *Dimensions of Tax Design and Tax by Design*)


