Developing indicators of shared prosperity consistent with National Accounts

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Motivation

- Commission on Global Poverty (World Bank, 2017) recommended exploring construction of NA-based indicators of living standards

- This paper looks at distributional NA-based indicators, using UK data as an example

The ONS bears no responsibility for the analyses and conclusions within this paper, which are solely those of the authors.

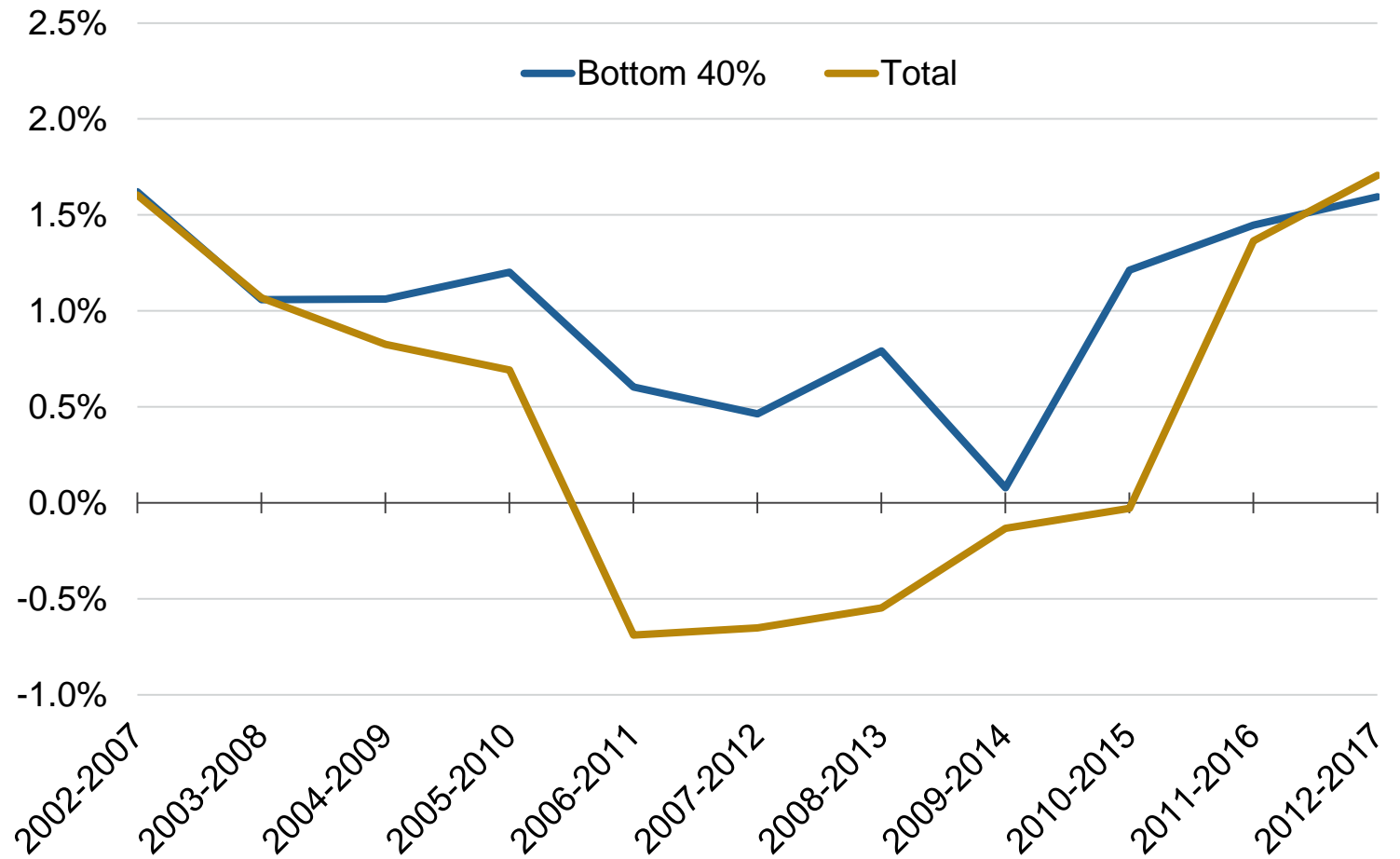All results and figures are experimental research findings and are not official government statistics.

Shared Prosperity

Shared Prosperity

- Ensuring the poorest in society benefit from economic growth
  - One of twin goals of World Bank & SDG indicator 10.1.1
  - Growth rates of household income (or consumption) per capita for bottom 40% > national average

- Traditional approach to measurement relies on household surveys for both bottom 40% & overall population growth rates

Average annual growth rates of disposable income per capita among the bottom 40% & total population, UK

Legend: Bottom 40% — Total

X-axis: 2002-2007, 2003-2008, 2004-2009, 2005-2010, 2006-2011, 2007-2012, 2008-2013, 2009-2014, 2010-2015, 2011-2016, 2012-2017

Y-axis: -1.0%, -0.5%, 0.0%, 0.5%, 1.0%, 1.5%, 2.0%, 2.5%

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Source: ONS – Living Costs & Food Survey (LCFS)

- Use of national accounts-based measures provides a different perspective on recent trends
  - Lower growth for bottom 40% around 2008-2013 – closer to overall average
  - In more recent periods growth for total population may have outstripped bottom 40%

Average annual growth rates of disposable income per capita among the bottom 40% & total population, UK
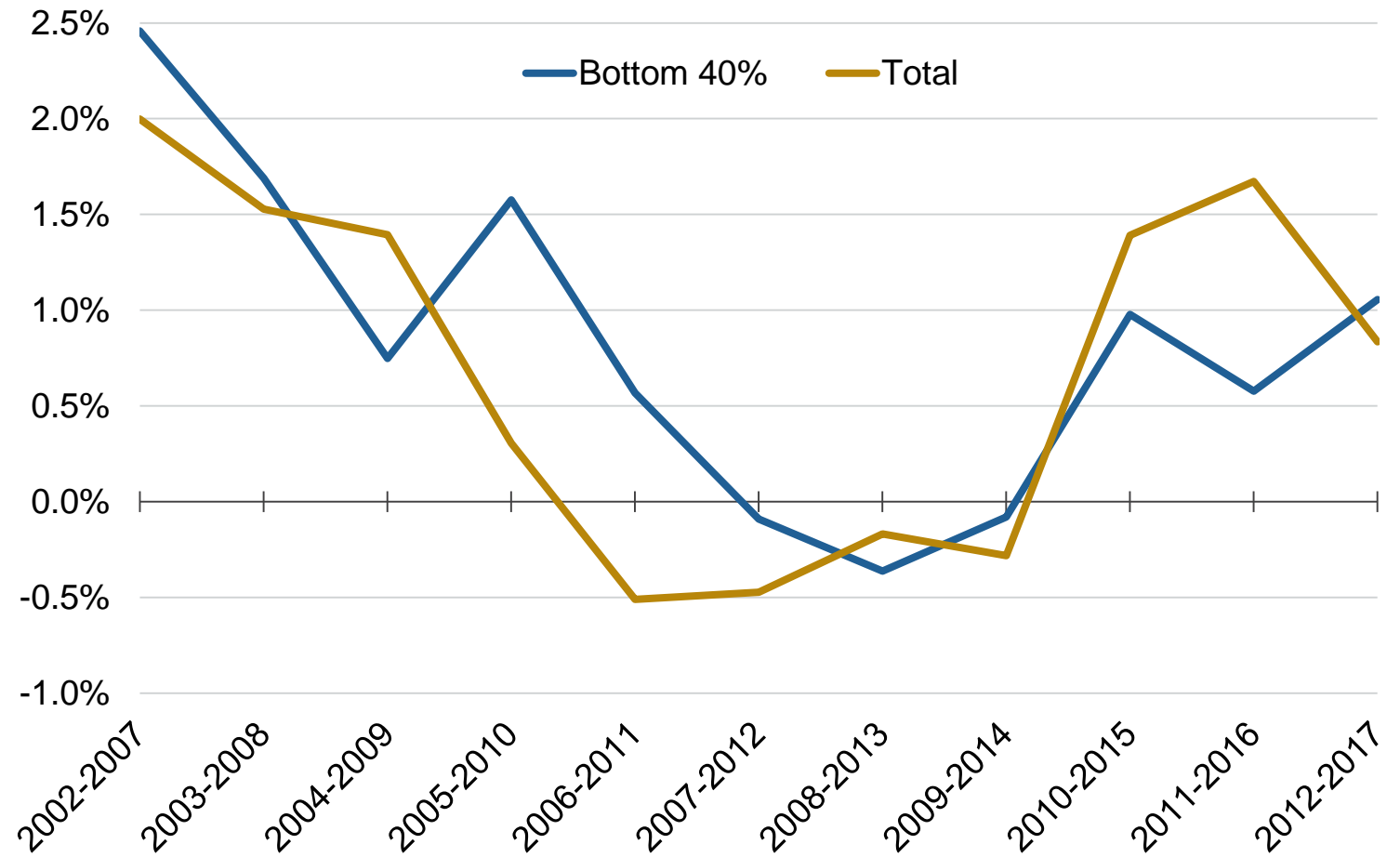
Why use distributional indicators consistent with national accounts?

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Why national accounts-based indicators?

- Alignment to SNA aids international comparability

- Distributions consistent with economy-wide totals beneficial for coherence within countries

- Potential for more frequent & more timely measures of poverty & living conditions

Distributional National Accounts

- Area of growing research by international organisations, NSIs & academics

- Methodology developed by OECD-Eurostat Expert Group on Disparities in a National Accounts framework (EG DNA)

Step 1: Adjust NA totals

Step 2: Determine relevant variables from micro data sources

Step 3: Impute for missing elements & scale micro to adjusted NA totals

Step 4: Clustering households

Step 5: Derive relevant distributional indicators

Microdata coverage

Micro statistics coverage rates

- Mapping micro variables onto NA concepts reveals substantial differences in amounts for some components

- This can necessitate large assumptions when producing distributional analysis, particularly if scaling microdata to NA totals

**Source: ONS – LCFS & National Accounts Blue Book**
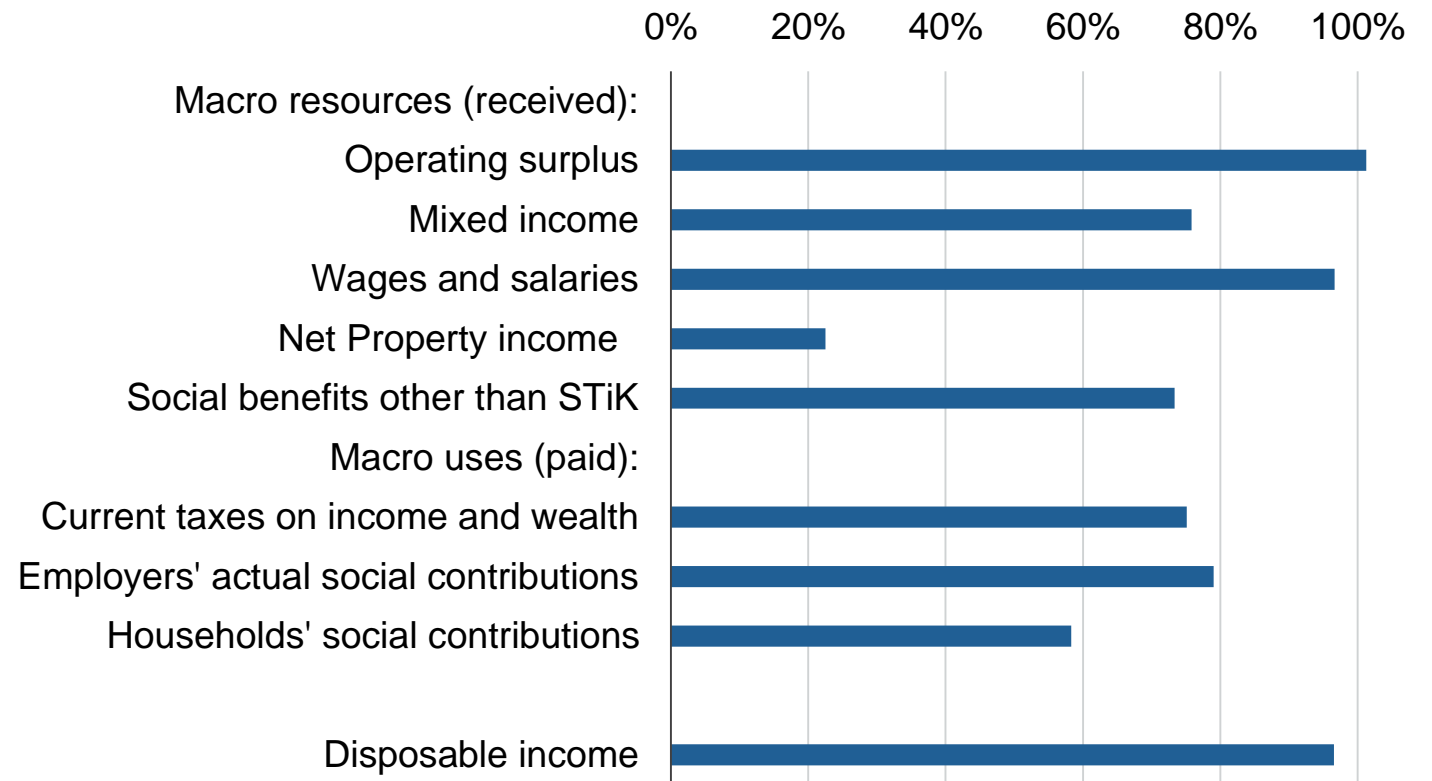
Atkinson Commission

- Highlights two reasons why coverage differences occur:

  - **Differences in recorded amounts** – may reflect survey coverage, non-response & under-reporting as well as NA measurement error
  - **Definitional differences** – reflects different purposes to which sources traditionally put

- This paper presents work to address both sets of reasons to produce data that allows production of indicators of living conditions & poverty consistent with National Accounts

Under-reporting of social transfers
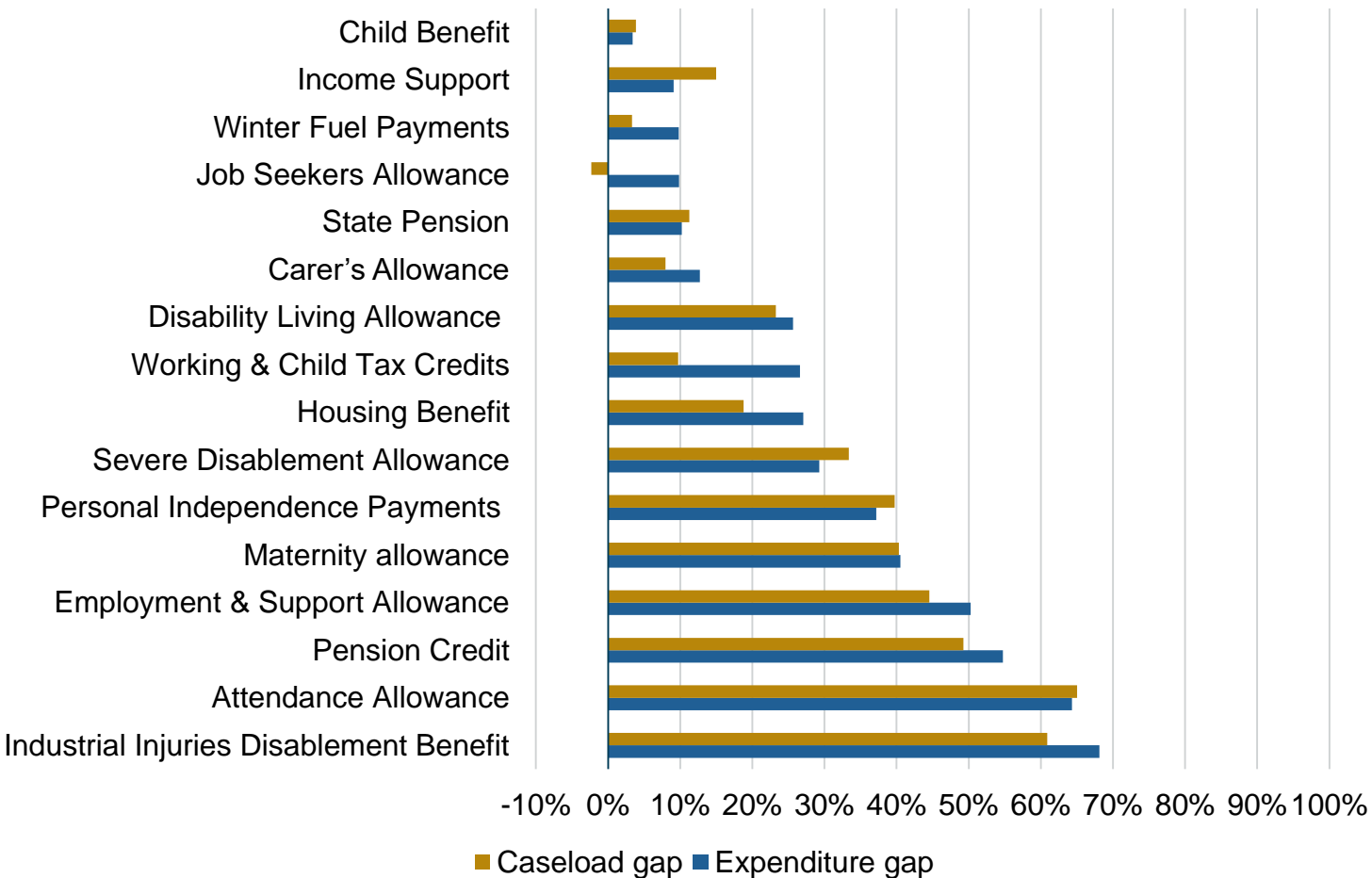
- Widely recognised issues of under-reporting of incomes at bottom of distribution (e.g. Brewer et al. 2017 - UK; Meyer & Sullivan, 2011 – US)

- In part reflects under-reporting of benefits – highlighted by comparison of survey & admin data

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Source: ONS – Living Costs & Food Survey

Adjusting for under-reporting of social security transfers

1. Adjust administrative totals for those outside UK private household population

2. Allocate benefits to those not in receipt, based on personal characteristics

   a) apply eligibility rules then use logistic regression model to generate odds of not reporting receipt

   b) Rank non-recipients by odds (+ random element) and allocate to bring caseload total in line with admin data

3. Scale up reported values where spending per recipient too low

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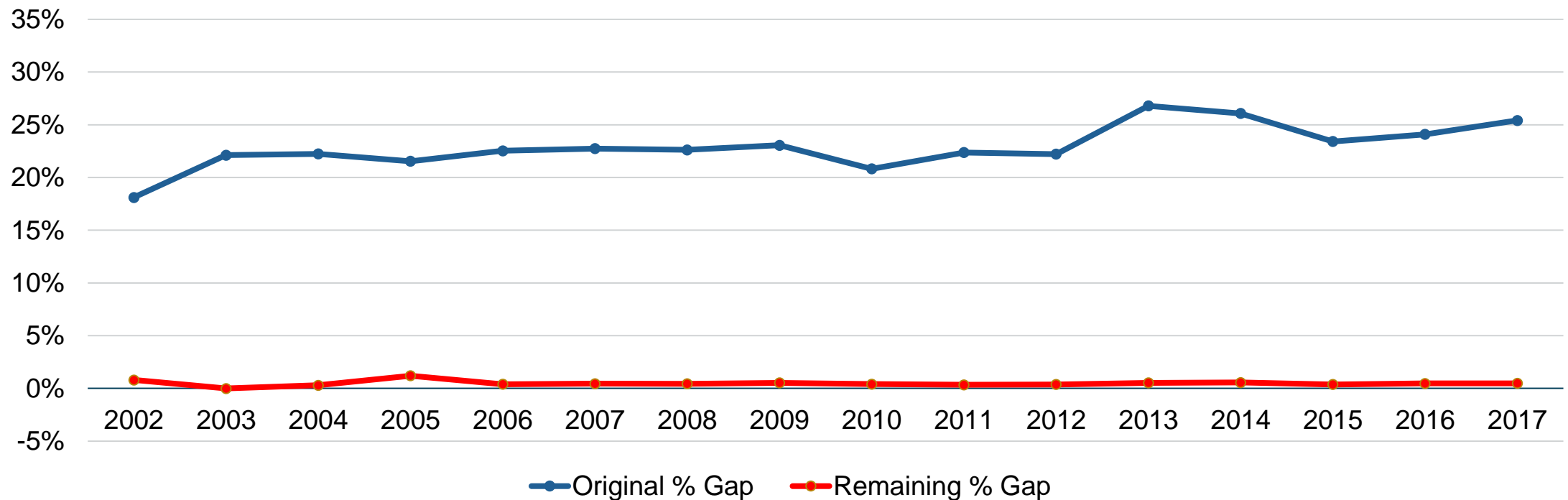
Under-reporting of top incomes

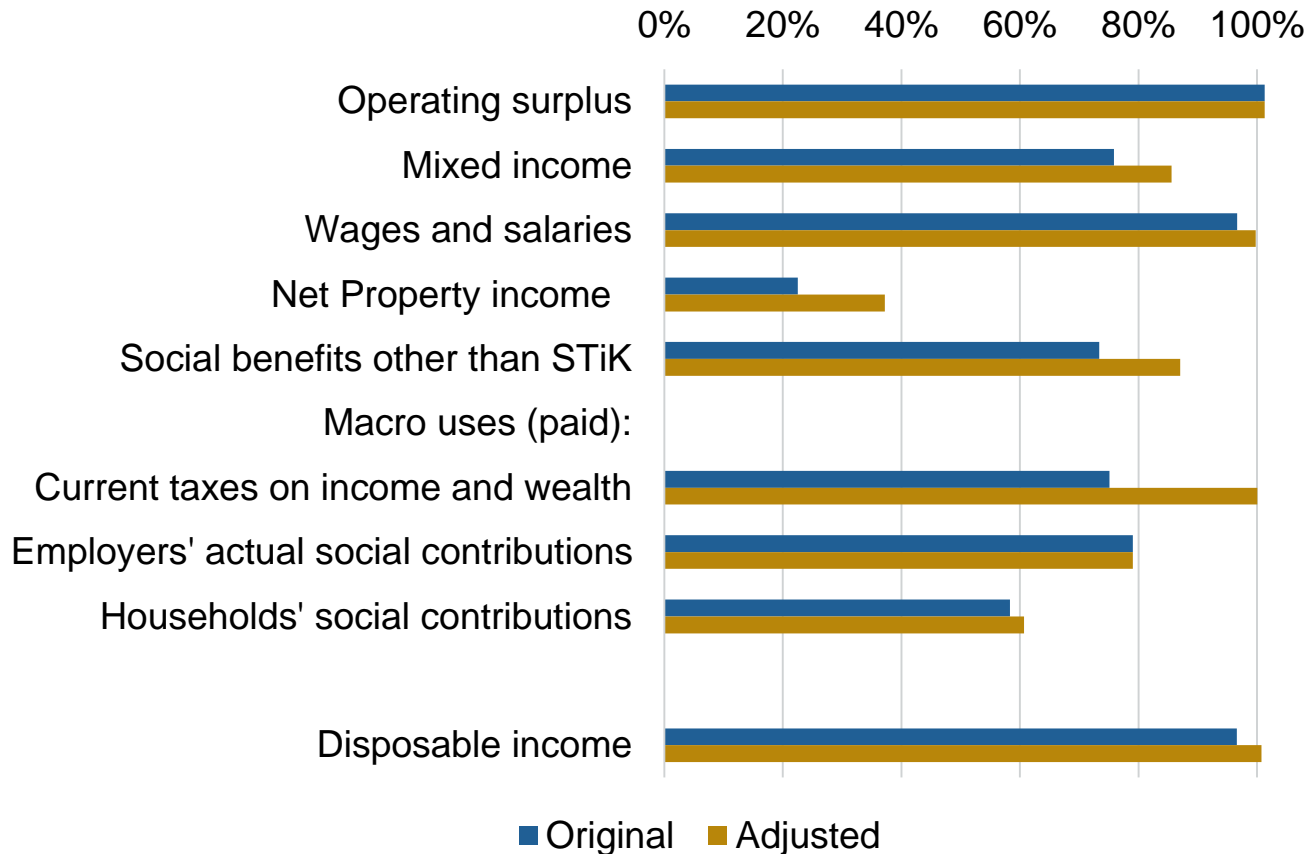Source: ONS – Living Costs & Food Survey
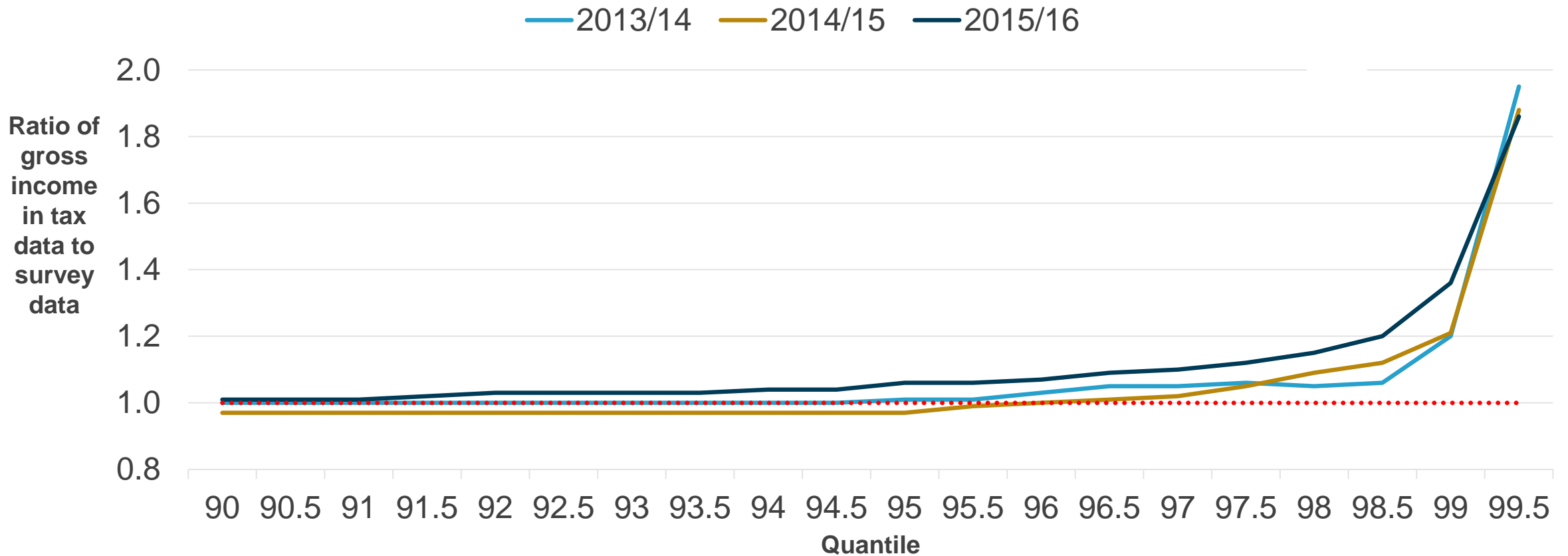
Adjusting top incomes

- Build on methods developed by Burkhauser et al. (2018)
  - Use SPI – anonymised c. 1% sample of individual tax records

At simplest level:

1. Rank individuals in SPI & survey by gross income
2. For each quantile group (e.g. 0.5%) above given threshold (e.g. 97%) replace survey data with SPI mean average
3. Add in missing income components, recalculate taxes & reaggregate to household level

Impact of adjustments

Chart axis: 0% 20% 40% 60% 80% 100%

Categories (top to bottom):
- Operating surplus
- Mixed income
- Wages and salaries
- Net Property income
- Social benefits other than STiK
- Macro uses (paid):
- Current taxes on income and wealth
- Employers' actual social contributions
- Households' social contributions
- Disposable income

Legend: ■ Original ■ Adjusted

- Significant improvement in coverage of many income components

- Some gaps remain
  - Mainly reflect imputed items & those where no micro equivalent exists
 - Many net out in calculation of disposable income

Cash-basis RHDI

- Definitional differences between micro & macro household income concepts reflect different purposes & needs

- Micro-statistics view transactions from perspective of individual - NA take broader macroeconomic perspective - e.g.

  - intra-household transfers important for many households

  - FISIM not directly relevant for household economic well-being

- Created 'cash-basis' RHDI, removing imputed transactions, to best reflect household perspective

Distribution of cash-basis RHDI
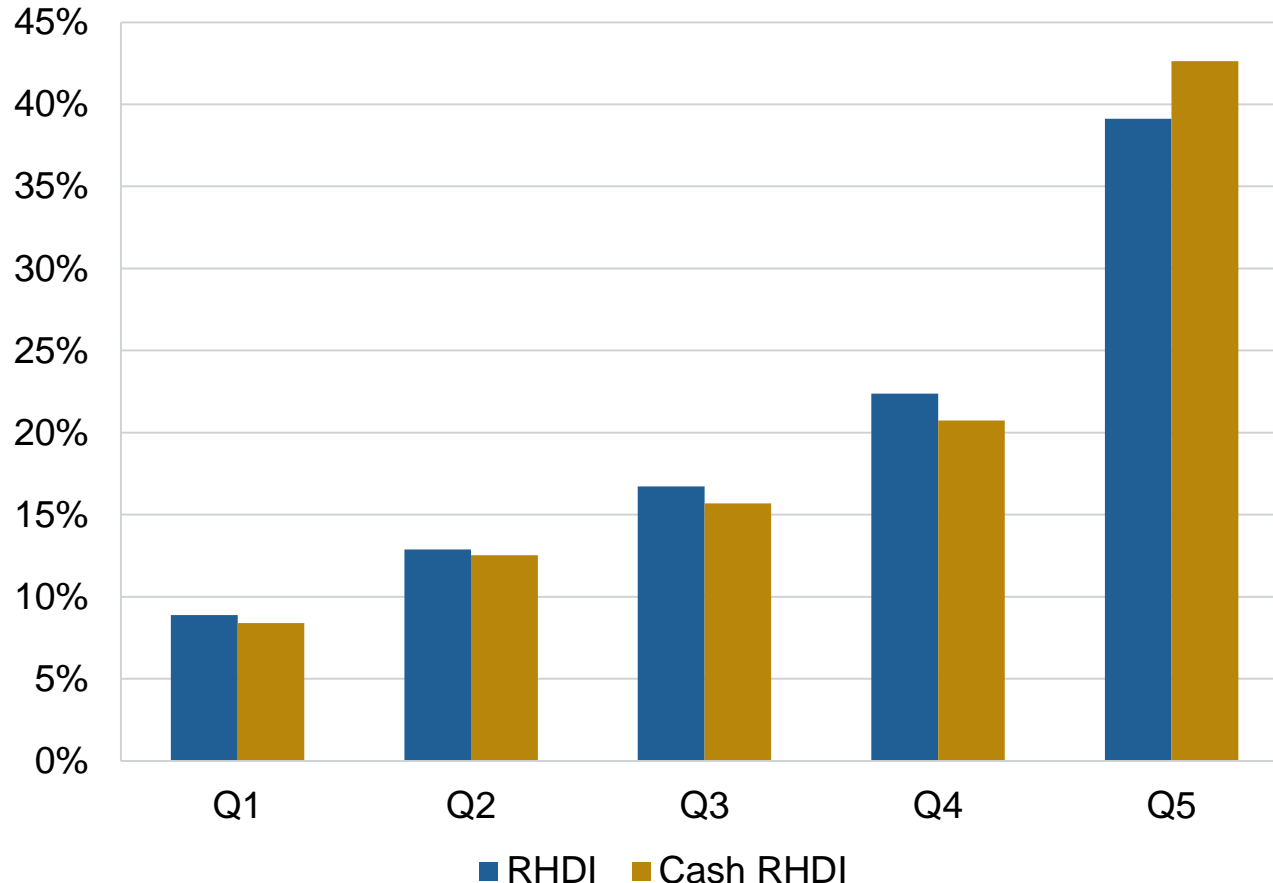
- Same broad pattern of growth, however:
  - Cash-basis RHDI grew more quickly in the years leading up to the 2008 financial crisis,
  - Also fell more sharply in the period 2009-2011

Conclusions

& next steps

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Conclusions

- National Accounts-based indicators of shared prosperity (& also poverty & inequality) can provide valuable new insights

  - Draw strength from NA in terms of coherence, comparability and frequency/timeliness

  - Retain micro statistics' focus on distributions & experience of households

- Practical & conceptual challenges need to be addressed - need for focus on reasons for gaps between micro & macro estimates

  - Reconciliation where gaps due to measurement error (including survey under-coverage, under-reporting & non-response)

  - Development of measures based on concepts consistent with household perspective

Next steps & longer-term aims

- Continue to develop imputation of key income & consumption variables

    - E.g. pension accruals - Aitken & Weale (2018)

- Improve coherence of micro / macro data through direct use of administrative data

    - Recent UK legislation facilitates potential future use of administrative microdata on earnings / self-employment / investment income / pensions / cash benefits

- Development of more timely/frequent distributional national accounts-based indicators through use of nowcasting

    - Annual nowcasting of microstatistics already established (e.g. Stoyanova & Tonkin, 2016)

    - Feasibility of quarterly nowcasts currently being explored (e.g. Mallet & Weale, 2018)

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