

What is the effect of capital incomes on overall inequality in the UK?

ESCoE Conference on Economic Measurement

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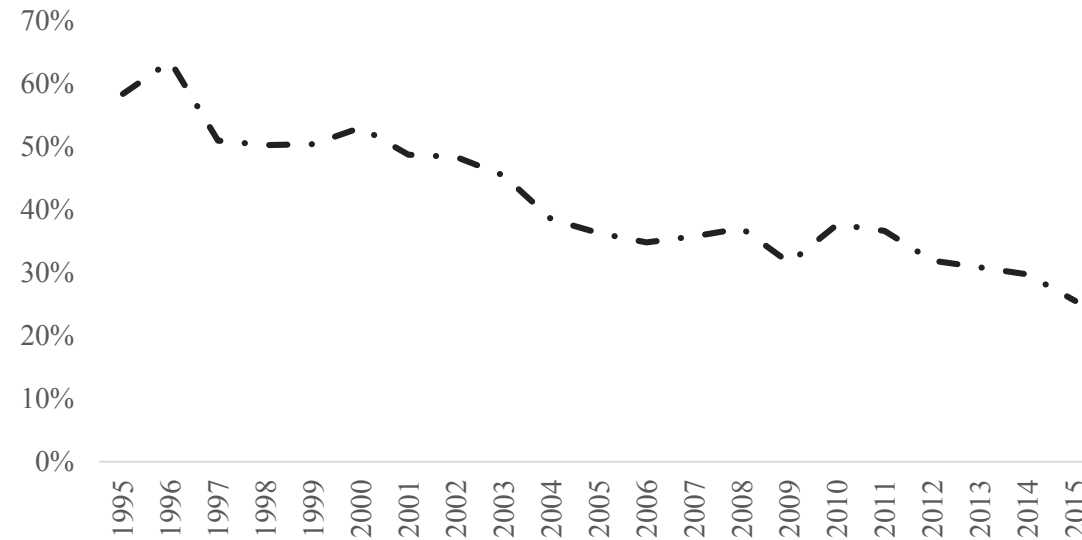
Outline

1. Motivation
2. UK inequality indicators
3. Implications for capital incomes
4. Top income corrections
5. Proposed capital income correction
6. Re-writing the UK capital income narrative

Motivation: Capital Income Puzzle

- **Household surveys** report a little effect of capital incomes on inequality over the past decades. UK case studies and cross-comparative studies (Brewer & Wren-Lewis 2016; Belefied et al. 2017; OECD, 2008, 2011)
- **Fiscal sources** report modest surges in capital incomes at the top of the distribution in the UK (Atkinson, 2007; Alvaredo et al. 2018)
- **Key question:** Do our standard inequality indicators adequately pick up recent surges in capital incomes?

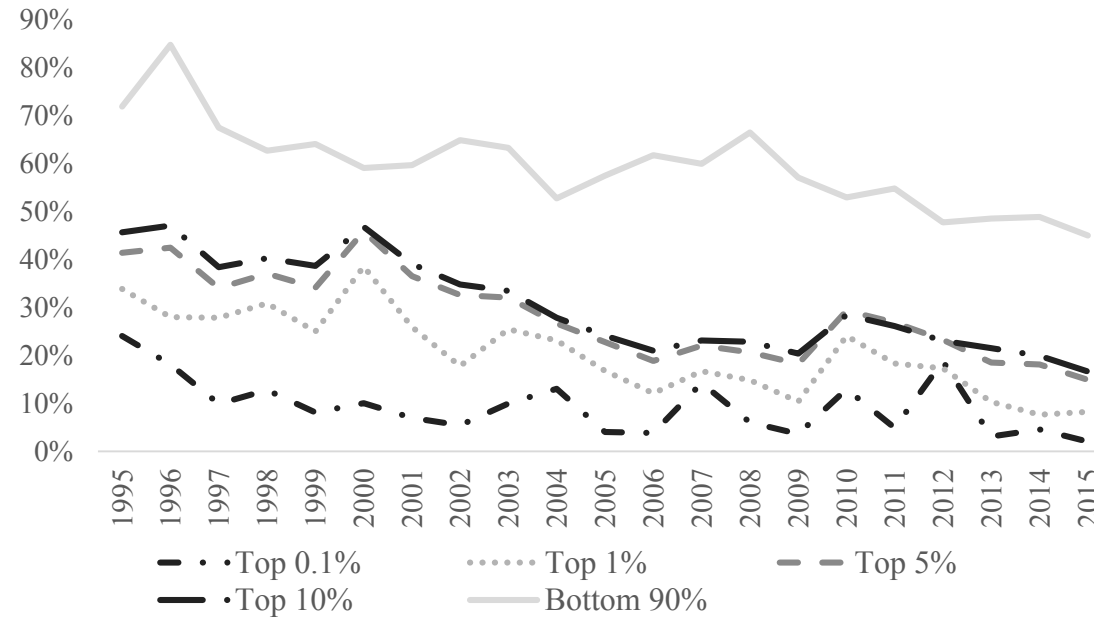
Falling capture capital incomes



Source: Author's estimates from FRS and SPI data

- Falling capture capital incomes in the Family Resources Survey
- Decline of 33 percentage points over the past 20 years
- In 2015 the survey captures 1/4 of total capital incomes, compared to the fiscal data
- Lower bound: tax avoidance, tax evasion etc.

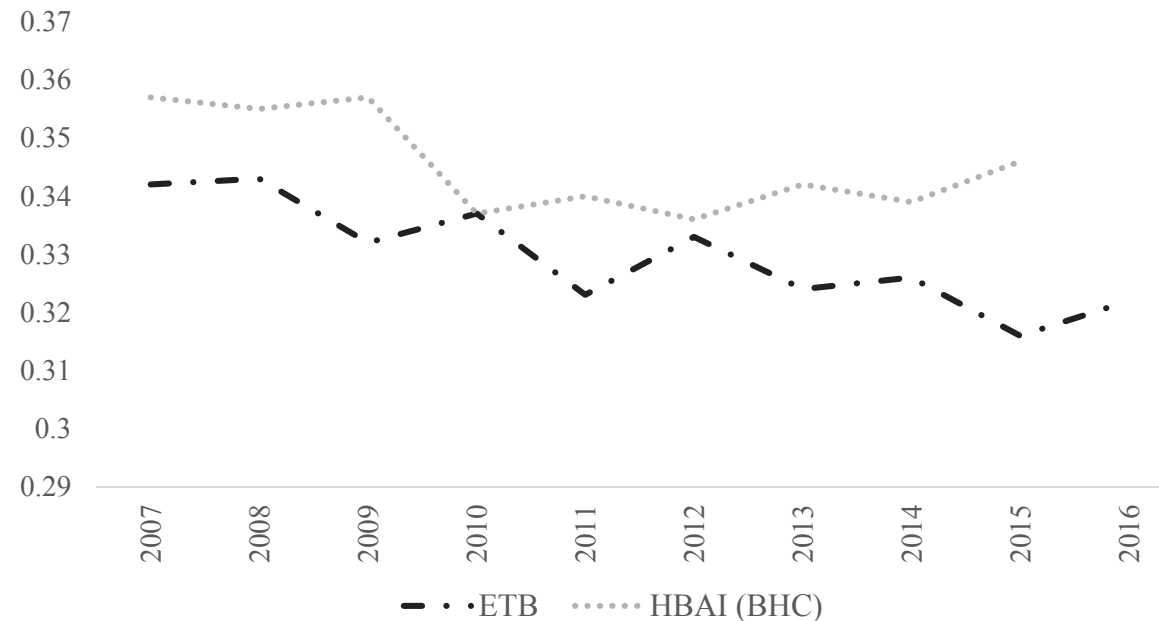
Falling capture capital incomes across the capital income distribution



Source: Author's estimates from FRS and SPI data

- Underestimation takes place across the entire capital income distribution
- Underestimation grows with capital income
- Capture for very top (0.1% and 1%) has fallen below 10%

UK Inequality Indicators (Gini household disposable income)



- ONS: Effect of Taxes and Benefits on Household Income (ETB)
- DWP: Households Below Average Income (HBAI) with top adjustment

Implications for capital incomes

ONS-ETB series (not top adjusted)

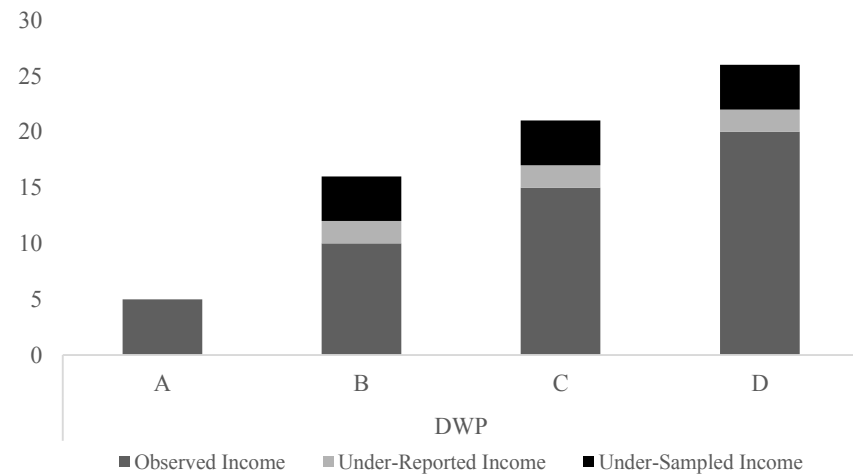
- Decomposition analysis finds little effect of capital incomes on inequality
- Capital incomes concentrated at the top of the distribution not expected to be adequately picked up
- Does not account for the observed underestimation over the past 20 years

DWP-HBAI series (top adjusted)

- Method applied to total income, series not decomposable
- Not clear how well top adjustment correct for increasing underestimation capital incomes
- Underestimation capital incomes starts below eligibility threshold
- UK fiscal unit individual level
- Method has recently faced critique from academic community

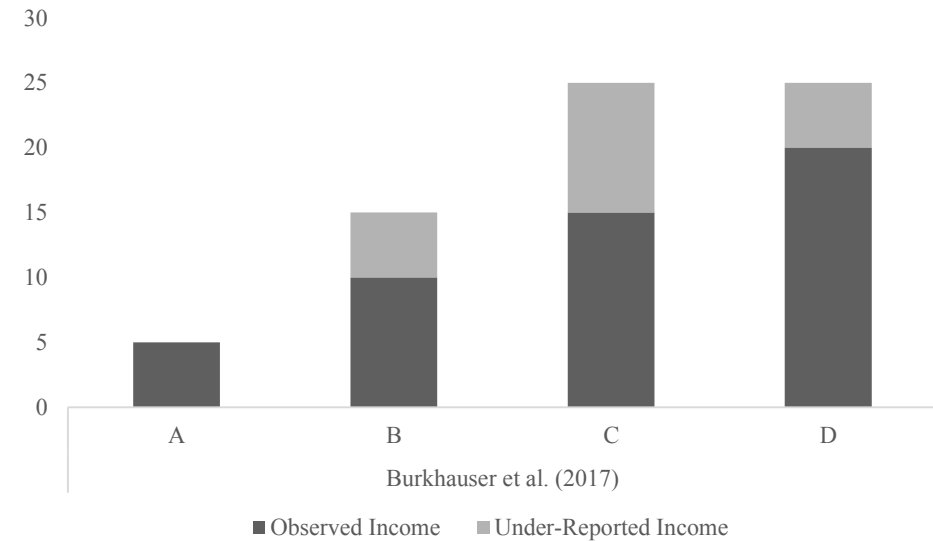
Top Income Corrections in UK context

DWP-adjustment



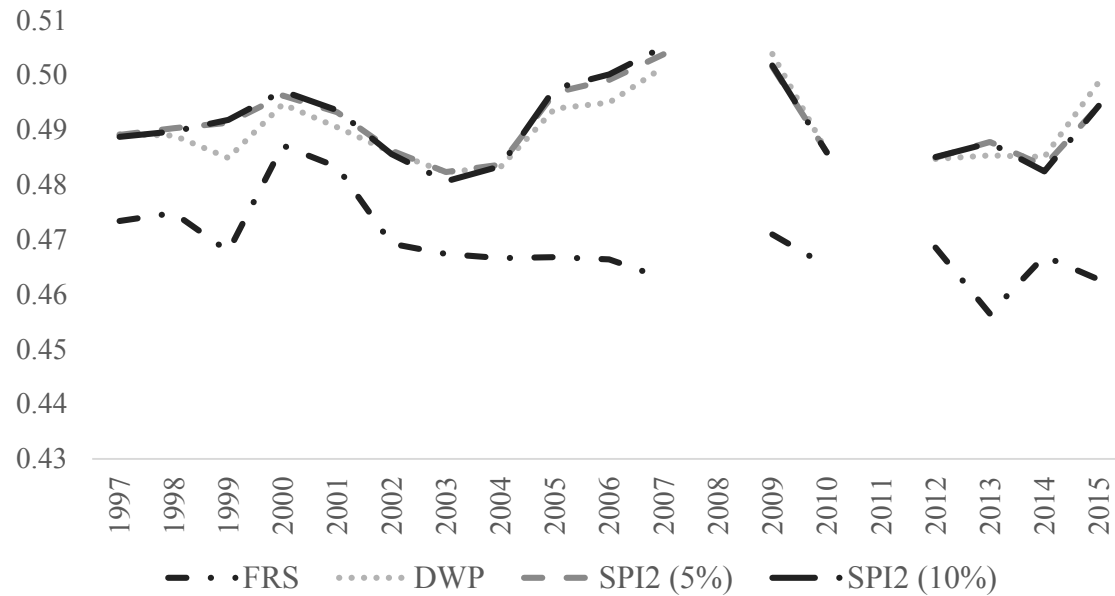
Applied since 1992
Eligibility Threshold: Top 0.5%
Cell-mean replacement
Re-calibration weights

SPI2-adjustment



Recently proposed academic response to DWP
(Burkhauser et al. 2016, 2017)
Eligibility Threshold: Top 5% (10% working paper)
Cell-mean replacement

Replication: Top Income Corrections in UK



Source: Author's estimates from FRS and SPI data

Gini Gross Individual Income (Jenkins, 2017; Atkinson & Jenkins, 2019)

UK Top Adjustments Decomposed

	FRS	DWP	SPI2 (5%)	SPI2 (10%)
1997	51%	72%	82%	86%
1998	50%	67%	79%	83%
1999	50%	70%	79%	83%
2000	53%	67%	74%	79%
2001	49%	67%	76%	81%
2002	48%	68%	78%	84%
2003	45%	65%	77%	85%
2004	38%	55%	70%	80%
2005	36%	59%	74%	85%
2006	35%	60%	77%	87%
2007	36%	60%	76%	86%
2008				
2009	32%	60%	77%	87%
2010	38%	50%	69%	82%
2011				
2012	32%	46%	67%	81%
2013	31%	49%	70%	82%
2014	30%	48%	69%	82%
2015	26%	52%	71%	82%
Unadjusted Av.	60%	40%	26%	17%

Source: Author's estimates from FRS and SPI data

Proposed SPI2 capital income correction

- Objective: impute capital incomes as observed in the fiscal sources
- Extension applied to SPI2-adjustment
- Assume equal income composition to allow for decomposition
- Two stages:
 - Addresses under-sampling of high capital share individuals in the household survey
 - Imputes capital income to correct for underestimation below the top adjustment eligibility threshold

Stage 1: Place more weight on high capital share individuals

Year	J=50 (top 5%)			J=1 (top 0,1%)		
	FRS	SPI	Ratio	FRS	SPI	Ratio
1997	9%	28%	3	10%	32%	3
1998	4%	18%	5	6%	25%	4
1999	12%	19%	2	3%	29%	10
2000	5%	20%	4	2%	37%	19
2001	12%	14%	1	2%	43%	22
2002	5%	15%	3			
2003	5%	16%	3	5%	41%	8
2004				4%	35%	9
2005	2%	19%	10	1%	35%	35
2006	5%	22%	4	1%	47%	47
2007	4%	24%	6	8%	50%	6
2008						
2009	2%	17%	9	4%	43%	11
2010	4%	15%	4	8%	18%	2
2011						
2012	3%	19%	6	6%	21%	4
2013	12%	20%	2	3%	24%	8
2014	5%	18%	4	2%	24%	12
2015	1%	22%	22	2%	40%	20
Average	5%	19%	5	4%	34%	14

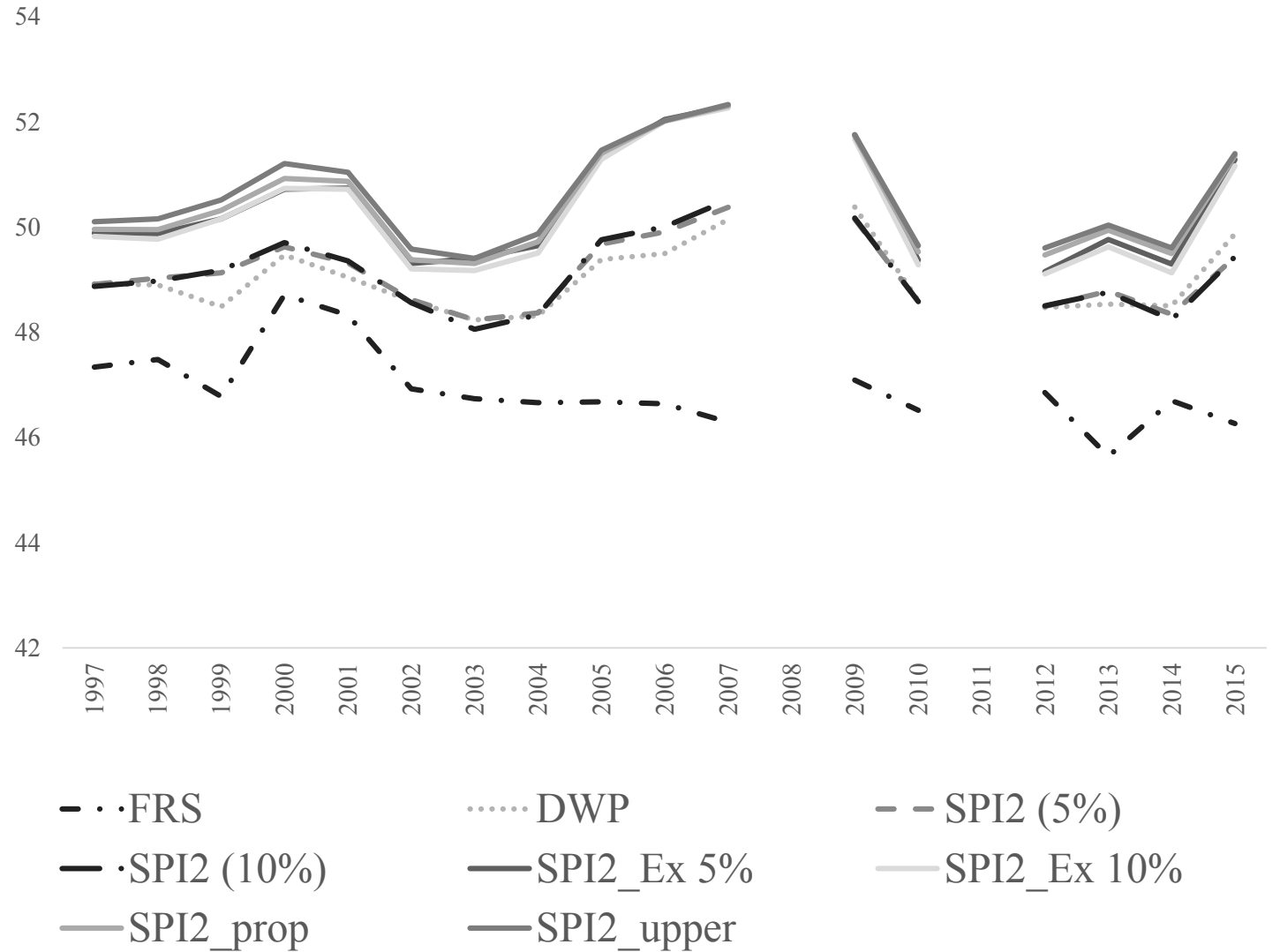
Source: Author's estimates from FRS and SPI data

Stage 2: Allocate remaining capital income further down the distribution

	1	2	3	4	5	6
	SPI2 (5%)	SPI2 (10%)	SPI1 Extension (5%)	SPI2 Extension (10%)	Proportional Allocation (10%)	Upper Bound (10%)
1997	82%	86%	90%	95%	100%	100%
1998	79%	83%	85%	91%	100%	100%
1999	79%	83%	86%	91%	100%	100%
2000	74%	79%	80%	86%	100%	100%
2001	76%	81%	85%	91%	100%	100%
2002	78%	84%	82%	89%	100%	100%
2003	77%	85%	86%	96%	100%	100%
2004	70%	80%	78%	90%	100%	100%
2005	74%	85%	86%	98%	100%	100%
2006	77%	87%	91%	103%	100%	100%
2007	76%	86%	89%	101%	100%	100%
2008						
2009	77%	87%	88%	101%	100%	100%
2010	69%	82%	74%	91%	100%	100%
2011						
2012	67%	81%	72%	88%	100%	100%
2013	70%	82%	76%	92%	100%	100%
2014	69%	82%	76%	91%	100%	100%
2015	71%	82%	85%	98%	100%	100%
Adjusted Av.	74%	83%	83%	94%	100%	100%
Unadjusted Average	26%	17%	17%	6%	0%	0%

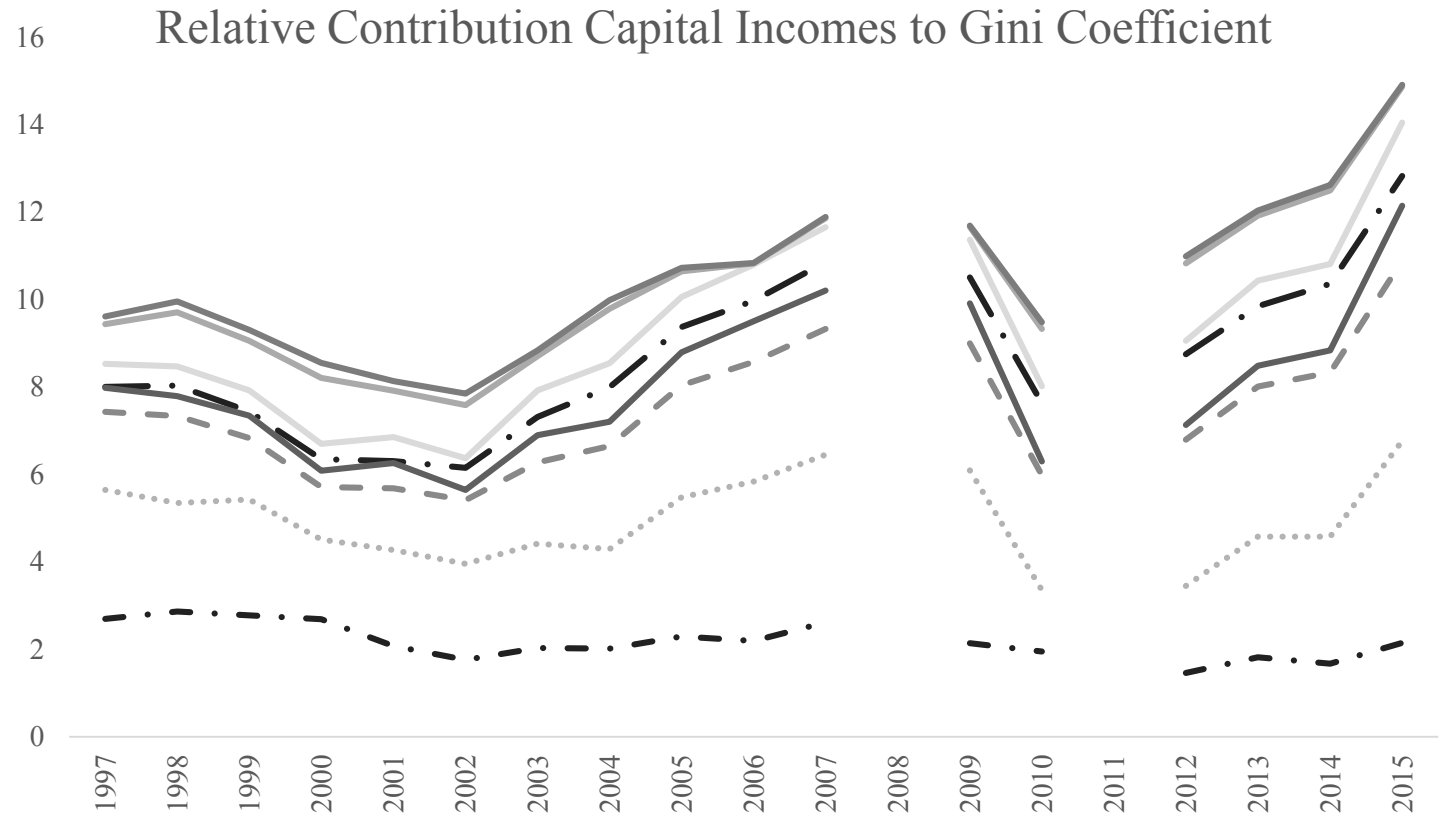
Source: Author's estimates from FRS and SPI data

Gini Individual Gross Income



Source: Author's estimates from FRS and SPI data

First Factor Decomposition Top Adjusted Series



- · · FRS

..... DWP

- - - SPI2 (5%)

- · · SPI2 (10%)

— SPI2_Ex (5%)

— SPI2_Ex (10%)

— SPI2_prop

— SPI2_upper

Source: Author's estimates from FRS and SPI data

Conclusions

- UK capital income narrative changes from low to moderate and increasing effect on overall inequality
- First results top adjusted factor decomposition
- Limitations/future research:
 - Assumption equal income composition
 - Arbitrary cut-off point (eligibility threshold)
 - Household disposable vs individual gross income
 - Fiscal data lower bound
 - Do we observe similar patterns in other countries

Policy Implications

If we do not have an accurate picture of the effect of capital incomes on overall inequality:

*Policy responses will be inadequate and poorly designed
Their impact will not be properly captured and understood*



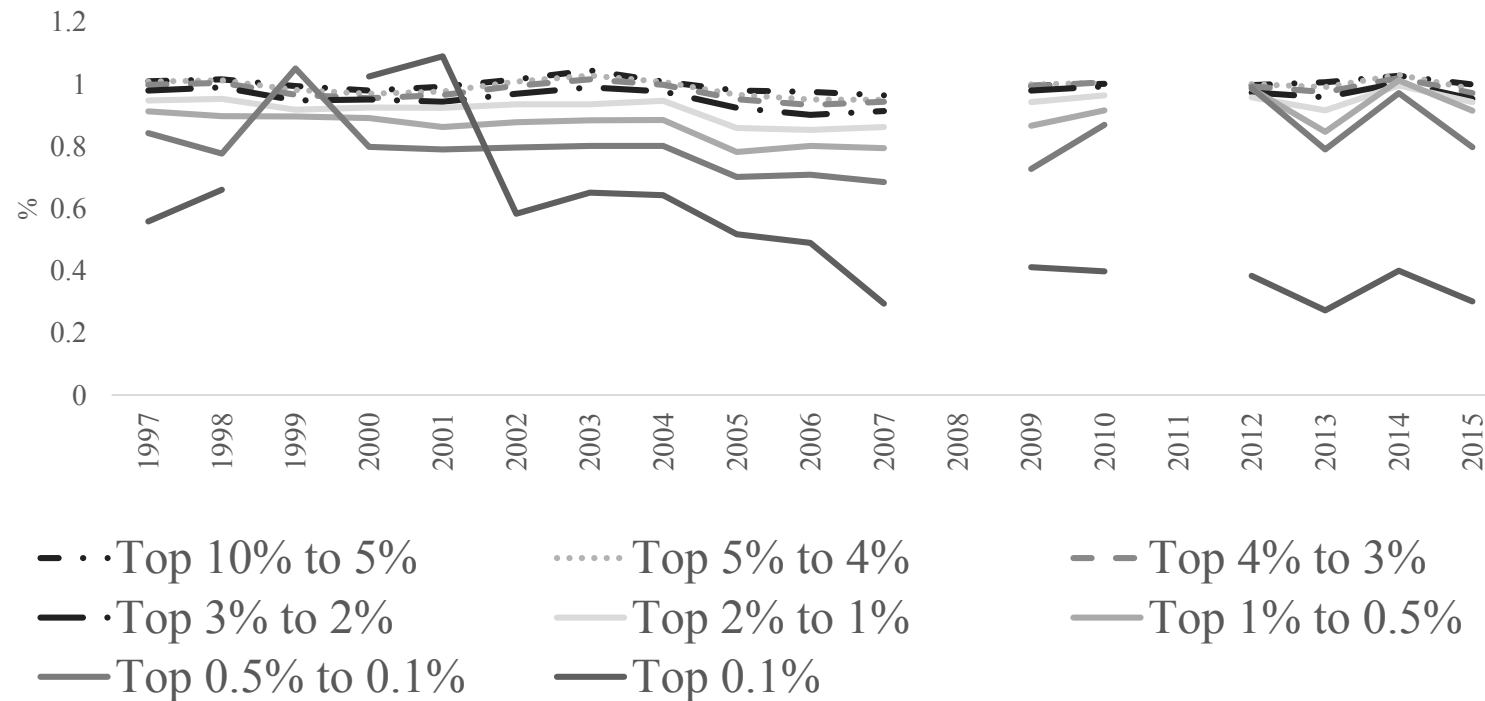
Appendix Slides

Underestimation mainly affects capital income



Source: Author's estimates from FRS and SPI data

Under-reporting total income within the gross income distribution



Source: Author's estimates from FRS and SPI data, based on Burkhauser et al. (2016, 2017)

Under-reporting capital incomes within the gross income distribution



Source: Author's estimates from FRS and SPI data

	FRS	SPI2 (5%)	SPI2 (10%)	adj1	adj2	adj3	adj4	adj5	adj6	adj7	adj8	adj9
1997	51%	72%	82%	60%	89%	60%	94%	92%	90%	95%	100%	100%
1998	50%	67%	79%	57%	84%	57%	89%	86%	85%	91%	100%	100%
1999	50%	70%	79%	56%	86%	57%	91%	89%	86%	91%	100%	100%
2000	53%	67%	74%	56%	79%	57%	85%	82%	80%	86%	100%	100%
2001	49%	67%	76%	52%	85%	53%	91%	88%	85%	91%	100%	100%
2002	48%	68%	78%	51%	73%	52%	79%	76%	82%	89%	100%	100%
2003	45%	65%	77%	51%	85%	51%	94%	91%	86%	96%	100%	100%
2004	38%	55%	70%	42%	76%	43%	87%	83%	78%	90%	100%	100%
2005	36%	59%	74%	43%	84%	44%	94%	89%	86%	98%	100%	100%
2006	35%	60%	77%	42%	88%	42%	98%	94%	91%	103%	100%	100%
2007	36%	60%	76%	43%	81%	44%	93%	88%	89%	101%	100%	100%
2008												
2009	32%	60%	77%	41%	80%	41%	90%	87%	88%	101%	100%	100%
2010	38%	50%	69%	40%	69%	41%	83%	77%	74%	91%	100%	100%
2011												
2012	32%	46%	67%	34%	58%	33%	65%	63%	72%	88%	100%	100%
2013	31%	49%	70%	34%	65%	34%	77%	76%	76%	92%	100%	100%
2014	30%	48%	69%	32%	64%	32%	72%	69%	76%	91%	100%	100%
2015	26%	52%	71%	30%	81%	30%	91%	88%	85%	98%	100%	100%
Adjusted Av.	40%	60%	74%	45%	78%	45%	87%	84%	83%	94%	100%	100%
Unadjusted Average	60%	40%	26%	55%	22%	55%	13%	16%	17%	6%	0%	0%

Sampling Differences

Household Survey (FRS)	Tax Administrative Data (SPI)
<p>-Private households living in non-private dwellings, excludes those living in institutions, student dorms etc.</p> <p>-Before 2002/03 Great Britain, after inclusion Northern Ireland</p> <p>-Only households with asset holdings between £1,500 and £20,000 have been included in the FRS asset questions. Some households refused to answer the asset questions. This is expected to create a downward bias in capital incomes observed.</p>	<p>-Stratified sample: PAYE (all employees and occupational pension recipients), CESA (people with self-employed, rental or untaxed investment income. And those subject to a higher tax rate and complex tax affairs).</p> <p>-Claims (people without PAYE or CESA that have had too much tax deducted at source and claim replacement).</p> <p>-Mainly taxpayers, includes some information on non-taxpayers that is collected through the stratified sampling.</p> <p>-Excludes non-tax filers</p>

Source: FRS (FRS 2017) and SPI documentation (HMRC 2017)

Reporting Differences

Household Survey (FRS)	Tax Administrative Data (SPI)
A. Recording of Income (timing)	
-Actual or expected receipts of the household during the reference period	-Income tax year starts in April.
-Household statistics some components of income from financial assets are collected net of expenses (e.g. interest paid on borrowings for investment purposes)	-Changes in (top) income taxation create artificial fluctuations in reported income.
	- Reporting sensitive to income-forestalling or income-delaying in response to changes in the tax rate
B. Unit of measurement	
Individuals and households (1994-2016)	Tax unit individual (1990-present)
Households Family Expenditures Survey (1962 - 1993)	Tax unit household (before 1990). SPI officially began in 1949-50.

Source: FRS (FRS 2017) and SPI documentation (HMRC 2017)

Definitional Differences

Income Components	Household Survey (FRS)	Tax Administrative Data (SPI)
Dividends and Interest	Dividends and interest reported together Includes non-taxable interest and dividend received from tax efficient savings vehicles such as National Savings and Investments (NS&I) and Individual Savings Accounts (ISAs)	Dividends paid on shares (in UK companies and unit trust) Interest from UK banks, building societies and other deposit takers. Taxable when credited to account.
Property Income	Not included investment income variable but separately added: Rent from property, letting and lodging	Income from UK and overseas property (less expenses). Includes profits from renting, letting and/or lodging property.
Other Investment Income	Not included in investment income variable but separately added: FRS includes separate variables for income from silent partners (not working in the company), royalties (IP rights, land).	Not included variable used to calculate gross income. SPI Public Tape includes one aggregate variable for: interest on securities, interest from partnerships and trusts, settlements and estates Includes imputations savings and investment income without tax deducted at source. This includes a large fraction of interest from banks and building societies and few NS&Is.

Source: FRS (FRS 2017) and SPI documentation (HMRC 2017)