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# Public Economics: Poverty and Inequality

Andrew Hood

# Overview

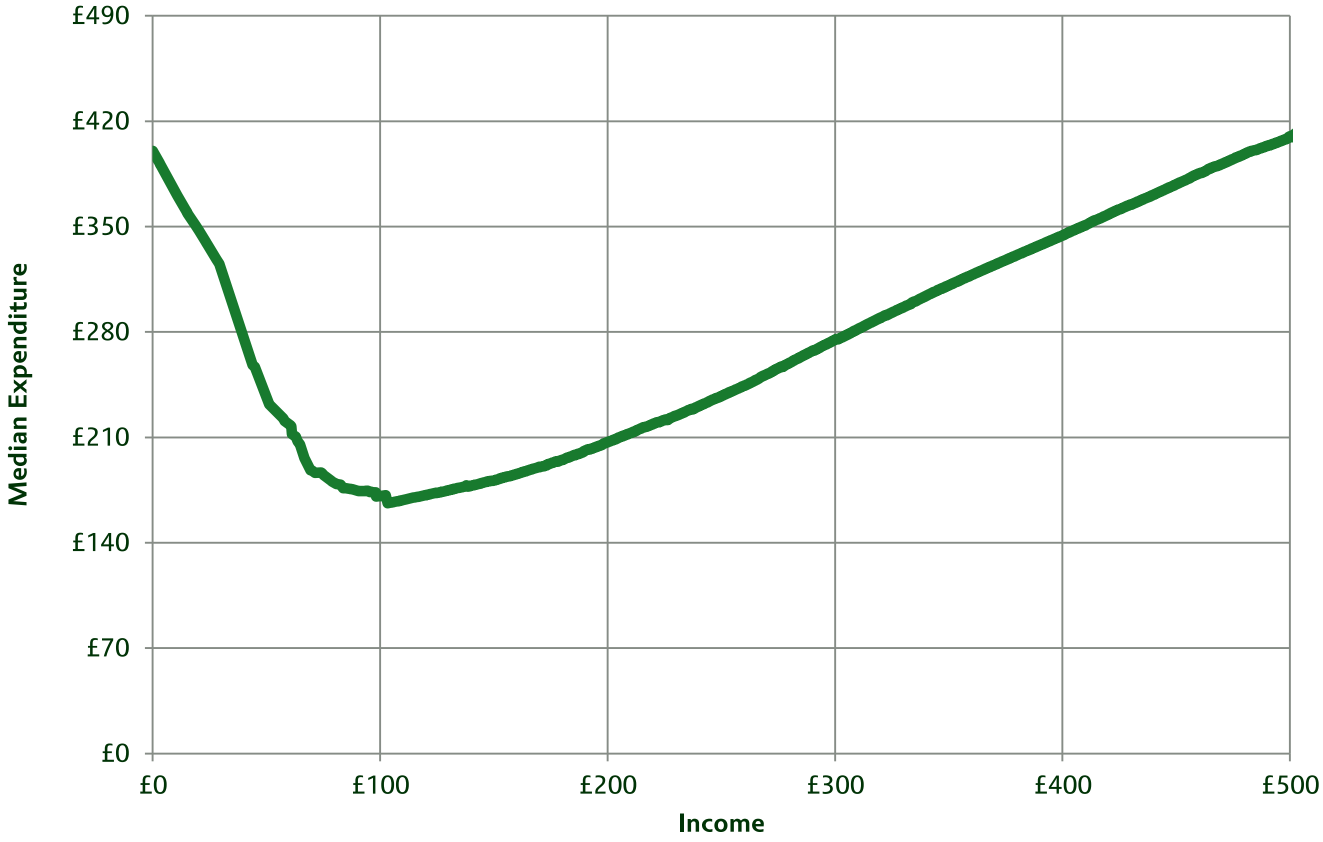
- Why do we use income?
- Income Inequality
  - The UK income distribution
  - Measures of income inequality
  - Explaining changes in income inequality
- Income Poverty
  - Measuring income poverty
  - Universal Credit and poverty
- Summary and conclusions

# Why income?

- Economic analysis tends to focus on income inequality and income poverty
  - not because income is the only thing that matters...
  - ...but because it is arguably the best measure of living standards we've got

- Consumption is conceptually a better indicator of living standards
  - Income snapshots can be misleading

# Those with the lowest incomes do not have the lowest consumption




Source: Brewer and O'Dea (2012)

# Why income?

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  - not because income is the only thing that matters…
  - …but because it is arguably the best measure of living standards we've got

- Consumption is conceptually a better indicator of living standards
  - Income snapshots can be misleading
  - but consumption is much harder to measure and the data is much better (and more up-to-date) for income



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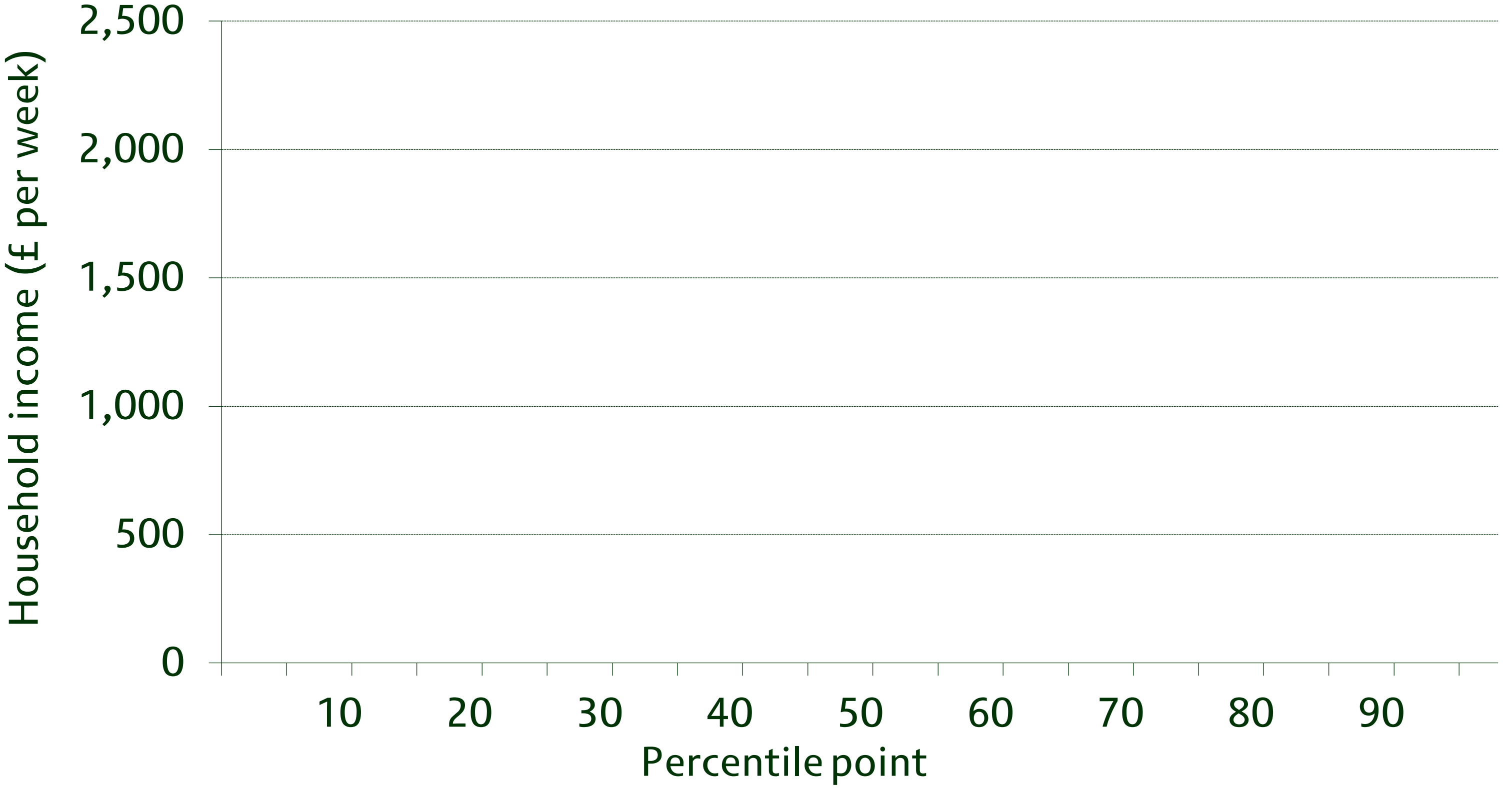
# Measurement of income

- Income as measured by government in "Households Below Average Income" (HBAI)
- Income is measured net of direct taxes and benefits
- Measured at the household level (implicitly assumes income sharing)
- Adjusted for household size (equivalised)
- Adjusted for inflation
- Based on Family Resources Survey (from 1994-5 onwards)
  - 25,000 households across the UK
  - Subject to sampling error

# Income Inequality

# The UK income distribution in 2011–12




Source: Cribb et. al. (2013)



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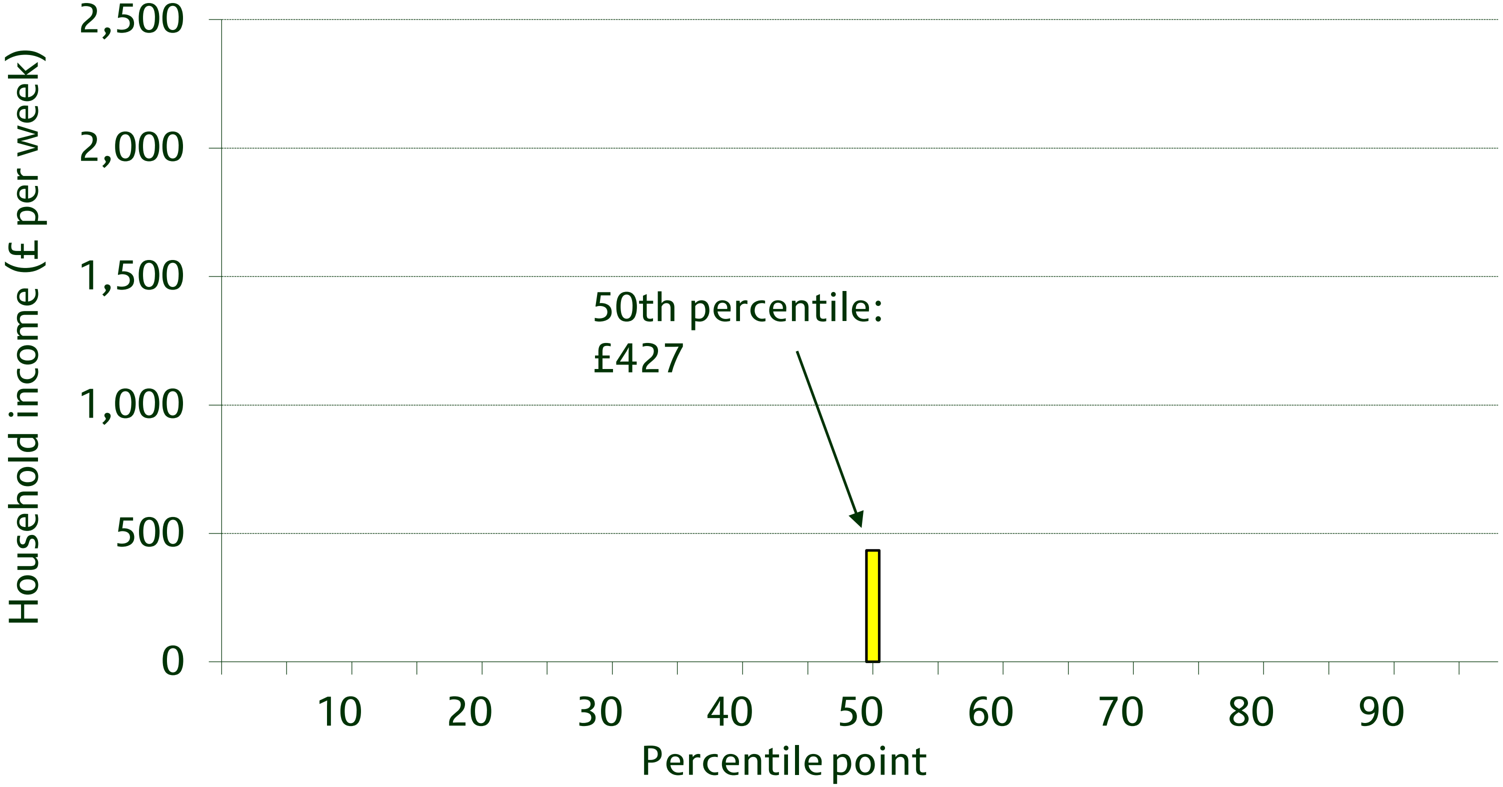
# The UK income distribution in 2011–12

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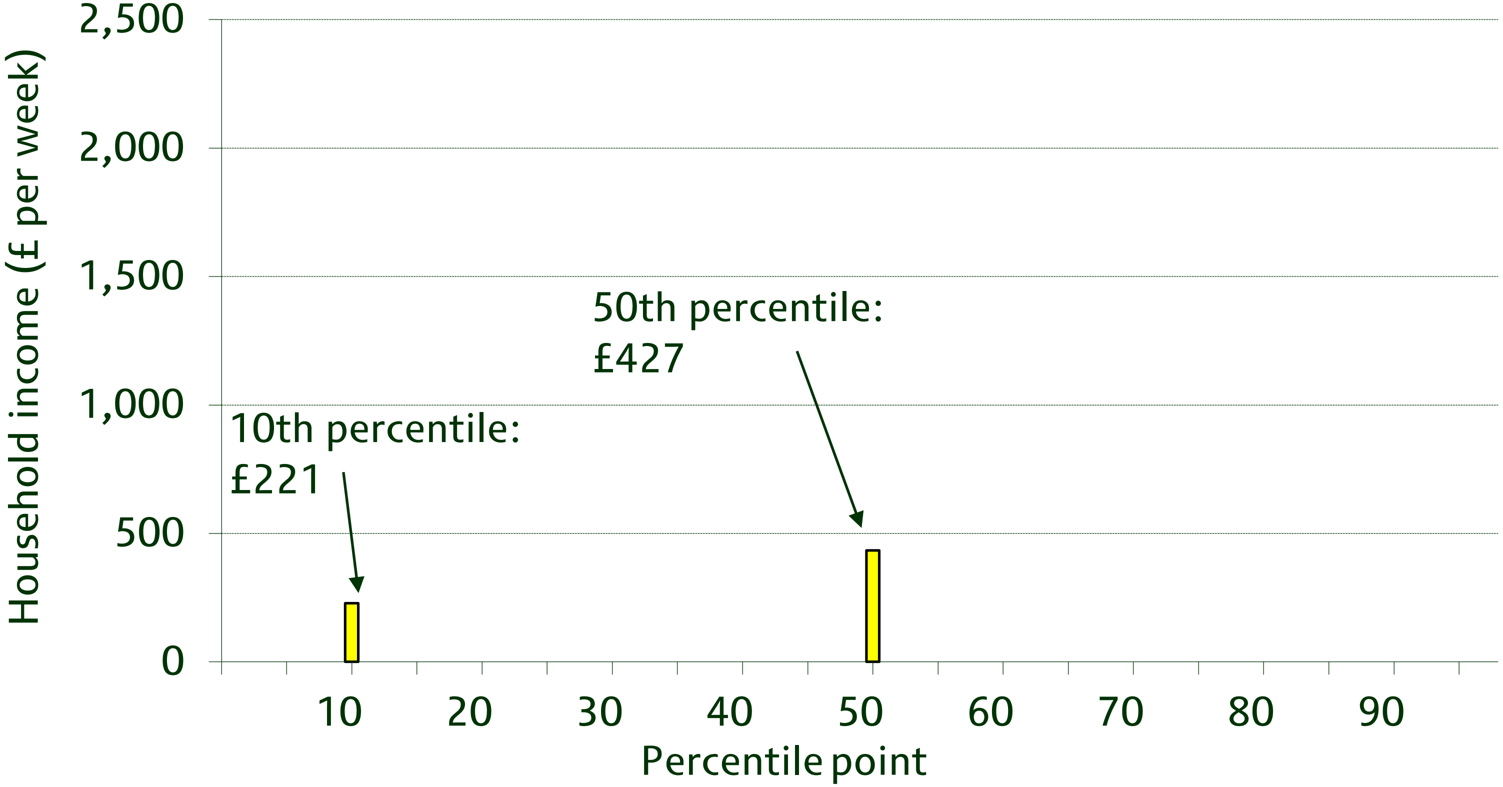


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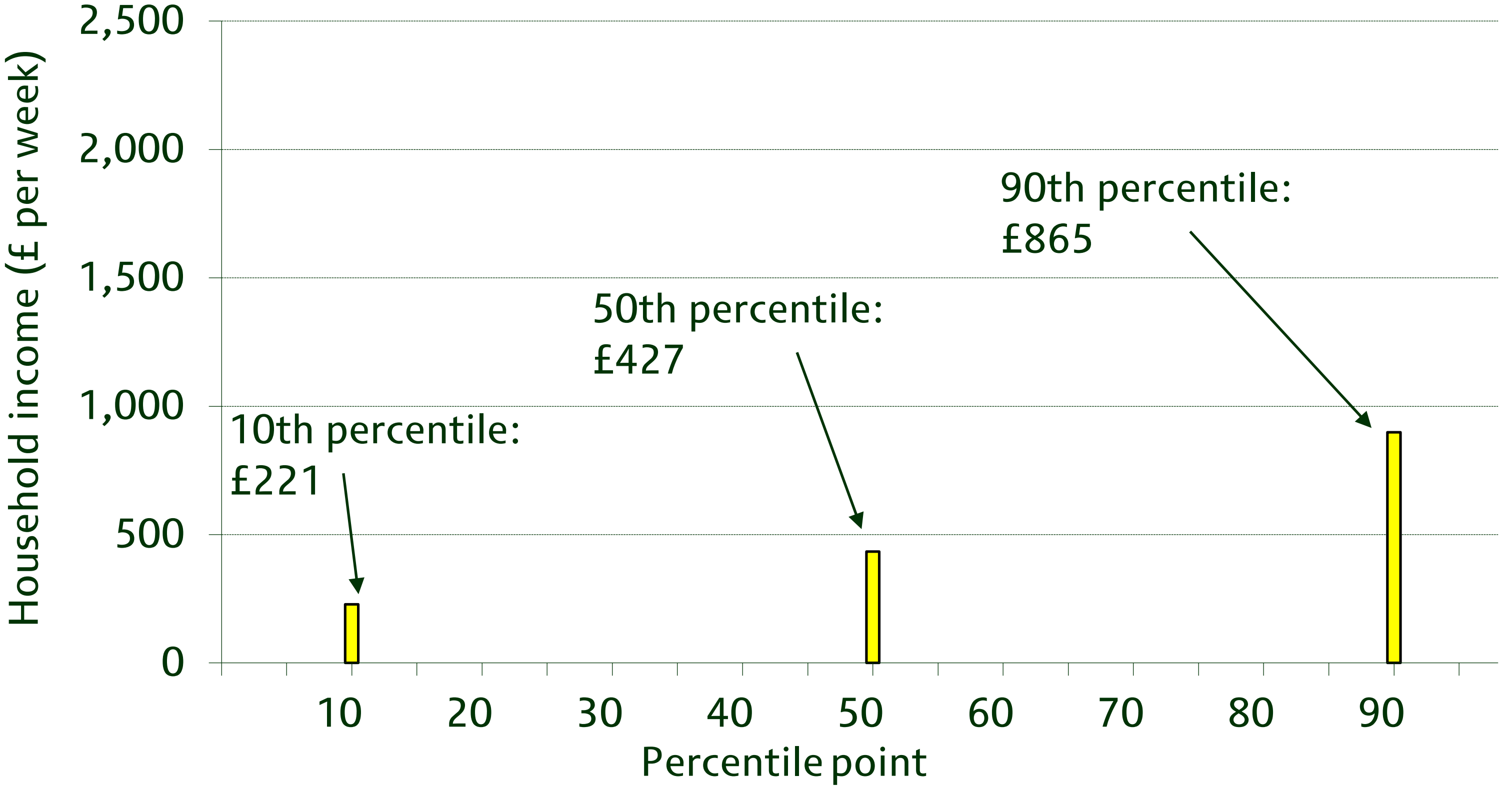


Source: Cribb et. al. (2013)

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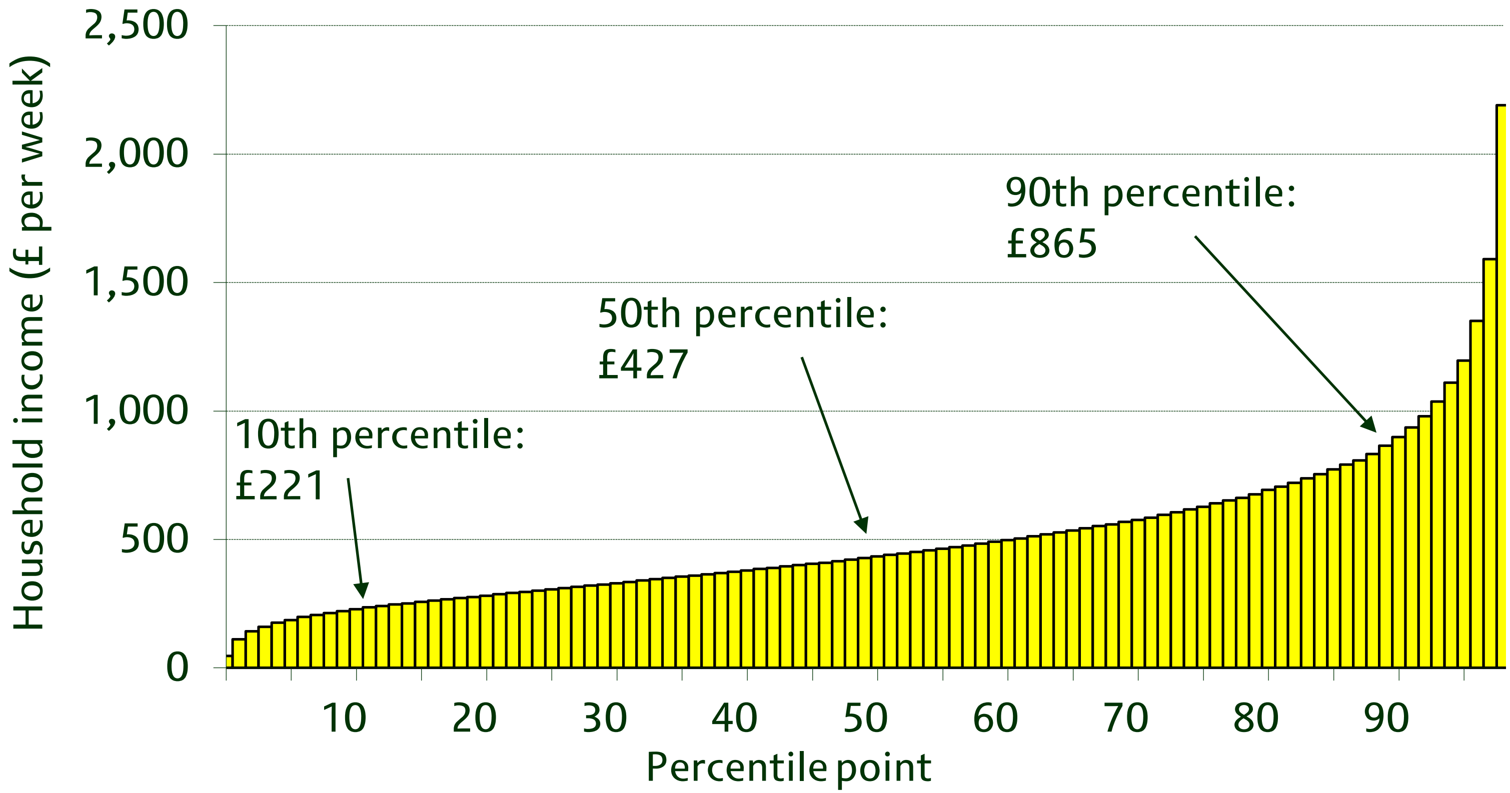


Source: Cribb et. al. (2013)

# Gross annual earnings required to reach certain percentiles of the UK income distribution

| | Single individual | One-earner couple, no children | Two-earner couple,[a] no children | One-earner couple, two children under 14 |
|---|---|---|---|---|
| 50th | £18,000 | £29,000 | £26,000 | £39,000 |
| 90th | £41,000 | £66,000 | £59,000 | £94,000 |
| 99th | £125,000 | £198,000 | £174,000 | £290,000 |

[a] With each partner earning the same amount.

Source: Cribb et. al. (2013)

- Equivalisation makes a really big difference
- The gap between the 90th and the 99th percentiles is pretty significant



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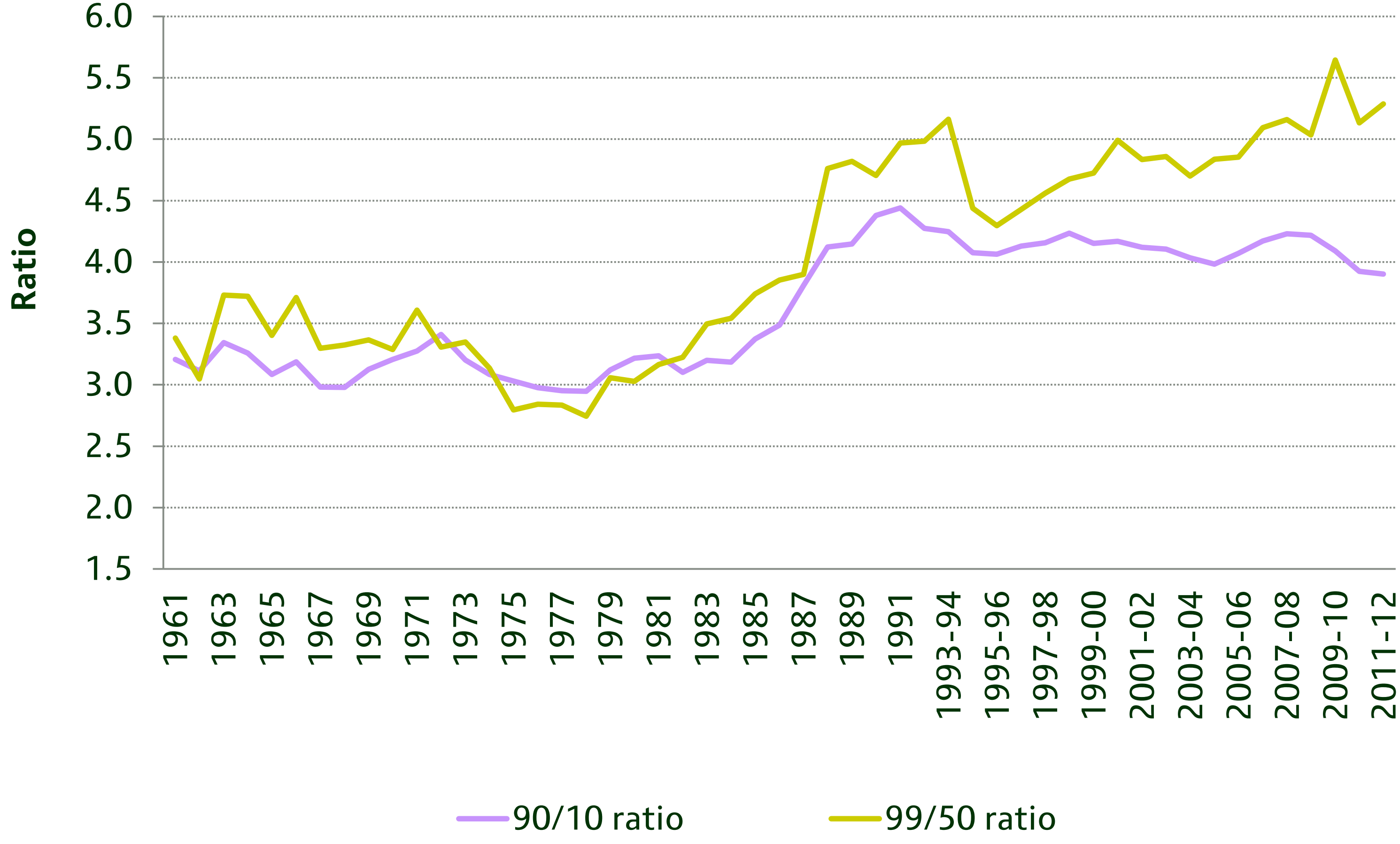
# Measuring income inequality

- Broadly 2 types of inequality measures

1. Ratio measures – compare incomes at different points of the distribution

2. Summary measures – attempt to collapse the whole income distribution into a single number

# Measuring income inequality: ratio measures




Source: Cribb et. al. (2013)



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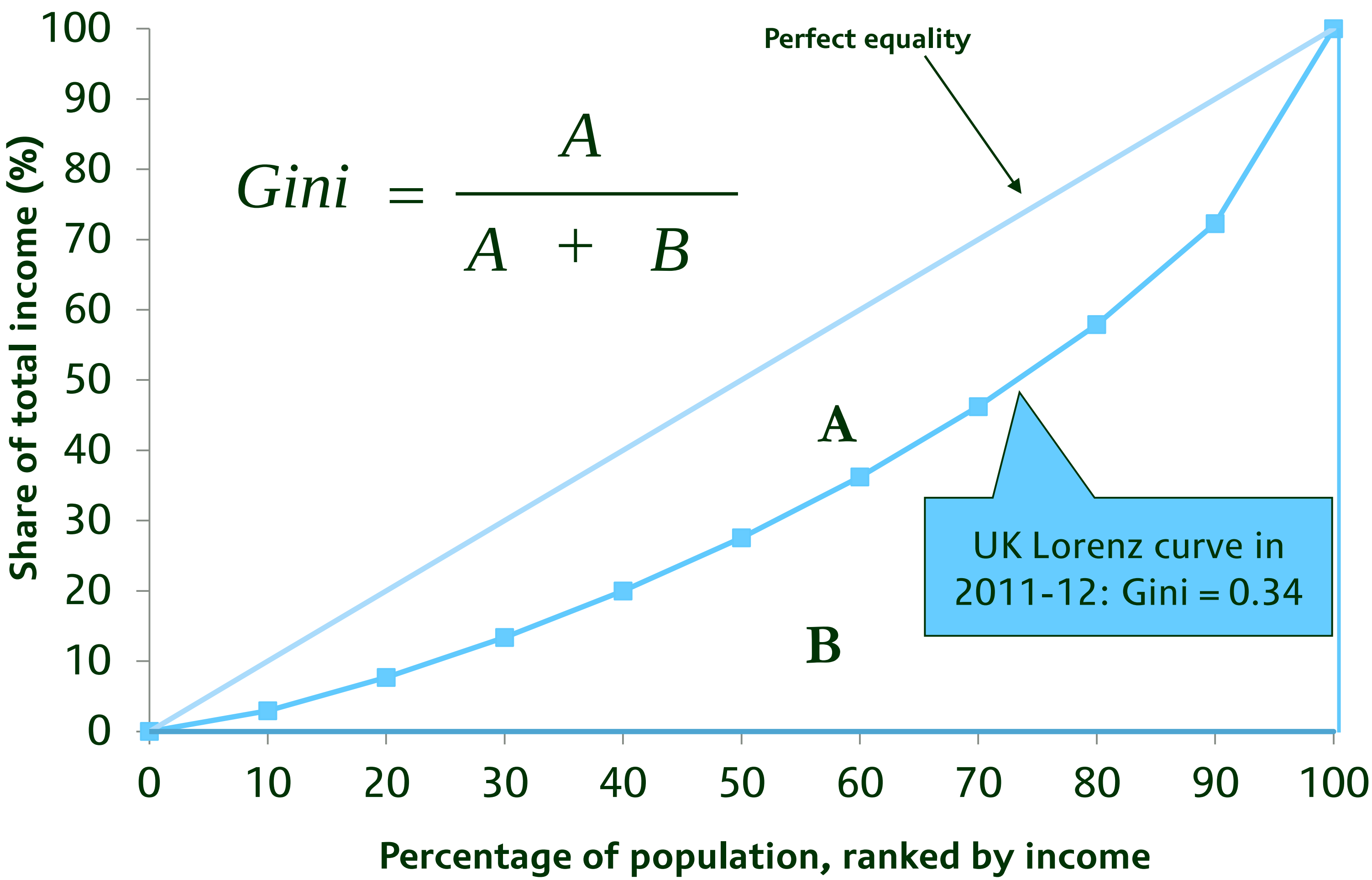
# Measuring income inequality: the Gini coefficient

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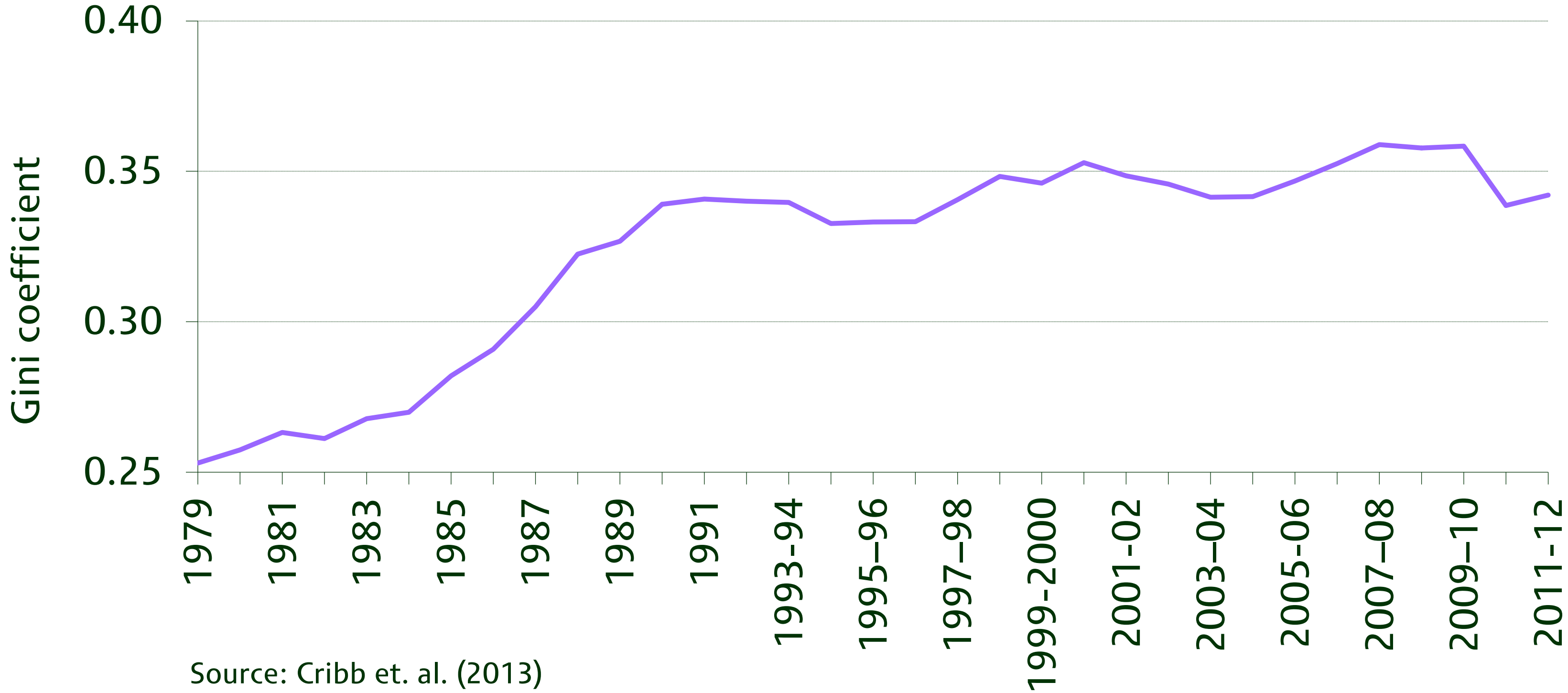
# Gini coefficient: 1979 to 2011–12




Source: Cribb et. al. (2013)

- Gini rose dramatically in the 1980s (0.25 in 1979 to 0.34 in 1990)
- Big fall in recent years (0.36 in 2007–08 to 0.34 in 2011–12)



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# Why has income inequality risen?

- Lots of explanations
  - Skills-biased technological changes [see Acemoglu (2002), Machin (2001) and Goldin and Katz (2008)]
  - Labour market institutions: weaker trade unions and a decline of collective bargaining (Goodman and Shephard 2002)
  - More inequality in employment status across households (Gregg and Wadsworth, 2008)
  - Changes in the tax and benefit system

- How can we test them?

# Example 1: decomposition of inequality by household employment structure

- Take overall inequality as measured by the mean log deviation:

$$I_0 = \frac{1}{n}\sum_i log\frac{\mu}{y_i}$$

- If we divide the population into g subgroups (each containing $n_g$ members) overall inequality can be decomposed into a "within-groups" and a "between-groups" term (Shorrocks, 1980):

$$I_0 = \sum_g\left(\frac{1}{n}\sum_{i=1}^{n_g} log\frac{\mu_g}{y_i^g}\right) + \frac{1}{n}\sum_g n_g \log\frac{\mu}{\mu_g}$$



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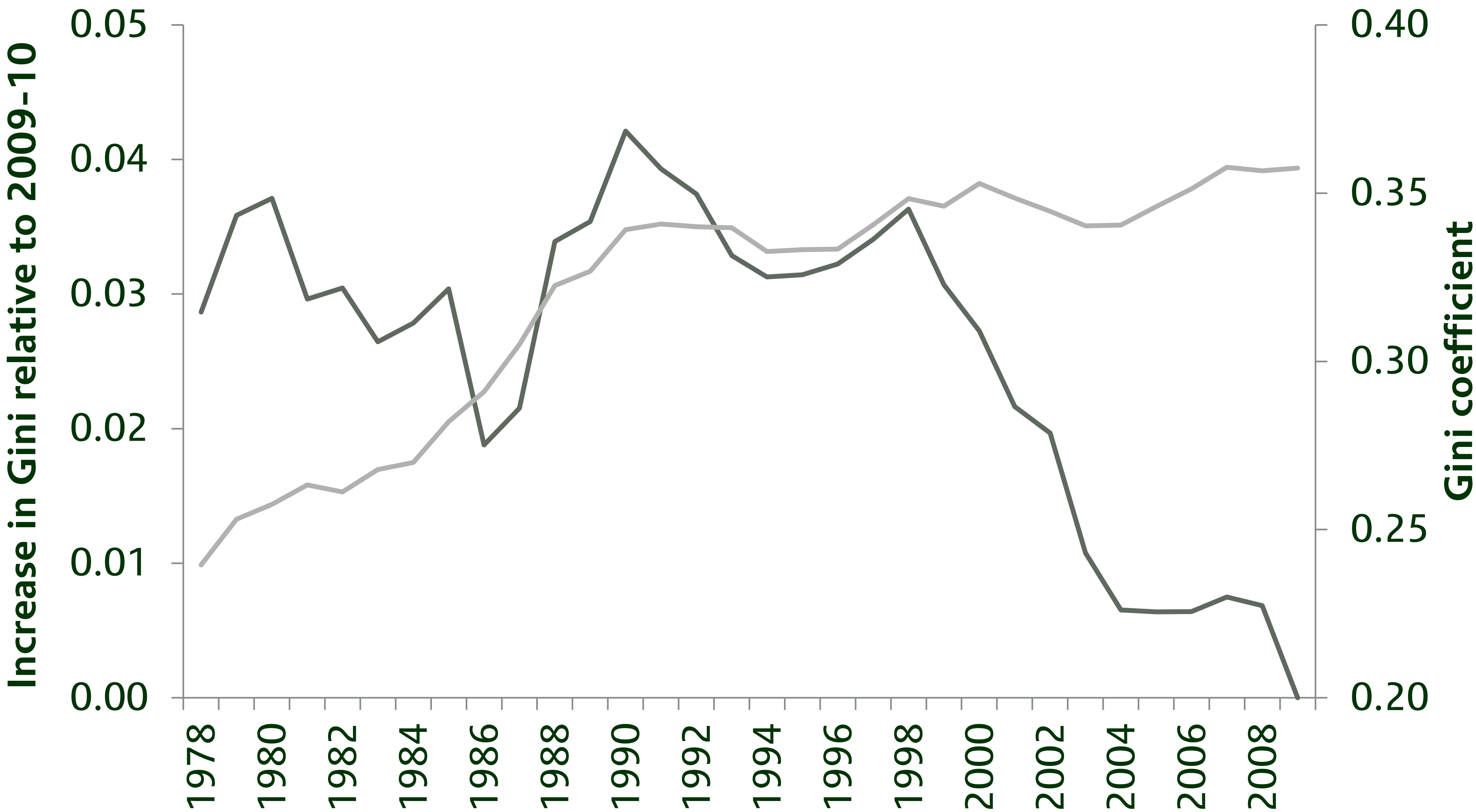
# Example 1: decomposition of inequality by household employment structure

- Brewer, Muriel and Wren-Lewis (2009) use this decomposition to examine the impact of changes in household employment structure on inequality
  - Groups defined according to number of adults, number of earners and age of household head

- Conclude that the growing disparity between "work-rich" and "work-poor" households contributed significantly to the increase in inequality during the 1980s

# Example 2: replacing tax/benefit system with those from previous years (UK)




Source: Adam and Browne (2010).

Note: Tax and benefit systems from previous years have been uprated in line with the Retail Prices Index. Years up to and including 1992 are calendar years; thereafter, years refer to financial years.

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# Example 2: replacing tax/benefit system with those from previous years (UK)

- The tax and benefit system matters for the level of income inequality
  - if Labour had left the system they inherited unchanged, the Gini in 2009–10 would have been 0.39 rather than 0.36, higher than the US (assuming no behavioural response)

- Other things matter more than the tax and benefit system for the level of income inequality
  - Inequality rose during the 2000s despite inequality-reducing changes to the tax and benefit system

# Poverty

# What is poverty?

- Destitution, relative deprivation, capability or functioning in society, livelihood sustainability?
  - but what can we measure?

- Economists have tended to define poverty as having income below a certain "poverty line"

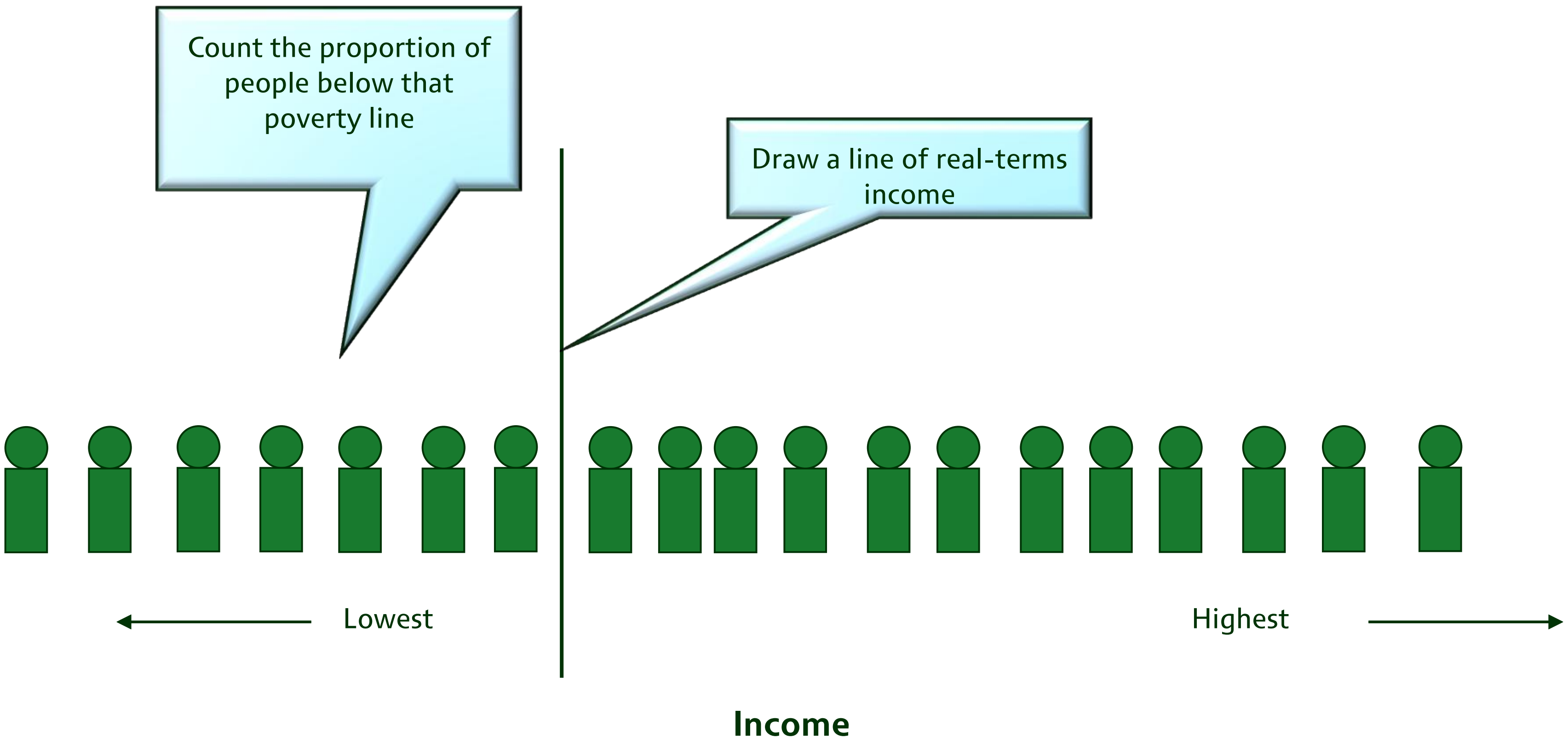
- One alternative is a "poverty gap" measure
  - weights people according to how far they are below the poverty line
  - but the data towards the bottom of the income distribution is not good enough

# Poverty lines

- 2 kinds of poverty lines are used

1. Absolute Poverty lines
   - defined as a certain level of real-terms income
   - egs. $1 a day poverty line (in 1990 prices) (Ravallion et al 1991), US government basket of goods and services

# Calculating absolute poverty



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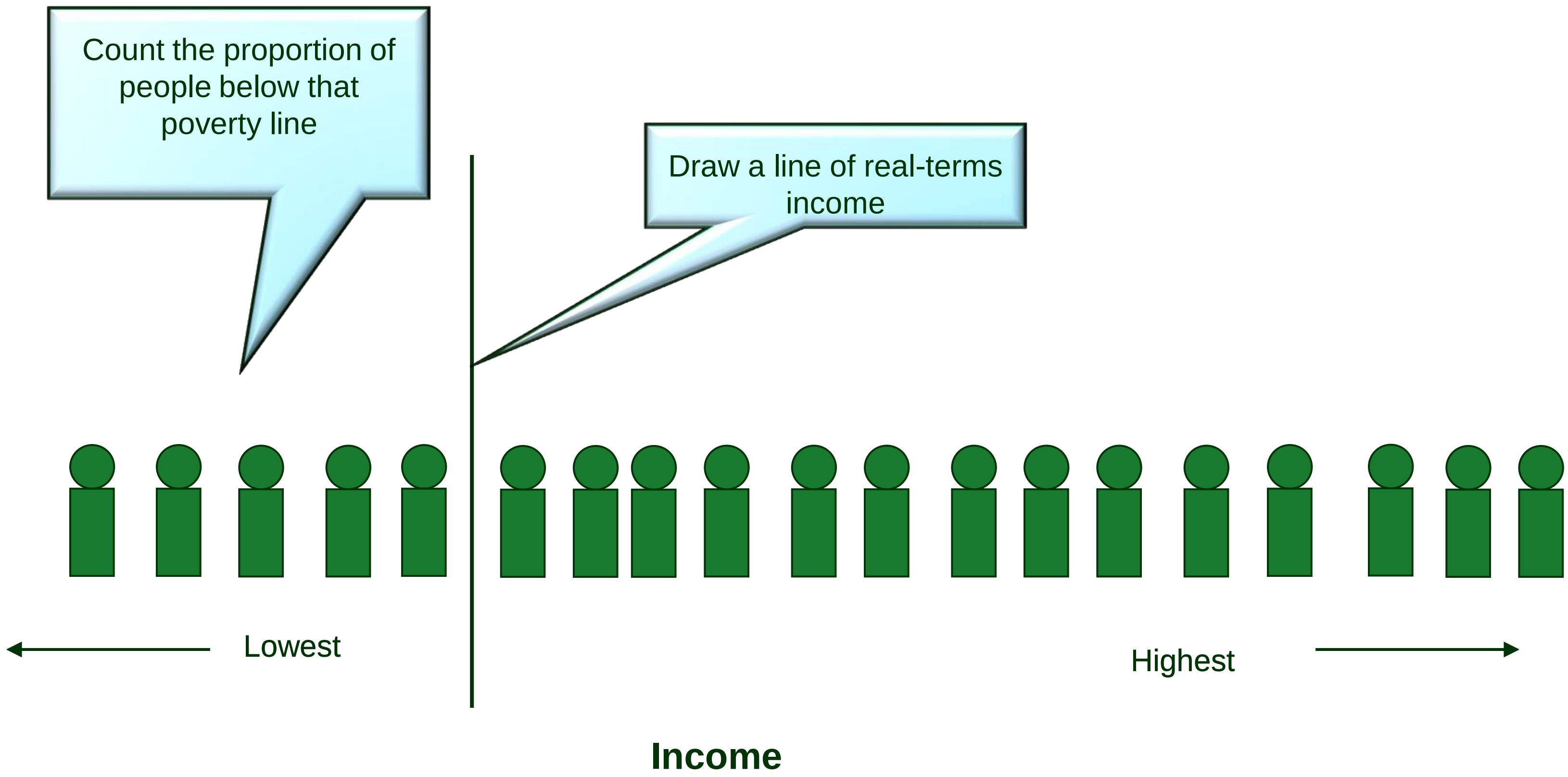
# Absolute poverty over time



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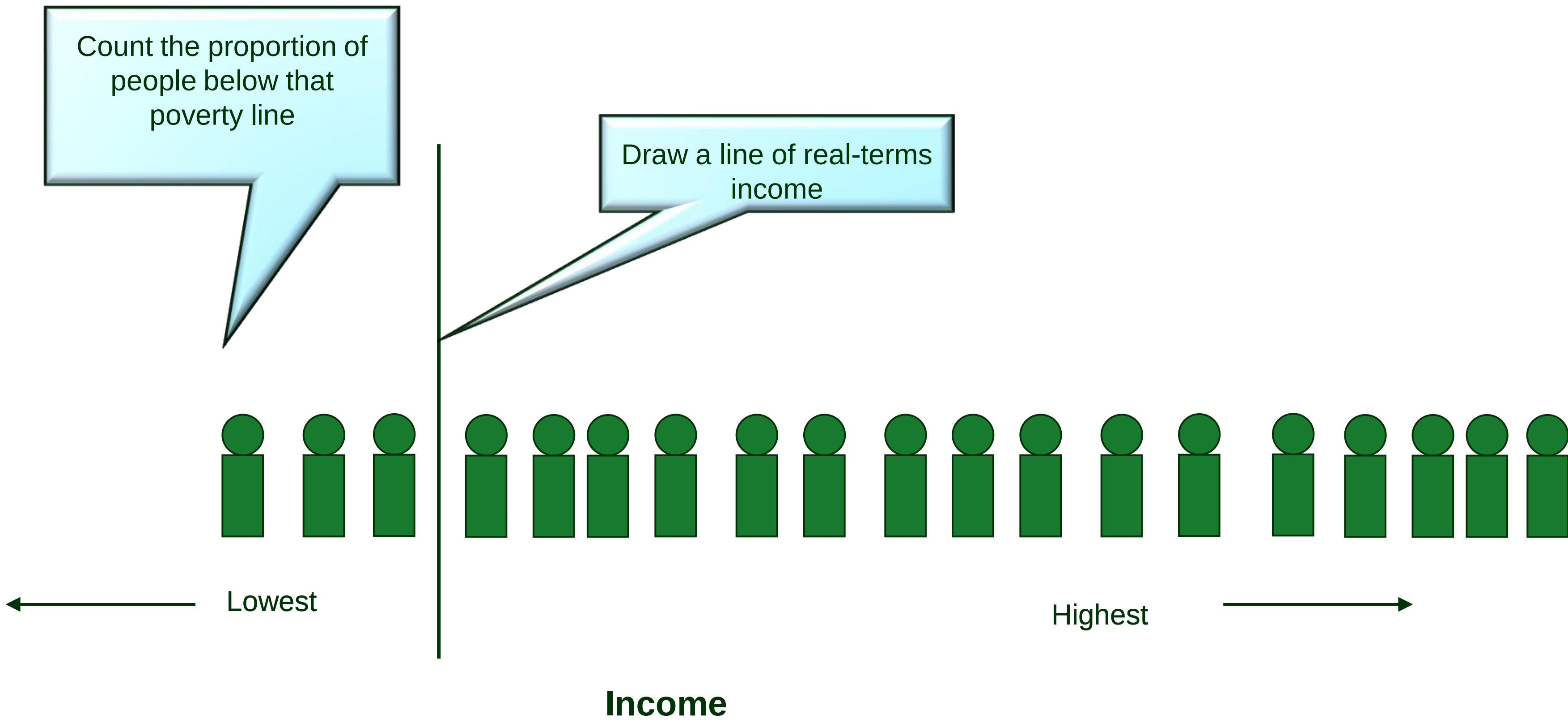


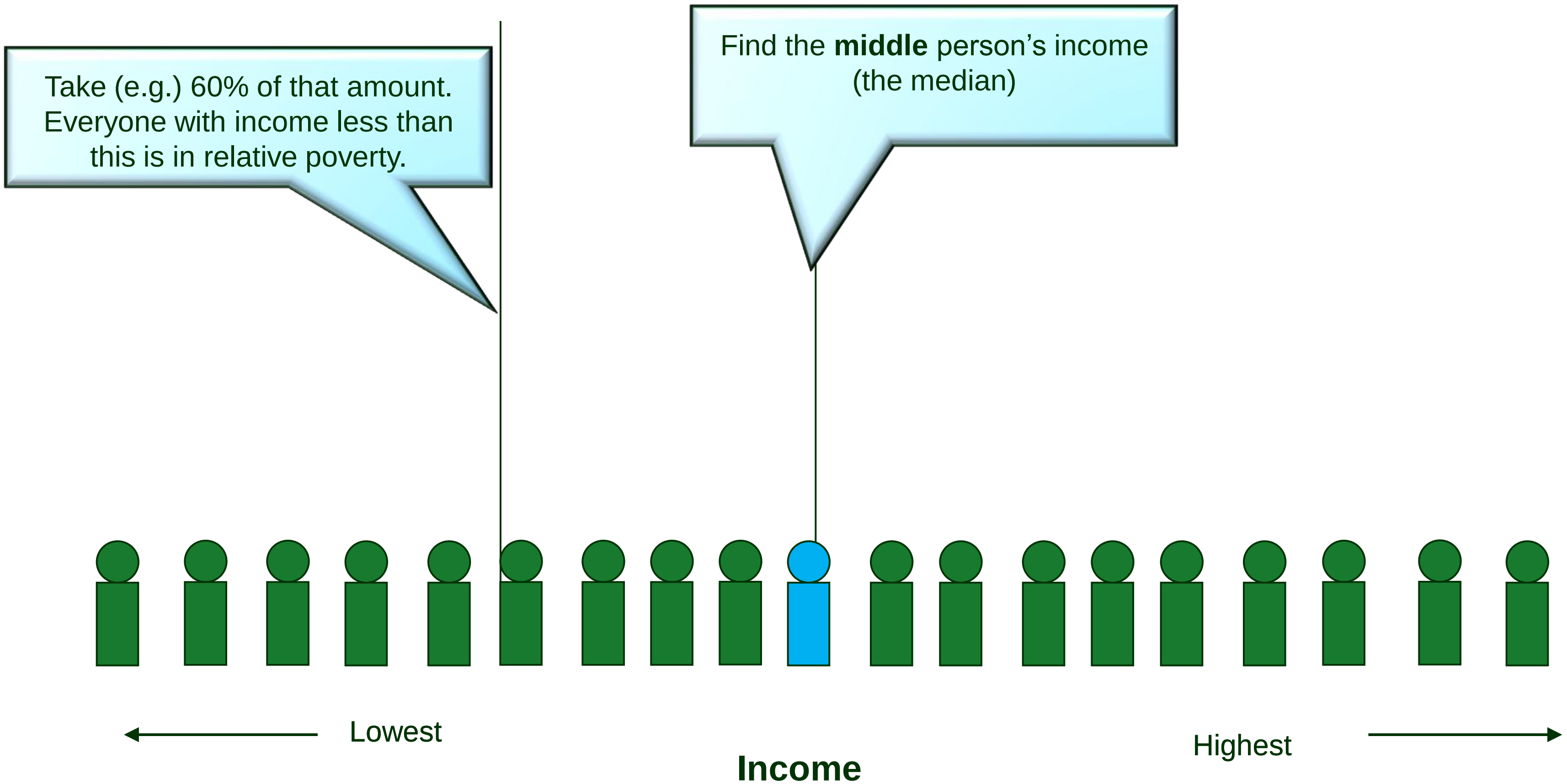
# Poverty lines

- 2 kinds of poverty lines are used

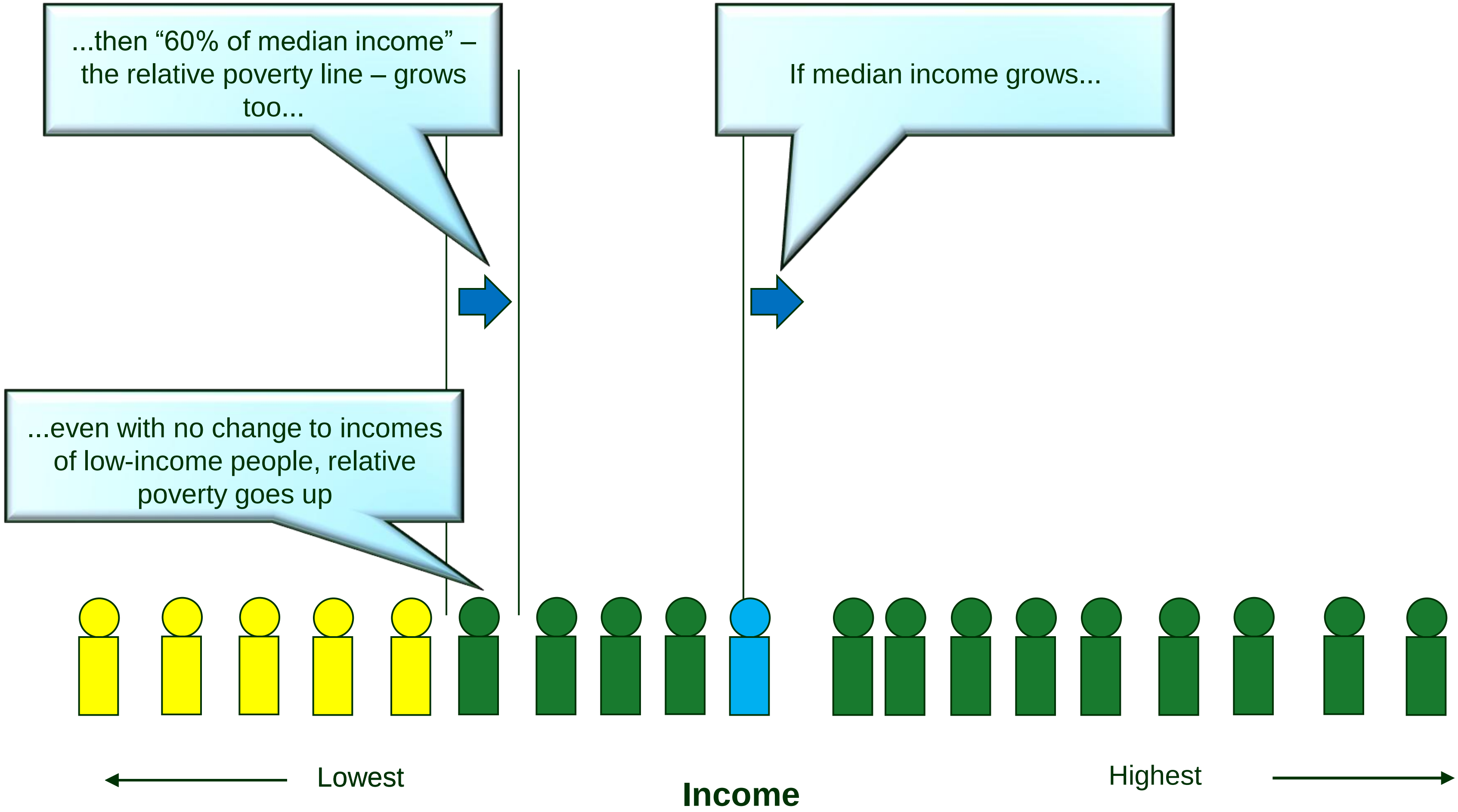
1. Absolute Poverty lines
   - defined as a certain level of real-terms income
   - egs. $1 a day poverty line (in 1990 prices) (Ravallion et al 1991), US government basket of goods and services

2. Relative Poverty lines
   - defined as a certain percentage of median income in a country
   - eg. UK government uses 60% of median income for child poverty targets

# Calculating relative poverty



# Relative poverty over time – a moving target



# Why look at relative **and** absolute poverty?

- Relative poverty is really a measure of inequality between the middle and the bottom
  - particularly problematic when median income is falling

- Absolute poverty lines become irrelevant in the long run
  - often moved on an ad hoc basis eg. 2010 baseline for 2020 child poverty targets

- Changes in absolute poverty perhaps more significant in the short run, with changes in relative poverty more significant in the long run

# Poverty and government policy: a case study

- Universal Credit is a major reform to the UK benefits system aiming to:
  - simplify the system
  - improve work incentives

- How does it work?
  - Universal Credit will replace 6 major working-age benefits and tax credits with a single monthly payment
  - So-called "legacy benefits" are Jobseeker's allowance, employment and support allowance, income support, housing benefit, child tax credit and working tax credit

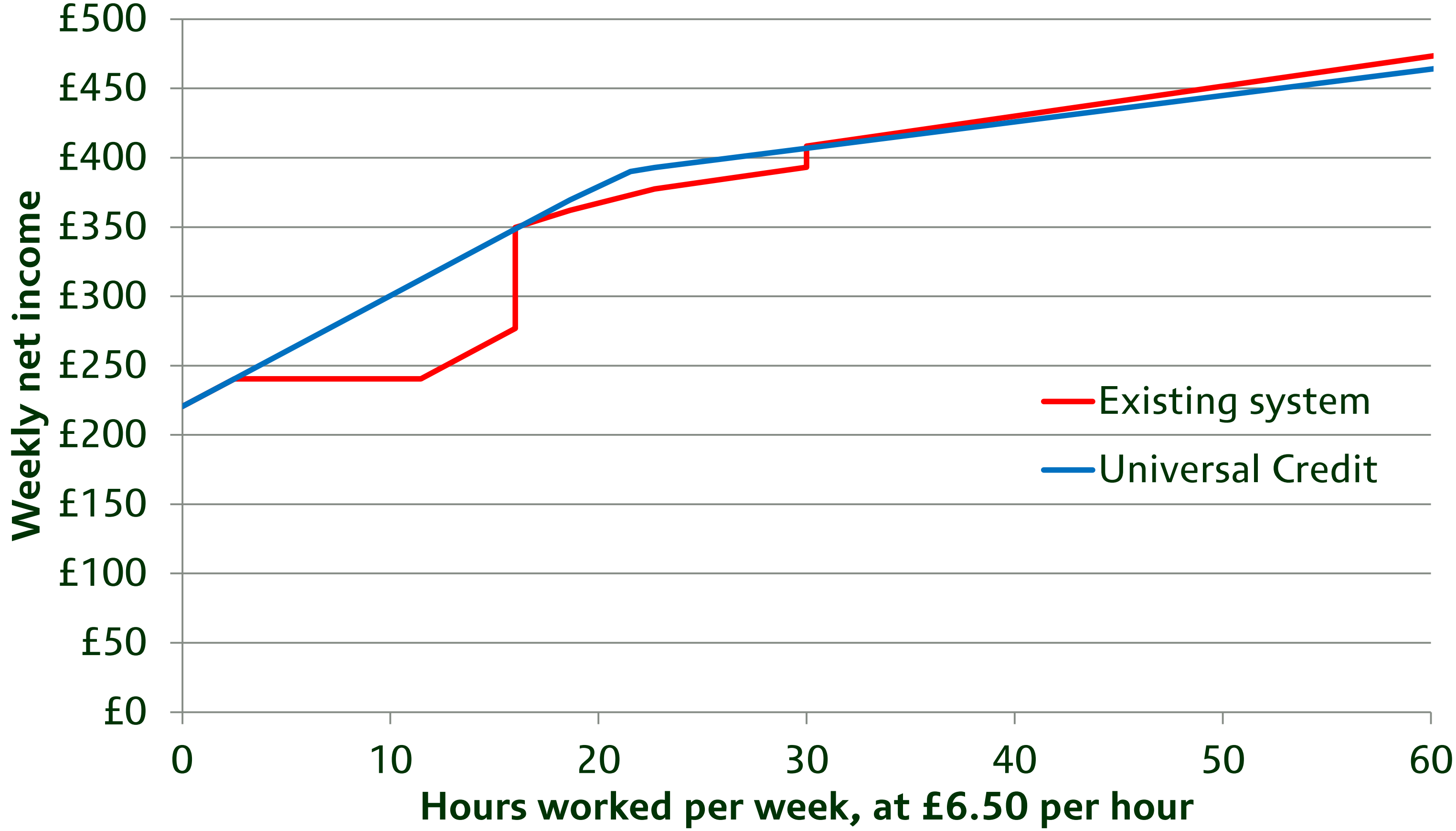
- Roughly revenue-neutral on an entitlements basis

# Universal Credit: improving work incentives

- Universal Credit has larger earnings disregards…
  - You can earn more before your benefit starts to be withdrawn

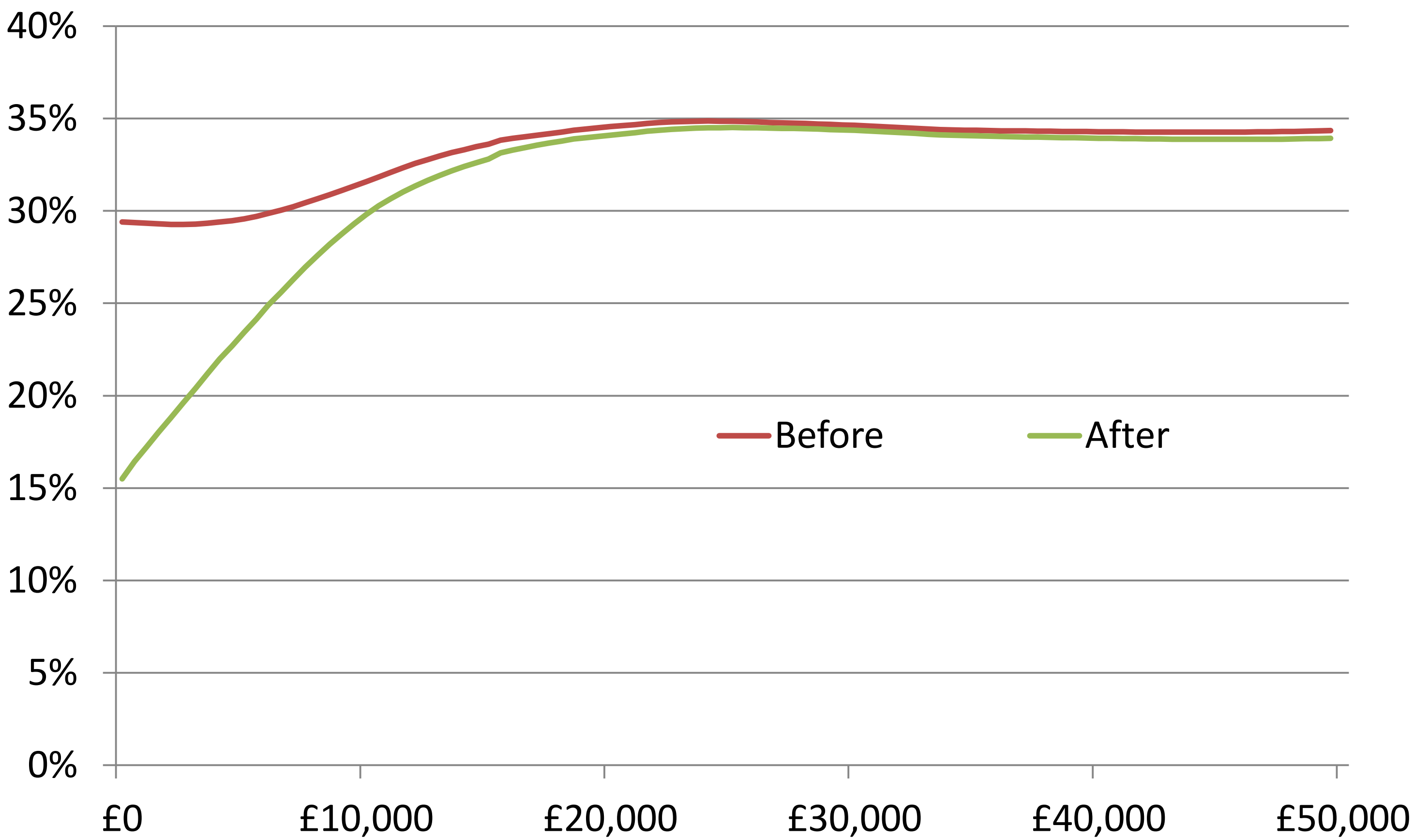
- … and a lower maximum withdrawal rate
  - Single rate of 65% on post-tax earned income ( maximum 76.2% effective marginal tax rate)

# Budget constraint for a lone parent with 2 children




Source: Browne and Roantree (2013)

# Average participation tax rates by earnings

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# Universal Credit: improving work incentives

- Universal Credit has larger earnings disregards…
  - You can earn more before your benefit starts to be withdrawn
- … and a lower maximum withdrawal rate
  - Single rate of 65% on post-tax earned income ( maximum 76.2% effective marginal tax rate)
- Average participation tax rates are substantially reduced for low earners
  - this should increase labour supply and hence reduce poverty

# Universal Credit: increasing take-up

- Take-up rates for benefits and tax credits are surprisingly low
  - below 70% for Jobseeker's allowance
  - around 80% for Housing Benefit

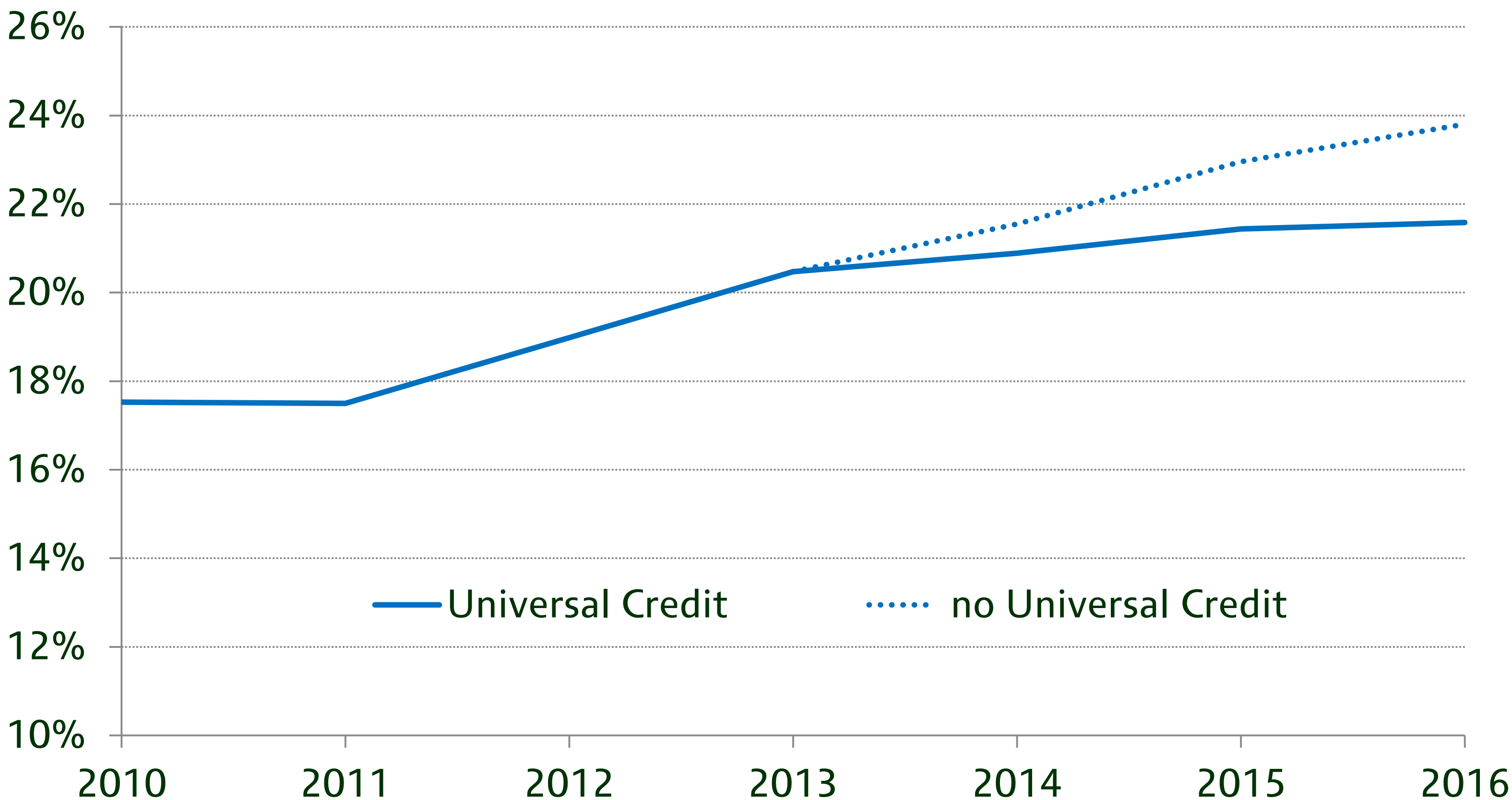
- Universal Credit should increase take-up
  - system will be easier to understand
  - those currently only claiming one benefit but entitled to more will automatically get their full entitlement

- All else equal, higher take-up rates will reduce poverty

# Universal Credit: increasing take-up

- We can isolate the projected impact of introducing Universal Credit on child poverty
  - we assume no behavioural response ie. work incentives don't matter
  - we assume everyone who currently claims any legacy benefit claims their full Universal Credit entitlement

# The effect of Universal Credit on relative child poverty (UK)




Notes: Poverty line is 60% of median before-housing-costs (BHC) income. Years refer to financial years.
Source: Browne, Hood and Joyce (2013)



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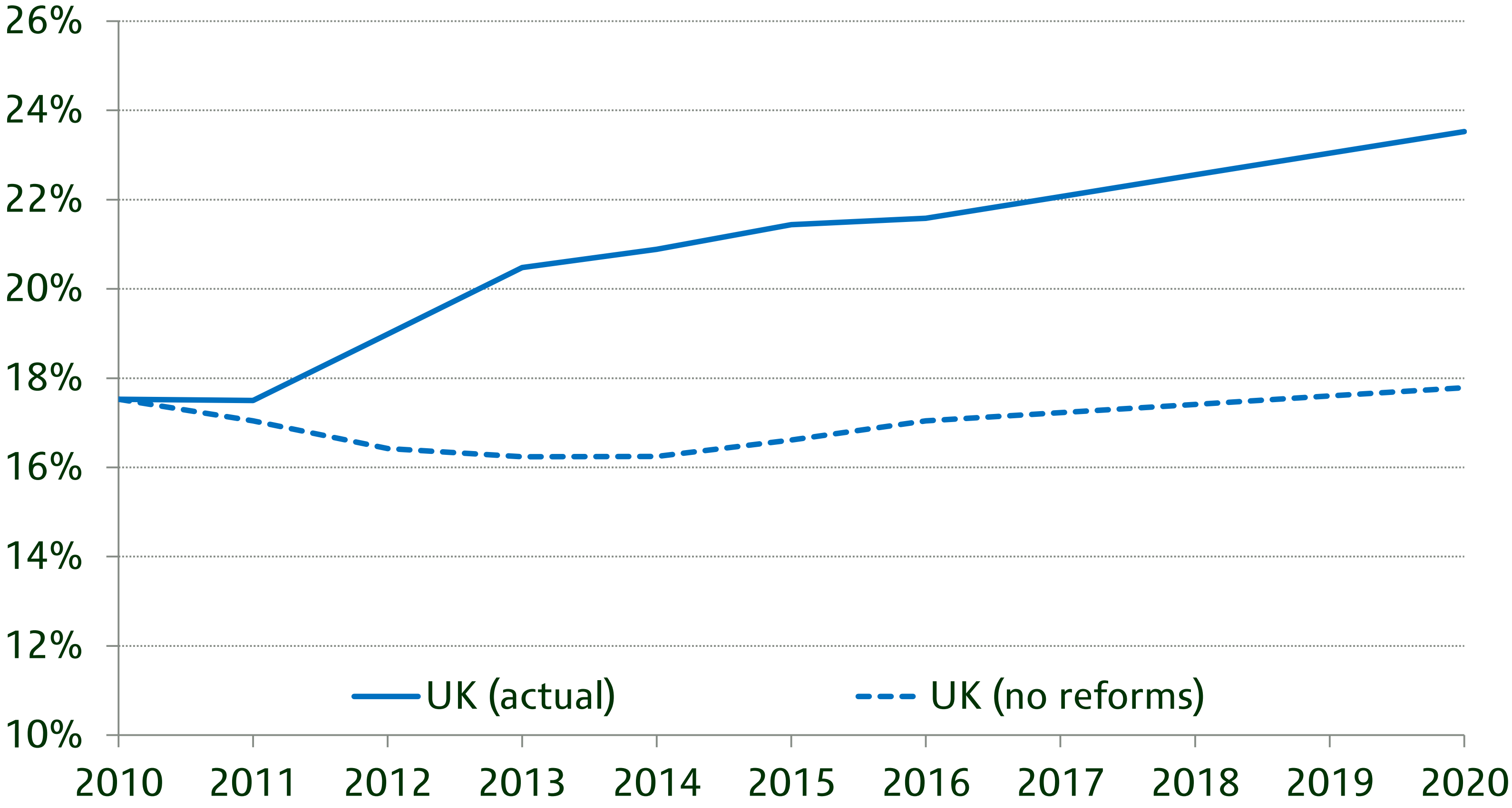
# Universal Credit: increasing take-up

- We can isolate the projected impact of introducing Universal Credit on child poverty
  - we assume no behavioural response ie. work incentives don't matter
  - we assume everyone who currently claims any legacy benefit claims their full Universal Credit entitlement
- Universal Credit is projected to reduce relative child poverty by 2 percentage points in 2016-17
  - this is basically just the result of increased take-up (as reform is revenue-neutral and we don't model behavioural response)
- Overall fiscal consolidation increases poverty substantially

# The effect of tax and benefit reforms since April 2010 on relative child poverty (UK)




Notes: Poverty line is 60% of median before-housing-costs (BHC) income. Years refer to financial years.
Source: Browne, Hood and Joyce (2013)



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# Summary

- Income inequality rose quickly across the distribution in the 1980s, and has been increasing at the very top since
  - decompositions and counterfactual analysis can help us to understand why

- Poverty can be defined according to an absolute or relative income measure
- The introduction of Universal Credit has the potential to reduce poverty through improved work incentives and higher take-up rates
  - but the fiscal consolidation overall is likely substantially increase poverty rates



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# References (1)


- Acemoglu, D. (2002)“Technical Change, Inequality and the Labor Market”, Journal of Economic Literature 40 (1)

- Adam, S., and Browne ,J. (2010) “Redistribution, work incentives and thirty years of UK tax and benefit reform”, IFS Working Paper 10/24

- Brewer, M., Muriel, A. and Wren-Lewis, L. (2009) “Accounting for changes in inequality since 1968: decomposition analyses for Great Britain”, Government Equalities Office, London.

- Brewer, M., and O’Dea, C. (2012) “Measuring Living Standards with income and consumption: Evidence from the UK”, IFS Working Paper W12/12

- Browne, J., Hood, A. and Joyce, R. (2013) “Child and working-age poverty in Northern Ireland from 2010 to 2020”, IFS Report R78

- Browne, J. and Roantree, B. (2013) “Universal Credit in Northern Ireland: what will its impact be, and what are the challenges?”, IFS Report R77




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# References (2)


- Cribb, J., Hood, A., Joyce, R., and Phillips, D. (2013) "Living Standards, Poverty and Ineqaulity in the UK: 2013" IFS Report R81
- Goldin, C., and Katz, L. (2008) "The Race Between Education and Technology", Harvard University Press, Cambridge MA
- Goodman, A. and Shephard, A. (2002), Inequality and living standards in Great Britain: some facts, IFS Briefing Note 19 , Institute for Fiscal Studies, London
- Gregg , P. and Wadsworth ,J. (2008) "Two Sides to Every Story: Measuring Polarization and Inequality in the Distribution of Work", Journal of the Royal Statistical Society Series A
- Machin, S. (2001) "The Changing Nature of Labour Demand in the New Economy and Skill-Biased Technology Change", Oxford Bulletin of Economics and Statistics 63 (S1)
- Ravallion, M., Datt, G., and van de Walle, D. (1991) "Quantifying Absolute Poverty in the Developing World," Review of Income and Wealth no.37 pp 345-361
- Shorrocks, A. (1980) "The Class of Additively Decomposable Inequality Measures", Econometrica 48 (3)




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