

SWITCH: Methods and Applications

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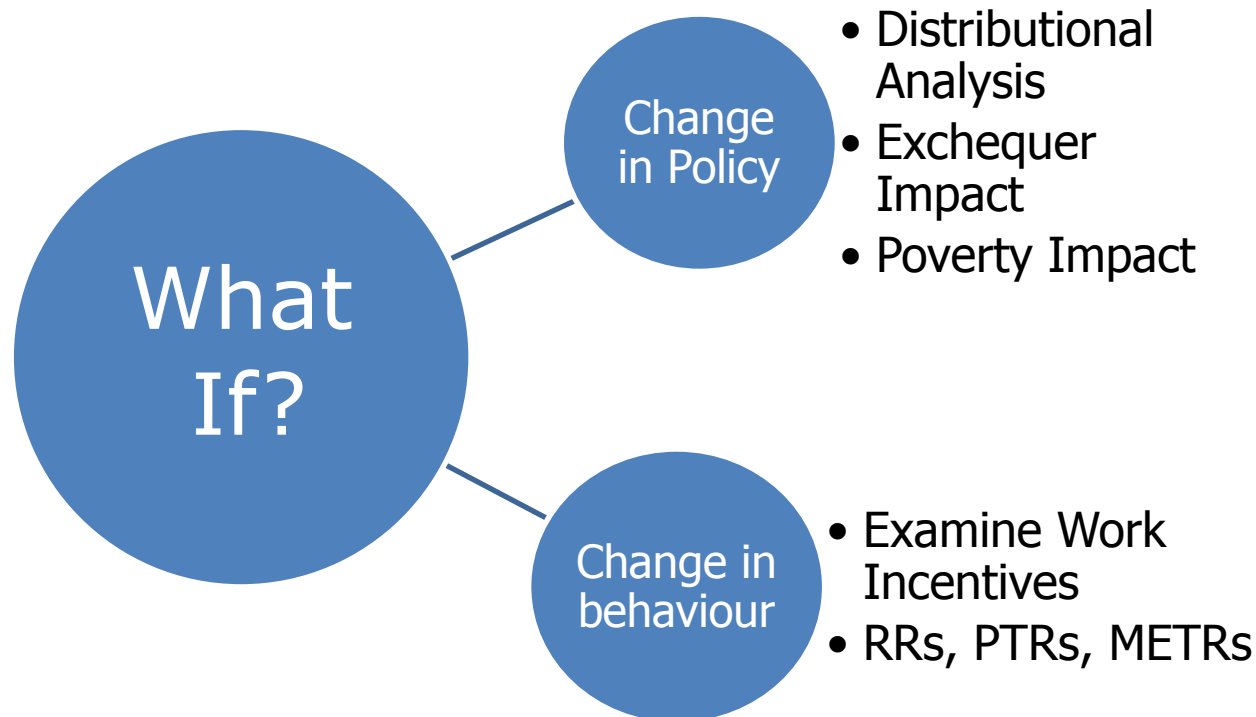
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Overview

- What is a tax-benefit model?
 - Why are they needed?
- SWITCH: The ESRI Tax-Benefit Microsimulation model
- Some Recent Examples
 - Distributional impact of discretionary policy during the Great Recession
 - Exploring tax and welfare options for Budget 2016
 - Financial incentives to work facing the unemployed

Tax-benefit microsimulation models – what are they?

- Detailed nationally representative data on individual families (**micro** level data)
- **Simulate** rules of current and potential reform systems – and compare outcomes



Why are tax-benefit models needed?

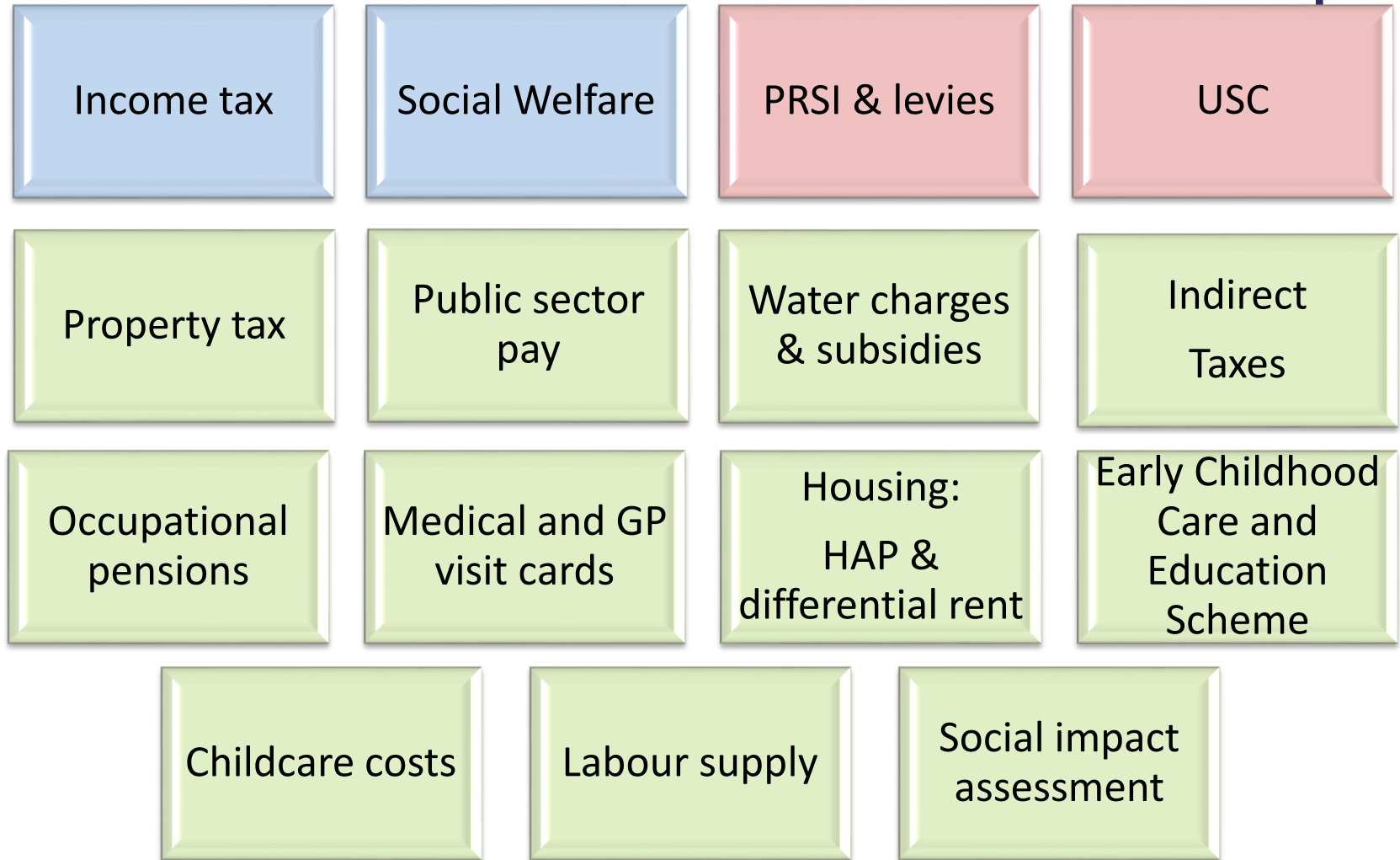
- Microsimulation models provide a nationally representative picture of the impact of policy changes
 - Based on data from real people
- “Example household” approach
 - Requires assumptions on wages, household composition, benefit entitlement...
 - Results are unrepresentative of population
- International microsimulation models include:
 - UK (Treasury, DWP, IFS); US (Treasury, OMB, Brookings/Urban Institute TPC); Canada (StatCan); Australia (NATSEM, Univ. Melbourne); EU (EUROMOD ISER at Univ. Essex)

SWITCH - Simulating Welfare and Income Tax CHanges



- Based on SILC 2010 RMF from CSO
- 11,500+ individuals in 4,500+ households
 - 6,000+ tax units
- Representation of the tax base ensured by weights based on:
 - Revenue *Income Distribution Statistics*
 - DSP projections of numbers on schemes
 - QEC forecasts of employment/unemployment etc.
- 1,300+ policy parameters

Examples of areas investigated using SWITCH



Examples of population groups investigated using SWITCH



Full
Population

Employees

Unemployed
Jobseekers

Lone Parents

Retired

Home Duties

Those in
Poverty

Families
with/without
children

Gender
impact



The Distributional Impact of Discretionary Tax and Welfare Policy during the Great Recession

Source: ESRI QEC Special Article

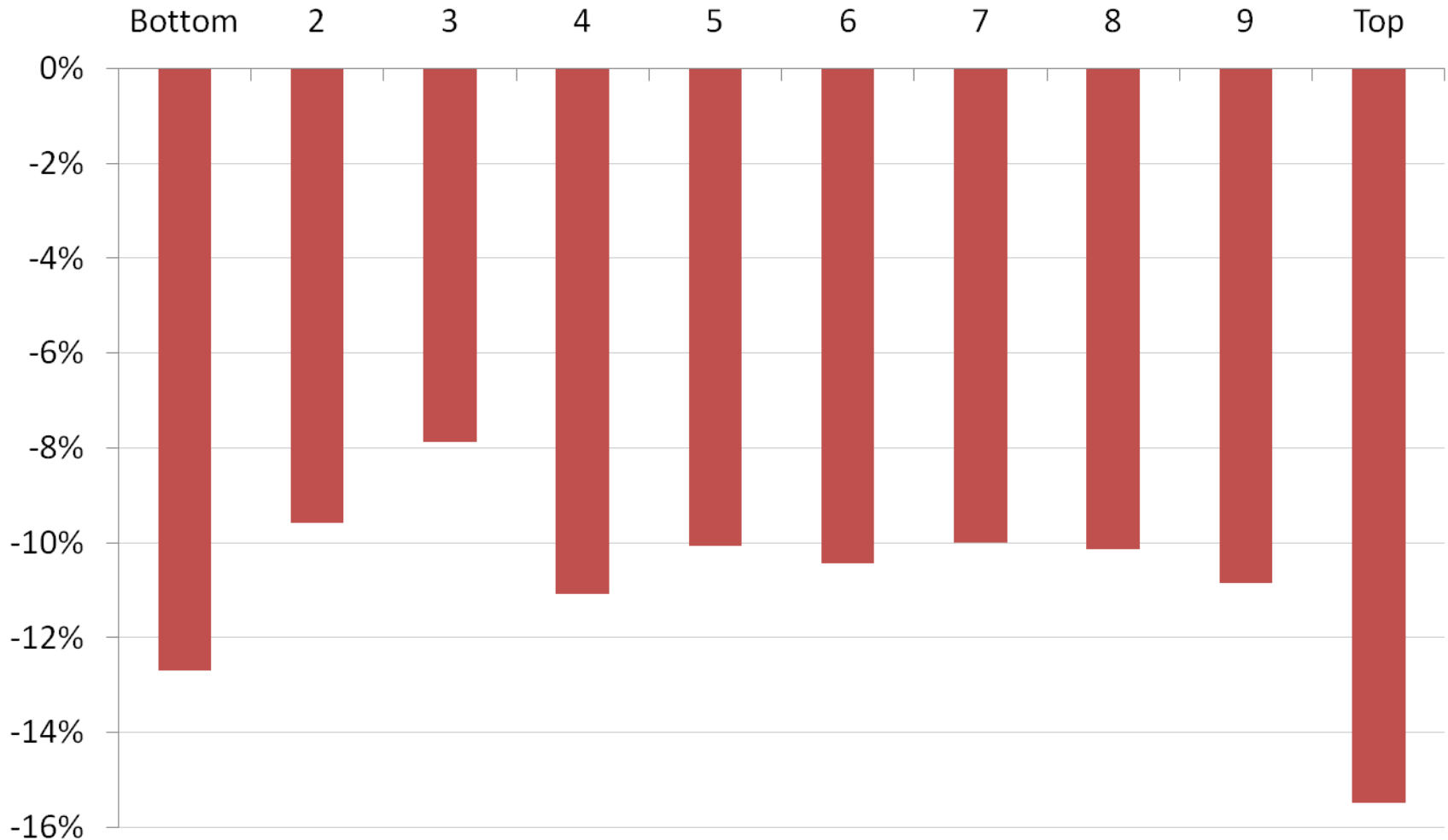
http://www.esri.ie/publications/search_for_a_publication/search_results/view/index.xml?id=4125

“Austerity” and Other Measures during Great Recession



- Income tax bands and credits reduced
- Nominal cuts in welfare payment rates, child benefit
- Public Sector pay cuts
- Property tax, USC, Water Charges
- VAT, Carbon Tax, CGT and DIRT increases
- Tax relief for pension contributions, health insurance reduced

Impact of Budgetary Policy 2009-2015 - Percentage Change in Disposable Income by Income Decile

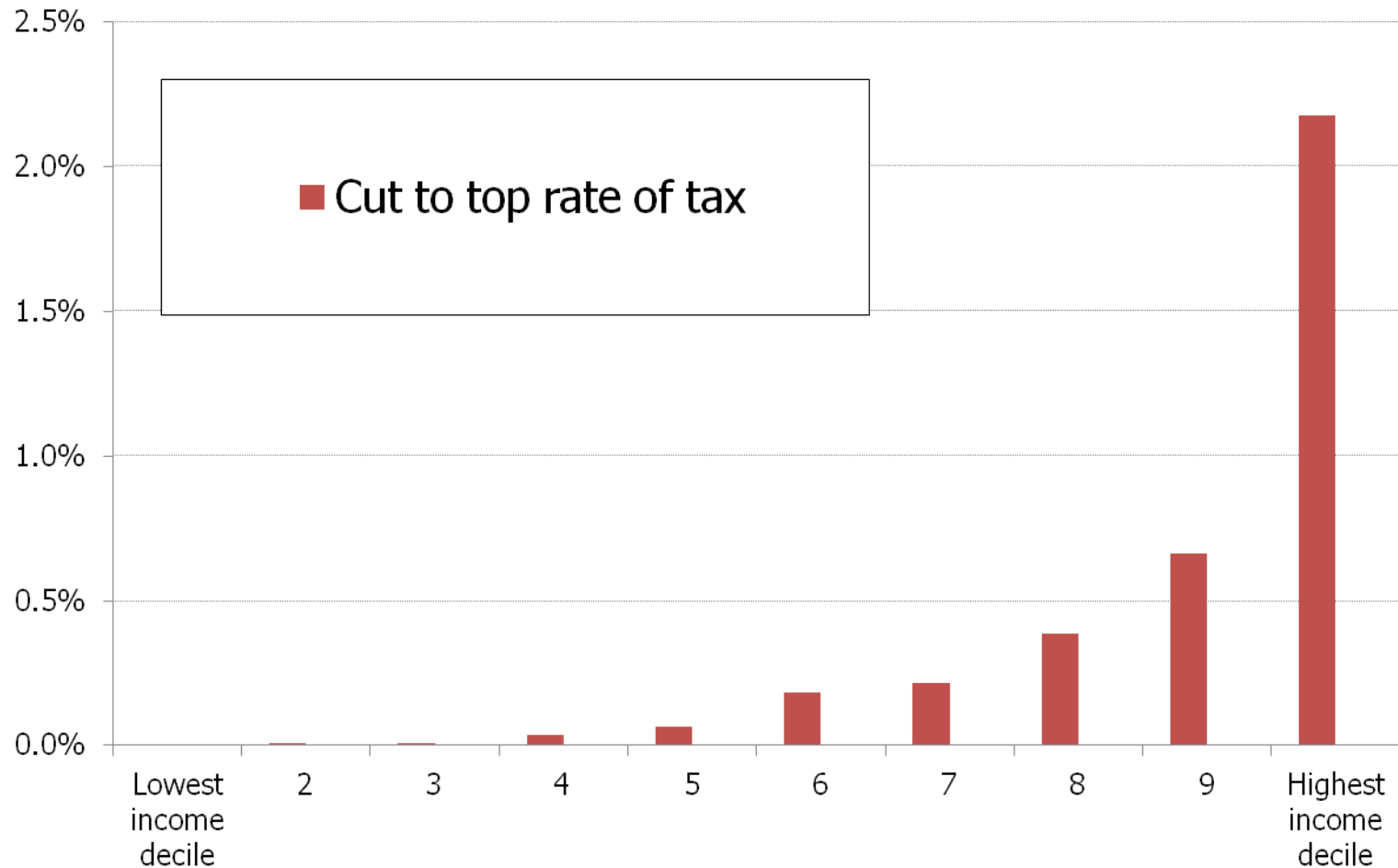


Distributional Impact of Changes in Tax and Welfare Policy Options for Budget 2016

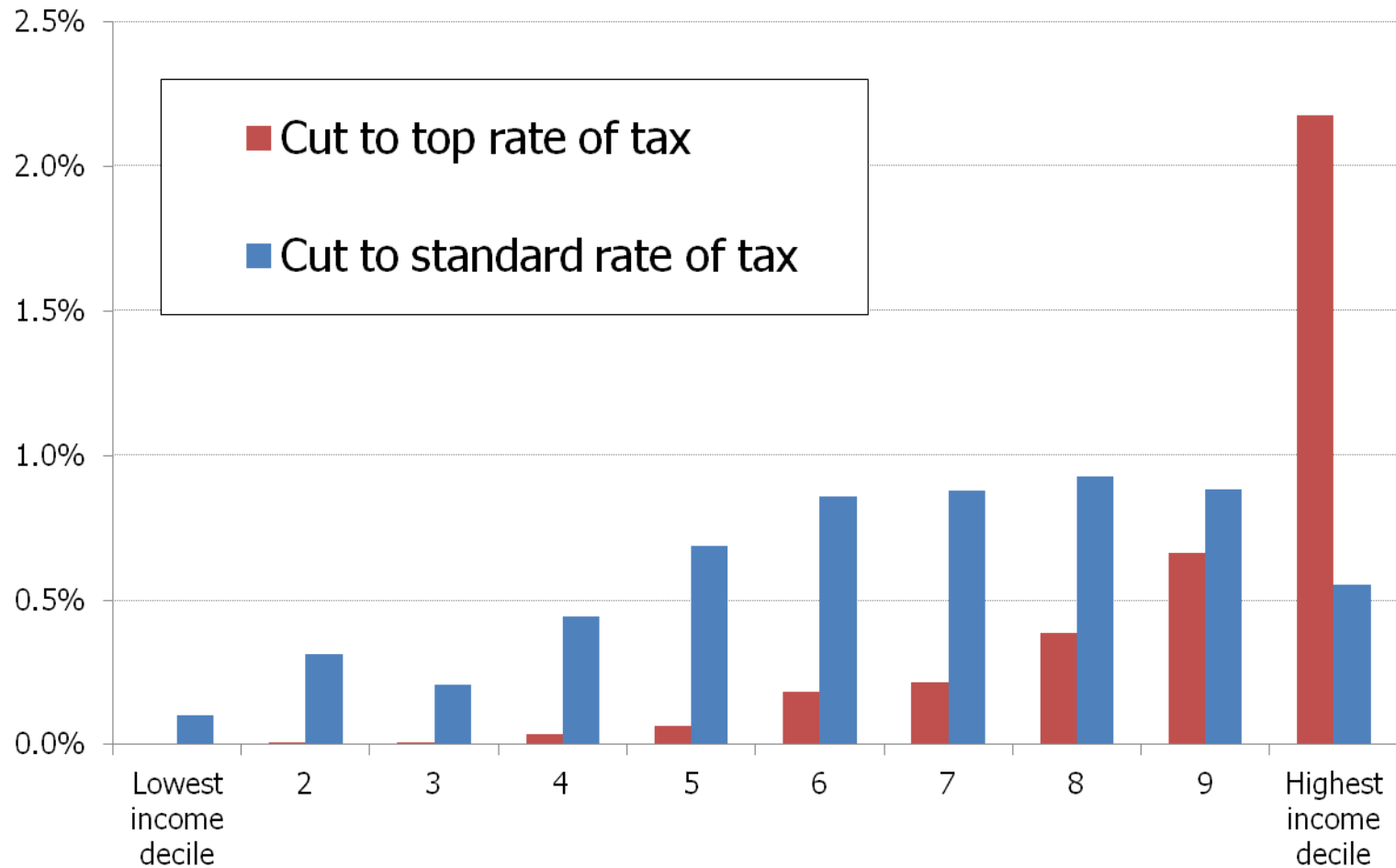
Source: Budget Perspectives 2016

http://www.esri.ie/publications/latest_publications/view/index.xml?id=4226

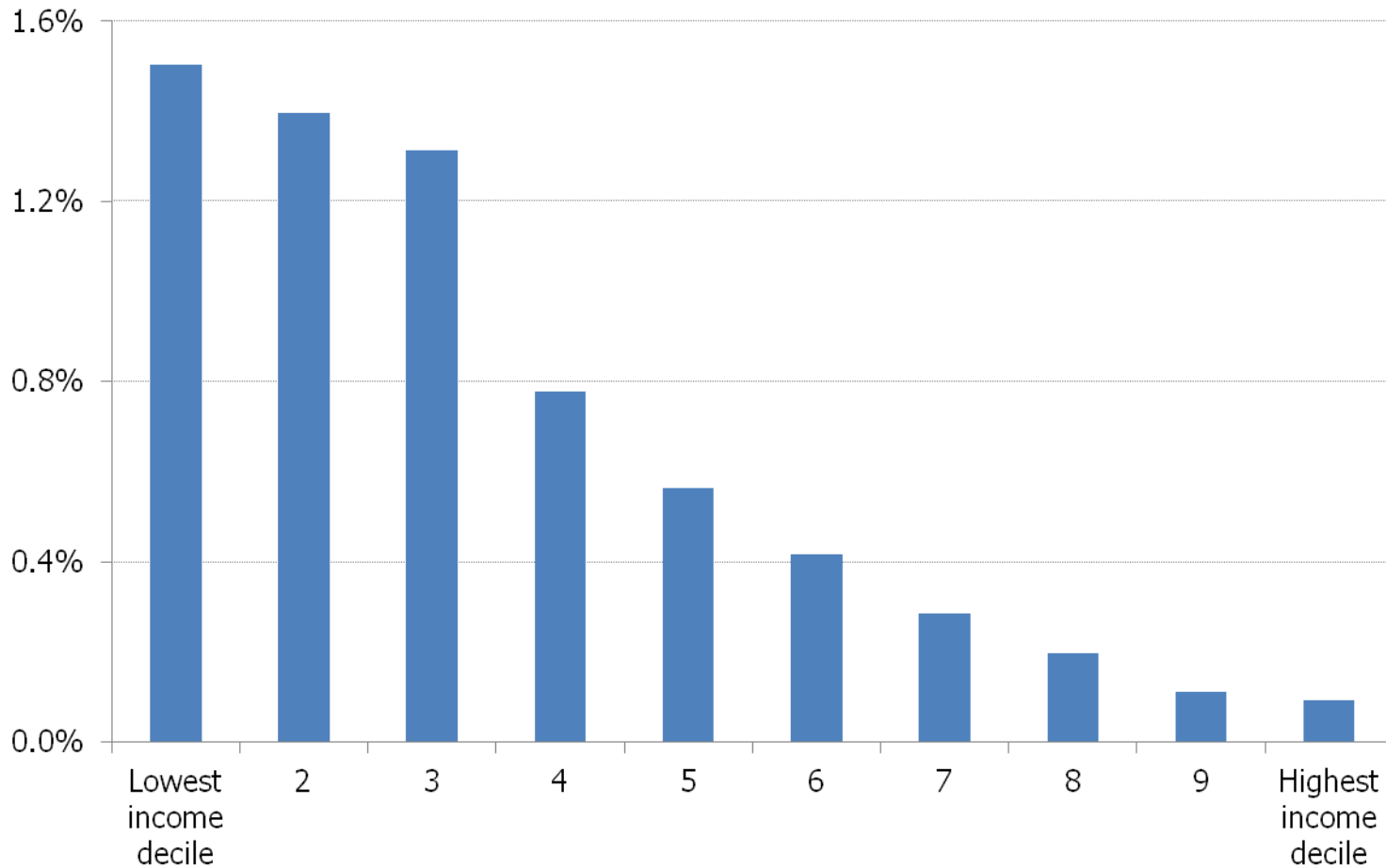
Distributive Impact of Alternative Tax Policy Instruments (equal cost €500m)



Distributive Impact of Alternative Tax Policy Instruments (equal cost €500m)



Distributive Impact of a 2% Increase in Welfare Payment Rates





Examining Financial Incentives to Work for Unemployed Jobseekers in SWITCH

Source: Budget Perspectives 2016

http://www.esri.ie/publications/search_for_a_publication/search_results/view/index.xml?id=4227

Measuring the Financial Incentive to Work



- Replacement Rate measures how much of in-work income is “replaced” when out-of-work

$$RR = 100 * \left(\frac{\text{Out – of – Work Family Disposable Income}}{\text{In – Work Family Disposable Income}} \right)$$

- In-work income €500, Out-of-work income €250,
Replacement Rate = 50%

Distribution of Replacement Rates, Ireland 2015



| Rep Rate Category | Unemployed on JA/JB | Employees |
|-------------------|---------------------|-----------|
| | % | % |
| >70 | 18.3 | 16.2 |
| >80 | 11.0 | 8.3 |
| >90 | 5.6 | 3.4 |
| >100 | 2.8 | 1.4 |
| Est. Pop. | 163,000 | 1,581,000 |

Potential Future SWITCH Development

- Indirect Taxes
- Universal Health Insurance
- Medical Card Valuation Options
- Development of Housing Support Payments
- Income Before and After Housing Costs
- Budget Constraints (eg. how disposable income changes at various hours of work)
- International Comparisons (project planned with IFS on work incentives)