

Connecting Income and Consumption Measurements of Inequality and Poverty: New Ideas and New Empirics

LIS 40th Anniversary Lecture

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<https://ifs.org.uk/inequality/>

Remit: *'the evolution of household income and consumption surveys and their use in economics and other social sciences over the last decades, as well as their future, especially in view of the increasing use of big administrative data.'*

Building a picture of inequality and poverty: its dynamics and its determinants

- Celebrating 40 years of income survey data: beyond the cross-section
 - the evolution of wages, earnings and household incomes
 - unique insights over time and over life-cycles
- Incorporating consumption
 - exciting new measurement approaches
 - uncovering different dimensions of poverty and inequality
- The beauty of linkages with administrative and register data
 - the best of both worlds
 - tax data and earnings panels
- Inequality, volatility and persistent inequality
 - combining measurements and data sources
 - mapping complete distributions and new directions for research
- Challenges and opportunities

Building a picture of inequality: its dynamics and its determinants

- There are many dimensions to (economic) inequality and poverty:
 - wages; earnings; family earnings; net income; consumption; wealth; ...
- Even within economics, typically analysed by different fields:
 - Labor economics - inequality in wages and earnings.
 - Family or household economics - inequalities in family earnings, family labor supply and time allocations.
 - Public economics - inequality in income and the impact of taxation.
 - Often left to a ‘motley bunch from different fields’ - the evolution of the distribution of consumption (and wealth).
- The ideas I present here, *take a lead from LIS*, and argue these need to be brought together with improved measurement to understand the evolution of inequality and poverty,
- Draw on the material in the IFS Deaton Review: Inequalities in the 21st Century:

Some background on the IFS-Deaton Review

- A 5-year study (2019 - 2024), independent of government, chaired by Angus Deaton with an interdisciplinary panel.
- Bringing together the best available evidence from across the social sciences to answer the big questions:
 - Which inequalities matter most?
 - How are different kinds of inequality related?
 - What are the underlying forces that come together to create them?
 - What is the right mix of policies to tackle the adverse impact of inequalities in a post-Covid economy?
- For developed economies with the UK as the running example, but comparative in nature.
- Contributions from more than 80 authors, many of them closely related to LIS and many here!
- Note the wonderful sister study: LACIR.



Format of the Review

Much like the *IFS Mirrlees Review on Tax Reform*, the *IFS Deaton Review* will be published in several volumes....

I. Two volumes of evidence:

- commissioned studies on different aspects of inequality, with commentaries from alternative perspectives – published!
- all available online at <https://www.ifs.org.uk/inequality/>

II. An accessible monograph written by the panel:

- sets out what has happened to inequality, why, and what can be done, currently being written.

III. 17 Country Studies across Europe and North America

Draw on these studies extensively in this talk

Four countries as my running examples: UK, US, Spain and Norway

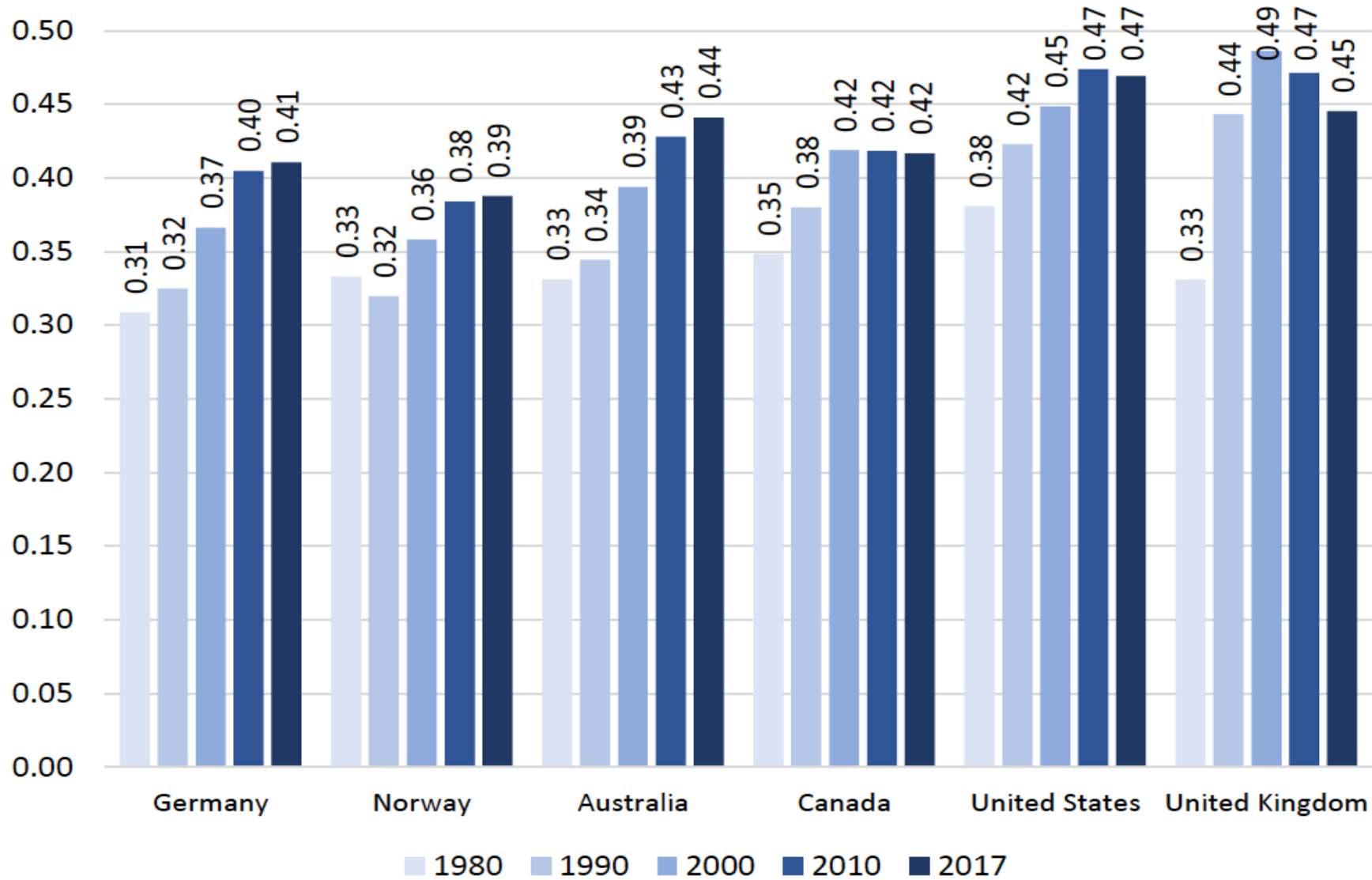
- Different in terms of inequality and poverty, and exemplify some of the key changes in the range of data available and innovations in data collection.
- All 4 countries provide key inputs into LIS too from 1980 and even earlier.
 - UK: LIS/FRS. Long standing LCFS/FES, and innovative Kantor and Dashboard data. Wealth and Assets Survey (WAS).
 - US: LIS/CPS: CE(X). Innovative PSID and CAMS. Wealth and assets from Consumer Finances Survey.
 - Spain: LIS/SILC. Panel data from the Survey of Household Finances (EFF) at BdE. Innovative 'Naturally Occurring Data' at BBVA.
 - Norway: LIS/census style register: Innovative population register links to tax data and bank accounts; also consumer survey data for comparison.
- Focus here on economic inequalities across the working life,
 - dipping in and out of data sources and countries to illustrate the ideas.

The links between multiple dimensions of economic inequality across the working life

wages-> earnings-> family earnings-> net income-> consumption-> wealth

- The link between these various measures is mediated by multiple ‘insurance’ mechanisms:
 - Labor supply, etc. (wages -> earnings)
 - Family labour supply and time allocations (earnings -> family earnings)
 - Taxes and welfare (earnings -> net income)
 - Saving and borrowing (income -> consumption -> wealth)
 - Networks and extended family...
- LIS allows us to do much of this, but we need to build linkages and additional measurements
- Celebrating 40 years of income survey data!
 - unique insights over time and over life-cycles...

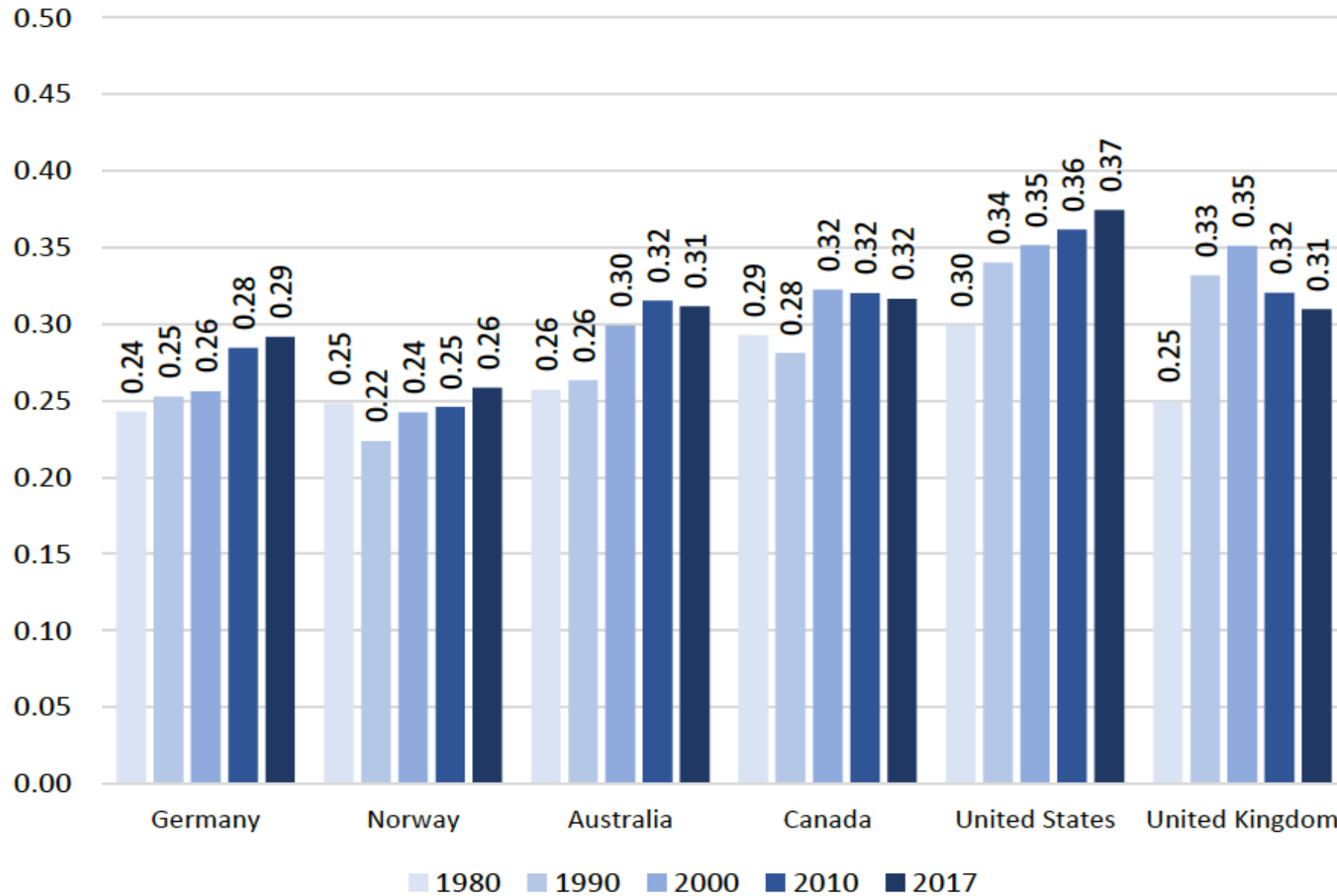
Pre-tax/post-transfer income inequality, Gini coefficient, LIS non-elderly households



Source: Gornick, J. C. (2022), 'Income inequality and income poverty in a cross-national perspective', *IFS Deaton Review of Inequalities*.

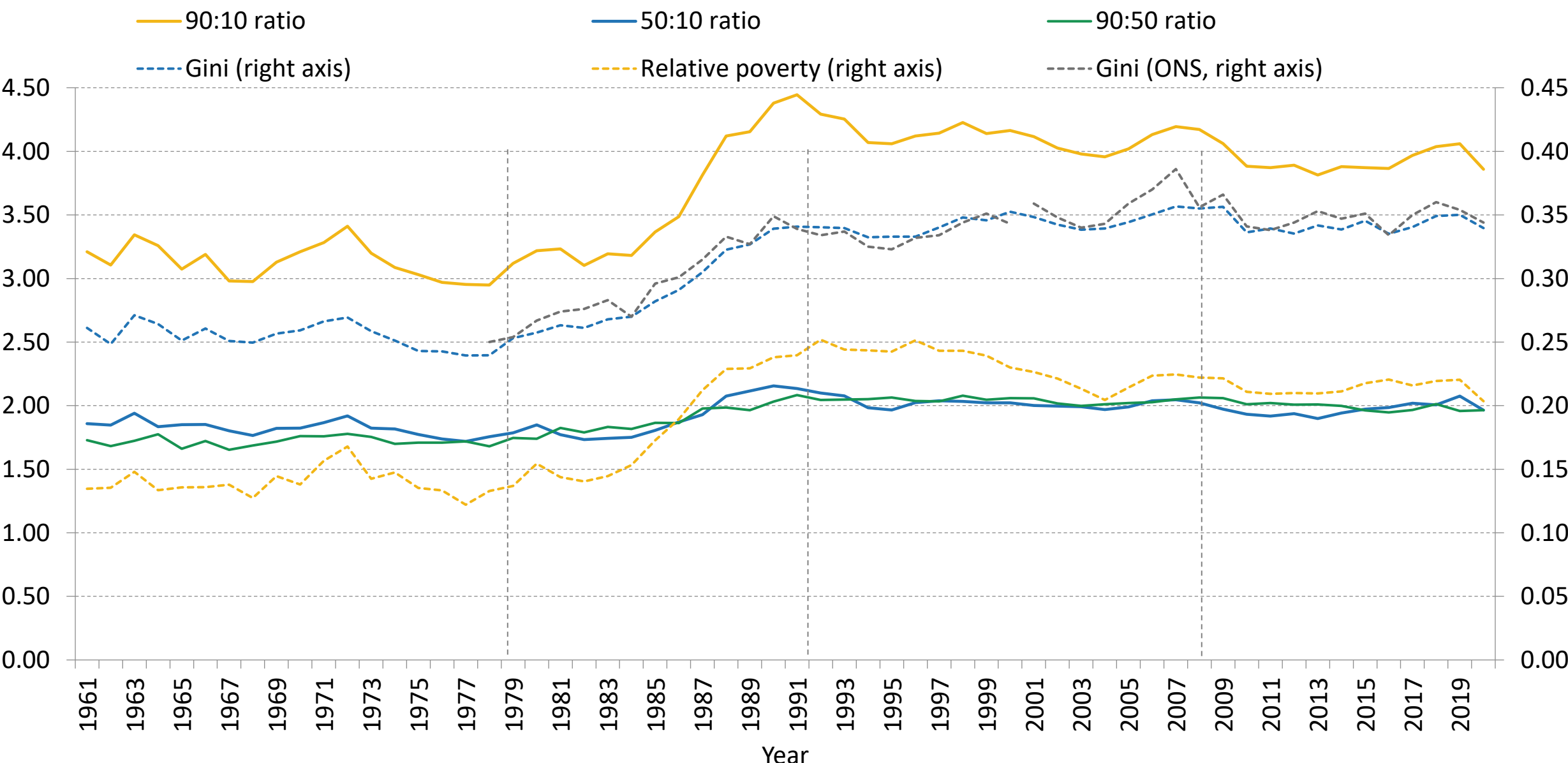
Data: LIS data sets from multiple years, for Germany, Norway, Australia, Canada, the US and the UK.

Post-tax/post-transfer income inequality, Gini coefficient, LIS non-elderly households



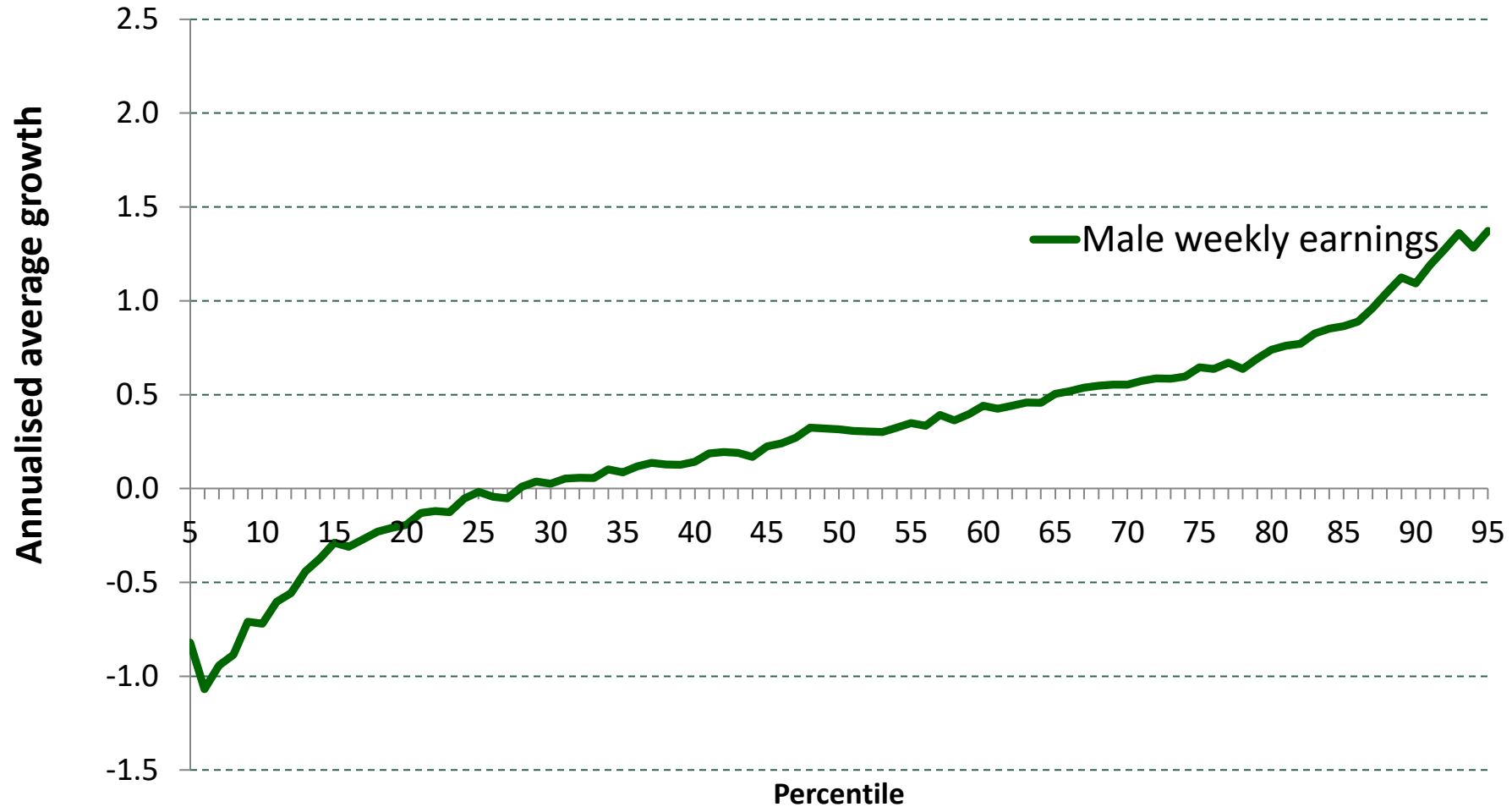
Source: Gornick, J. C. (2022), 'Income inequality and income poverty in a cross-national perspective', *IFS Deaton Review of Inequalities*.
Data: LIS data sets from multiple years, for Germany, Norway, Australia, Canada, the US and the UK.

Digging deeper: Inequality in net household income and relative poverty in the UK, 1961–2020



Source: Deaton Review. Series labelled Gini-ONS is from table 9 of the ONS published data set 'The effects of taxes and benefits on household income, disposable income estimate' (2021), which includes a 'top incomes' adjustment from 2001–02. The other series are authors' calculations using the FES for 1961–93 and the FRS for 1994–2020 and a 'top incomes' adjustment using administrative tax data.

Unpacking these overall statistics: Growth in UK male weekly earnings: Focus in on the more recent 'stable' period: 1994/95 – 2018/19



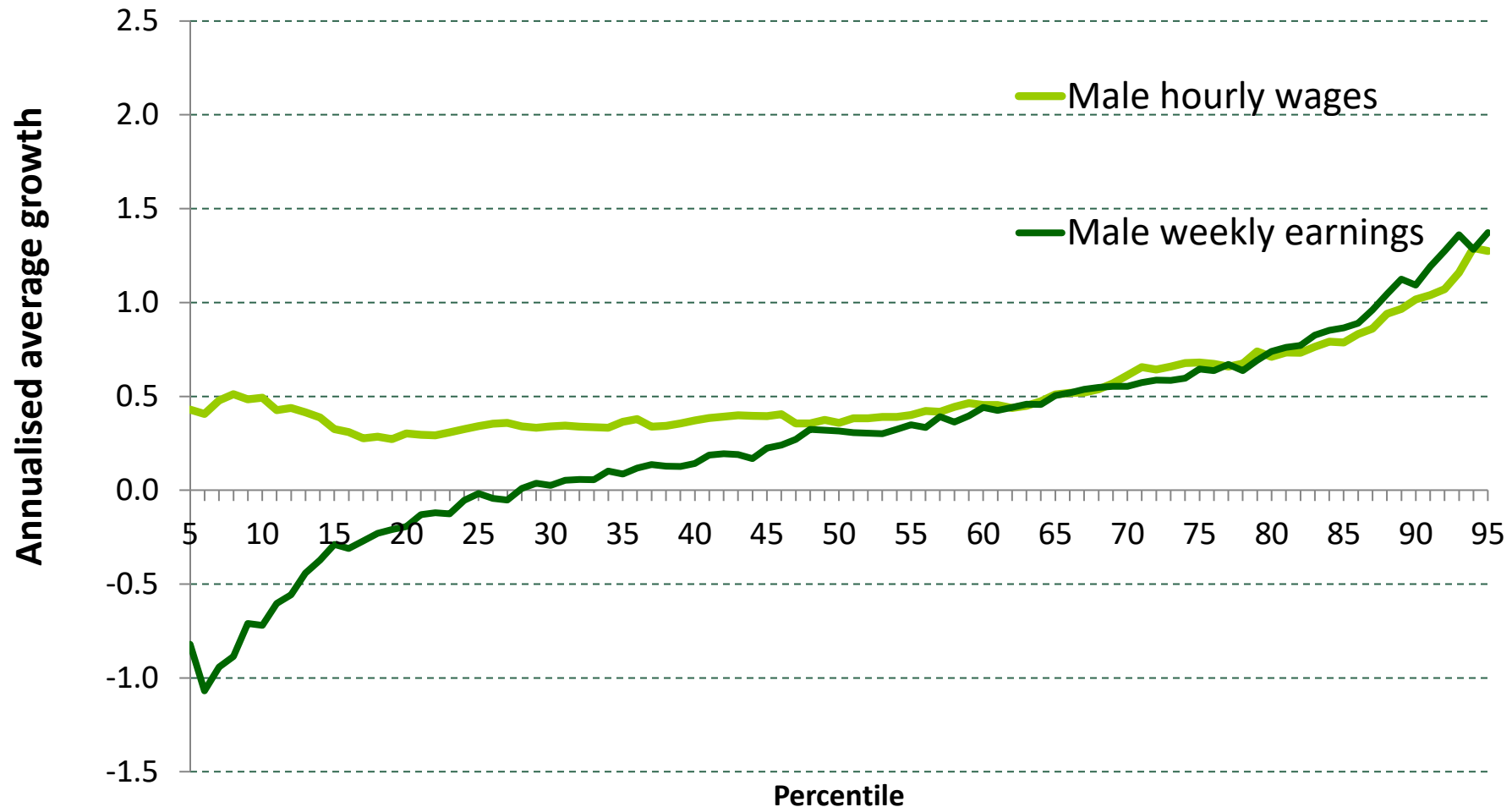
see [Deaton Review Country Studies](#) for analysis across all 17 countries

Source: Blundell, Joyce, Norris Keiller and Ziliak (2018, updated), which also contains US graphs.

Data used is UK FRS 1994-95 and 2018-19, not in full time education and aged <64

Growth in UK male weekly earnings and hourly wages:

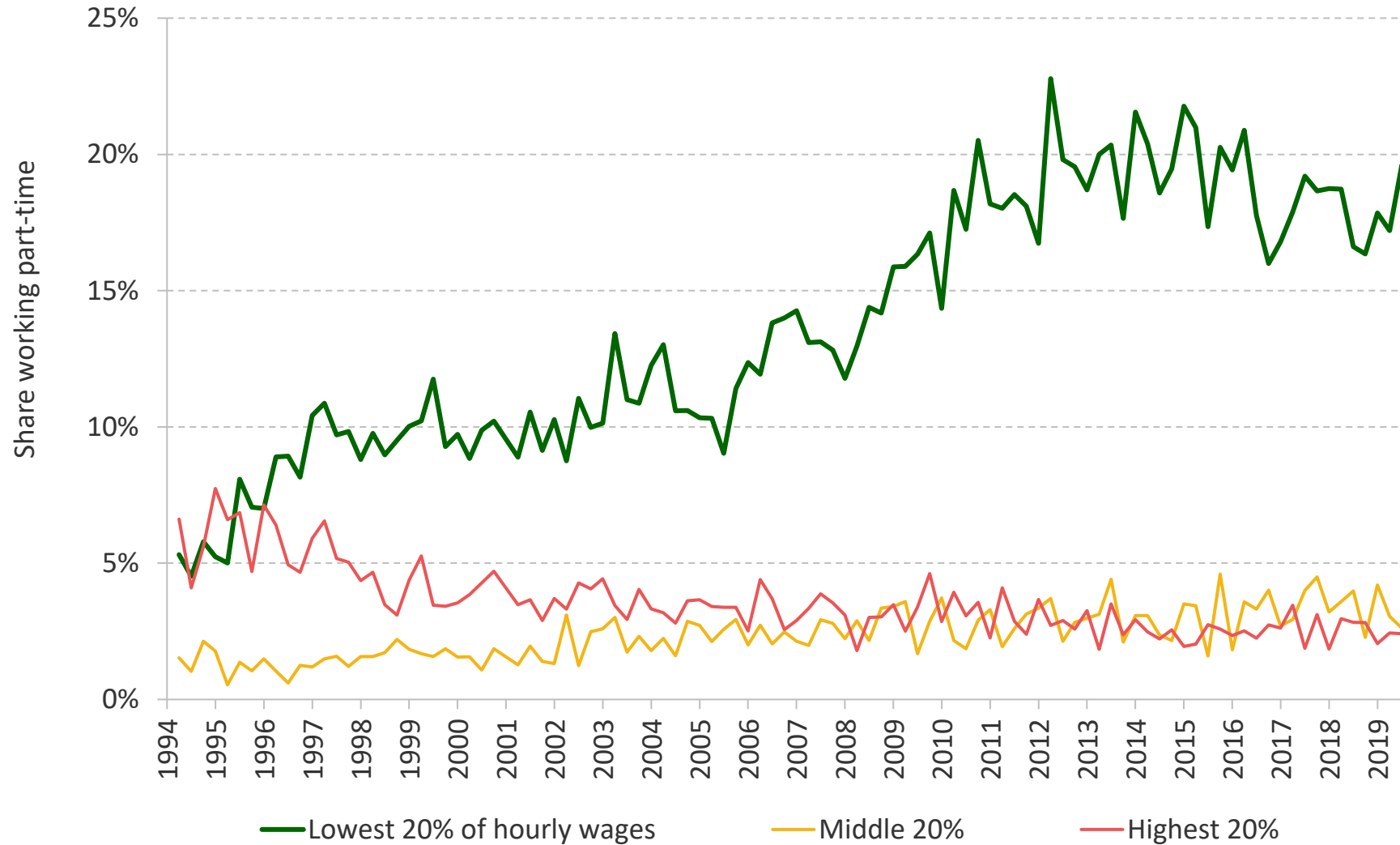
1994/95 – 2018/19



Top earnings (and incomes) have taken off....

Source: Blundell, Joyce, Norris Keiller and Ziliak (2018, updated), which also contains US graphs.
Data used is UK FRS 1994-95 and 2018-19, not in full time education and aged <64

Proportion of men in part-time work in the UK by hourly wage quintile – aged 25-55

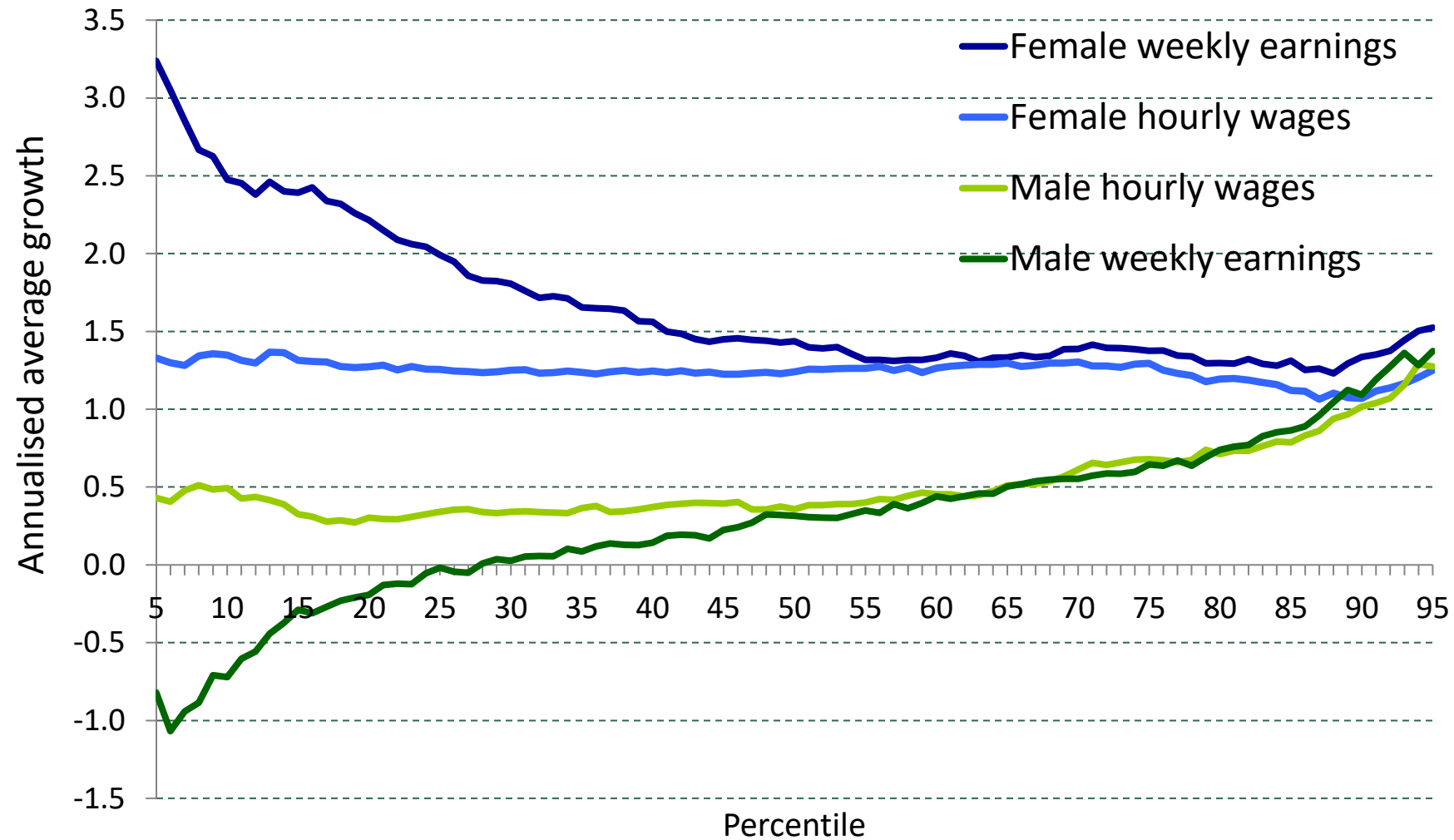


-> Stronger growth of PT work for the self-employed where there has been a growing rate of low earning solo self-employed and part-time hours.

Source: IFS Deaton Review calculations, Male employees aged 25-55, PT is working less than 30 hours per week.

Very different growth in female hourly wages and weekly earnings:

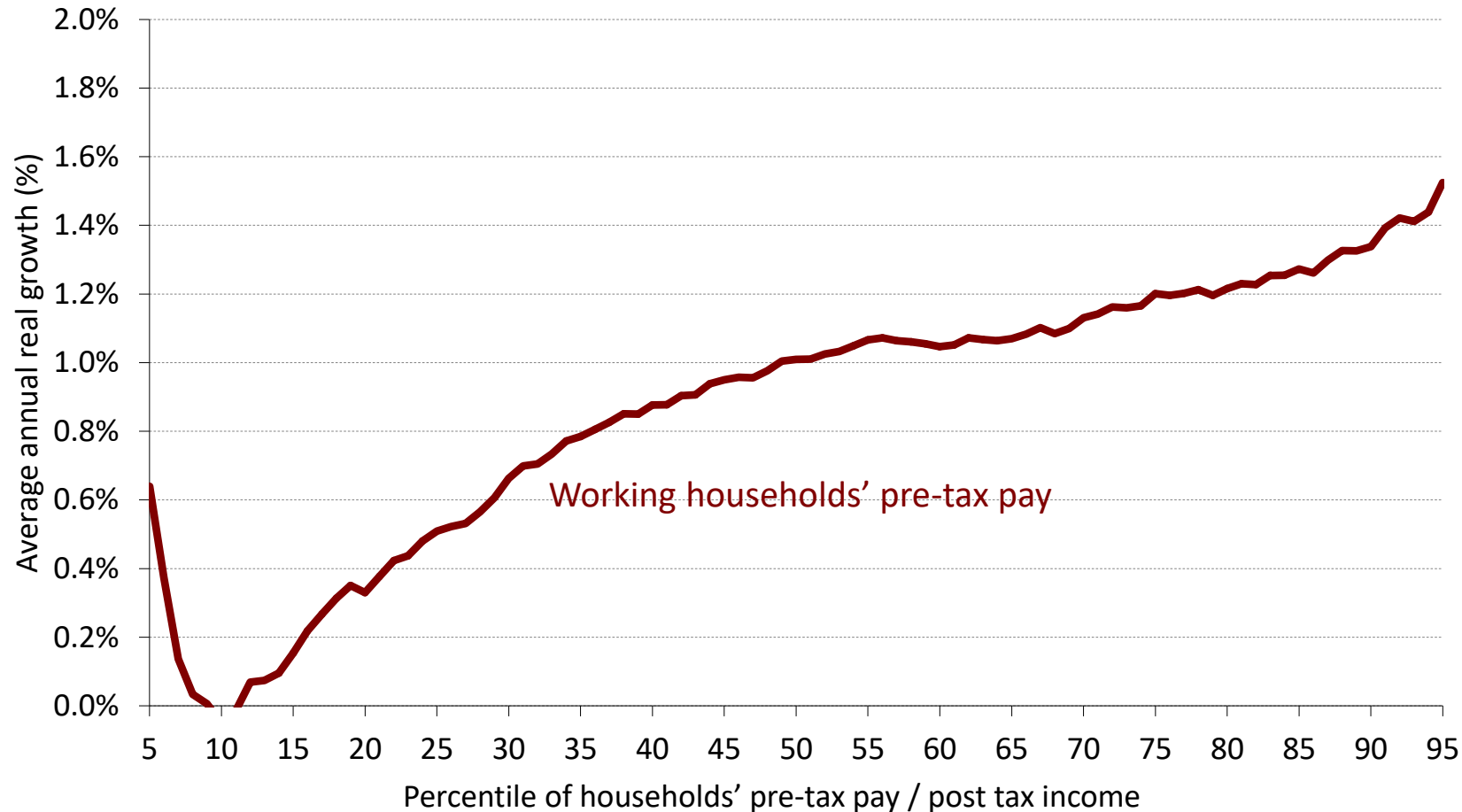
UK 1994/95 – 2018/19



-> But assortative partnering and low female earnings share implies this has not improved between family earnings inequality.... similar for US

Source: Blundell, Joyce, Norris Keiller and Ziliak (2018, updated): Data used is FRS 1994-95 and 2018-19.

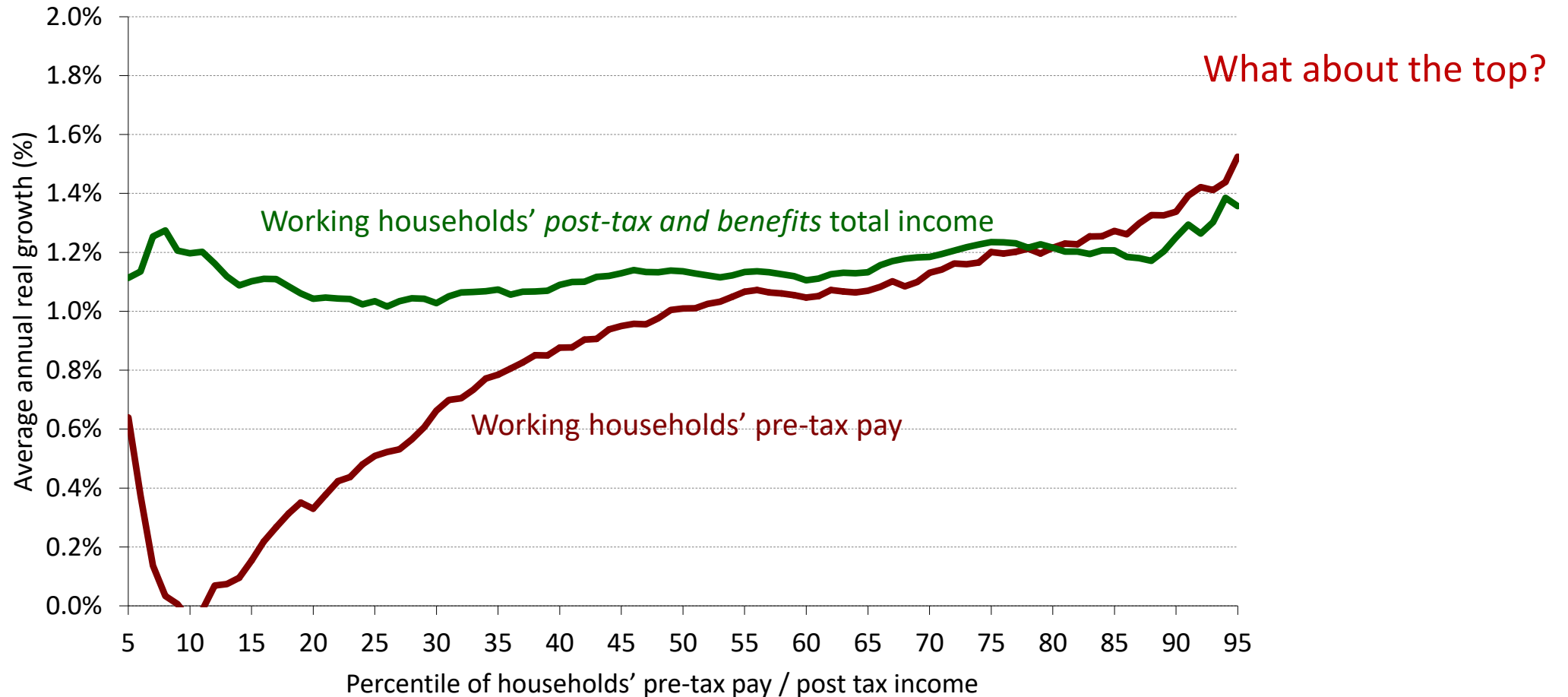
The role of tax and transfer programs in attenuating earnings inequality: Household income growth for working households UK 1994/5 to 2018/9



Notes: Includes self-employment income and self-employed households.
Family Resources Survey All income measures are equivalised.
Source: Blundell, Joyce, Norris-Keiller and Ziliak (2018, updated)

The role of tax and transfer programs in attenuating earnings inequality:

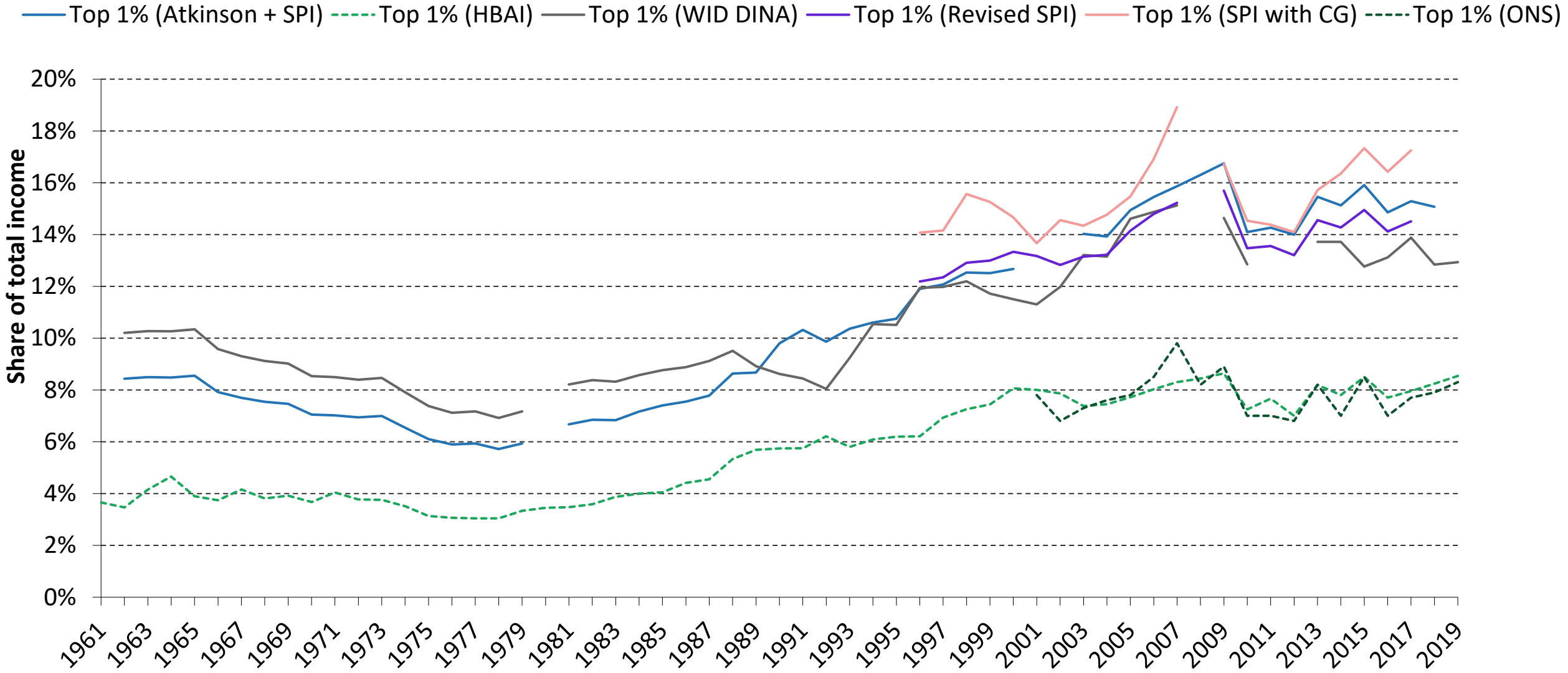
Household income growth for working households UK 1994/5 to 2018/9



Almost no change in 90-10 among working age families. Growth in the level of in-work transfers and tax-credit support...

Notes: Includes self-employment income and self-employed households.
Family Resources Survey All income measures are equivalised.
Source: Blundell, Joyce, Norris-Keiller and Ziliak (2018, updated)

Pre-tax and post-tax top income shares in the UK, 1961–2019:



Note: The WID DINA, Atkinson + SPI, Revised SPI, and SPI with CG series show pre-tax income share. The HBAI and ONS series give the share of net household income, without deducting for housing costs. Source: WID DINA data series sptinc (accessed 15/06/2021) is originally from Blanchet, Chancel and Gethin (2020). The Atkinson + SPI series is from Delestre et al (2022). HBAI, authors' calculations using the FES for 1961–93 and the FRS for 1994–2019 and a 'top incomes' adjustment using administrative tax data. ONS data are from ONS (2021b). The Revised SPI and SPI with CG series are from Advani, Summers and Tarrant (2021).

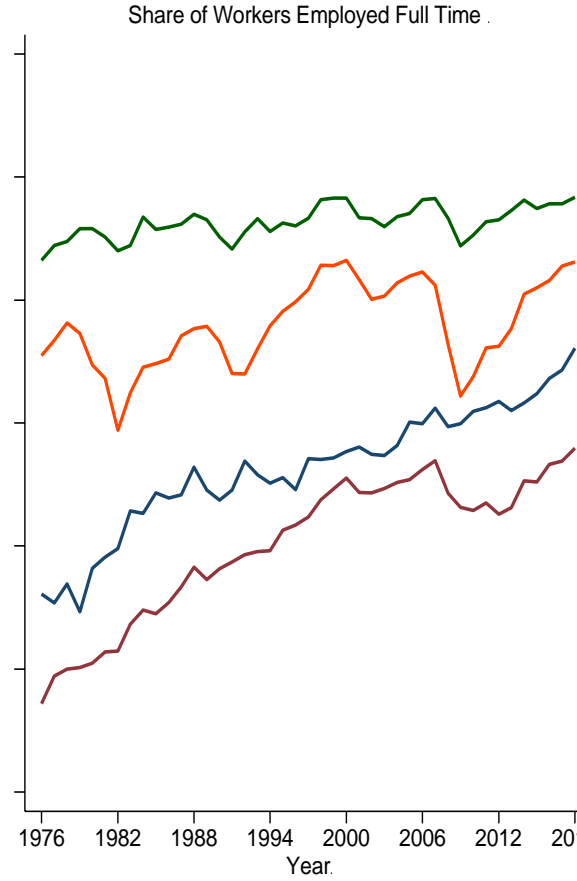
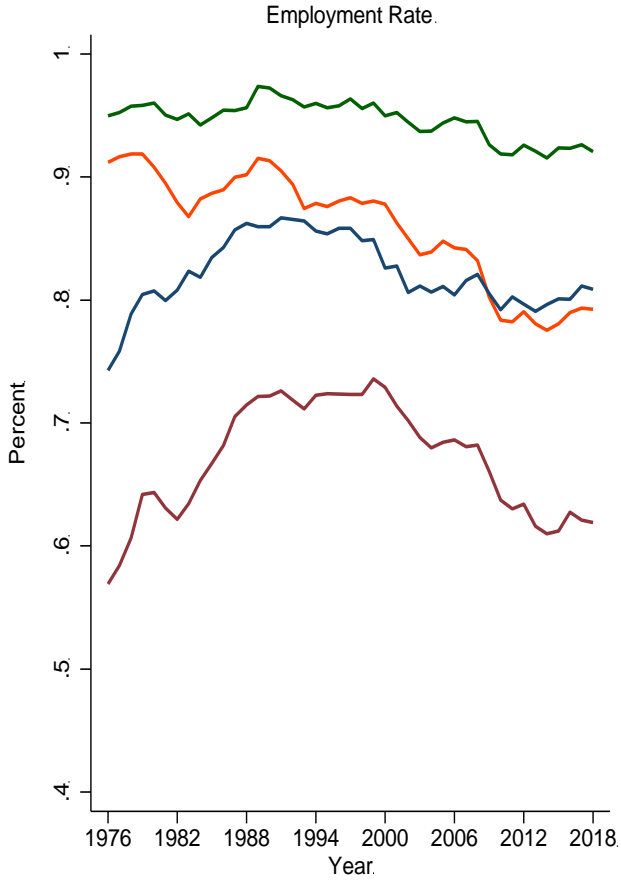
LIS data delivers remarkable insights across time ...

- hard to achieve using only (most) administrative data.
- Also unique insights into life-cycle patterns of behaviour.

For example, the changing life-cycle progression across birth cohorts:

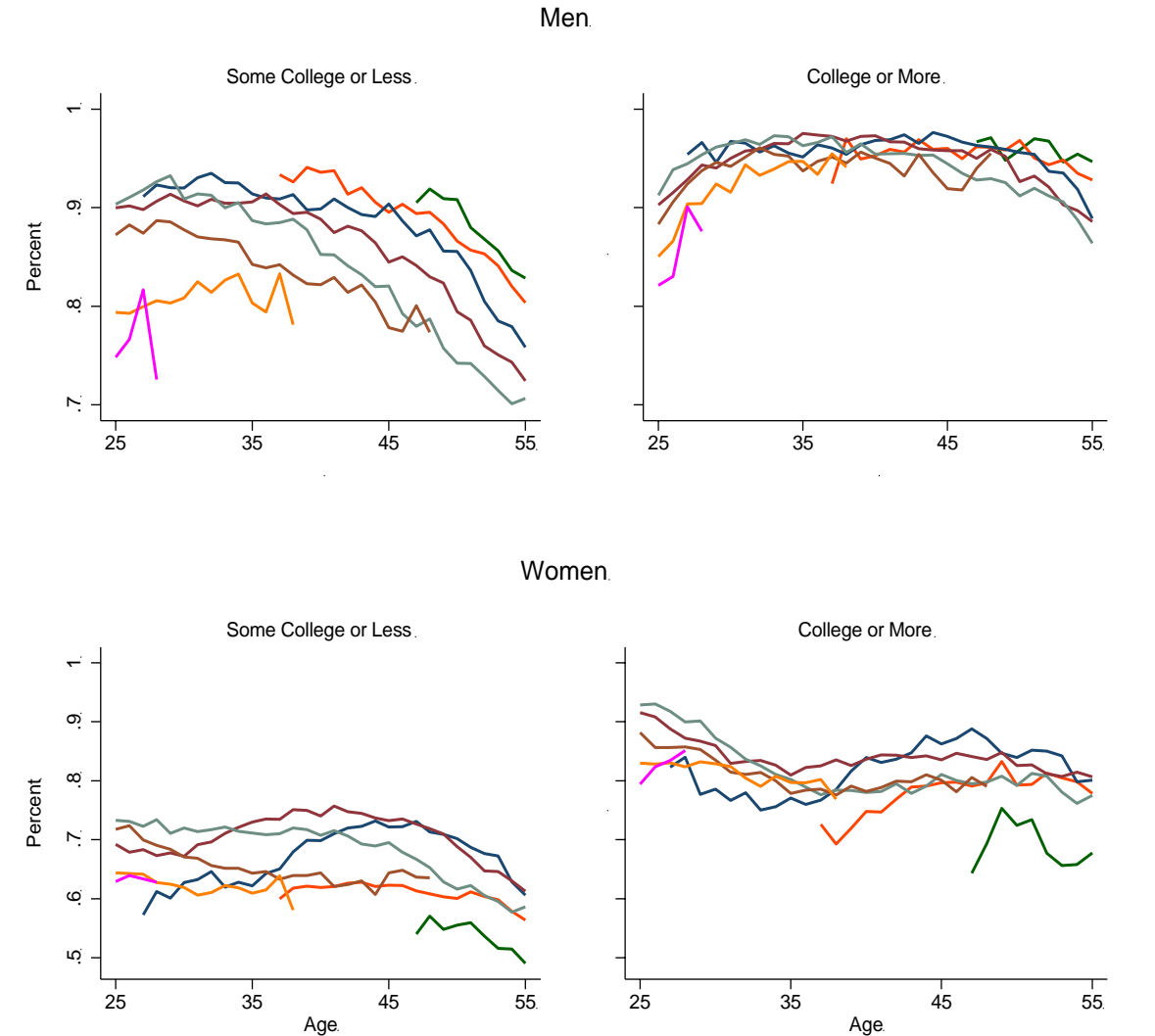
- wages and employment,
- quantiles – the whole distribution,
- ‘Taxsim’ linked to survey data for each year.... to adjust for selection.
- Illustrate with recent look at progression in the US, using the LIS/CPS data.....
 - Current Population Survey (CPS) spanning the 1976 to 2018 calendar years. The sample consists of men and women born between the years 1921 and 1993 who are ages 25 to 55.

Retreat from work, especially among the non-college educated, and a shift towards full-time work among those with jobs, particularly women



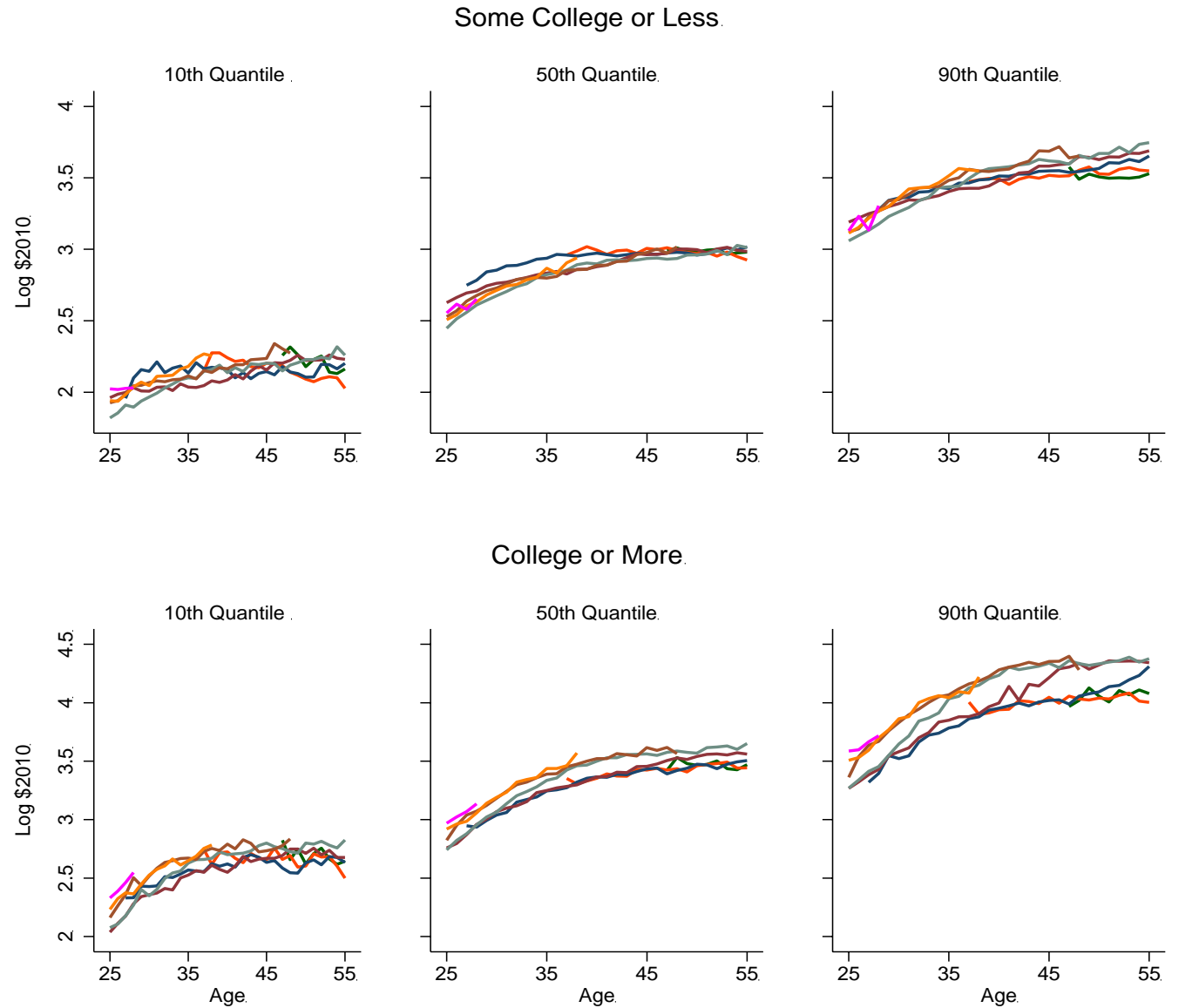
- Men, College or More.
- Men, Some College or Less.
- Women, College or More.
- Women, Some College or Less.

Life Cycle Employment Rates across Cohorts



- 1920, — 1930, — 1940, — 1950, — 1960, — 1970, — 1980, — 1990,

Insights on progression: Distribution of Life Cycle Real Hourly Wages of Men across Cohorts



- The wage profile of high-wage and high-skilled men is steeper at younger ages among more recent cohorts.... -> it's horrible at the bottom.

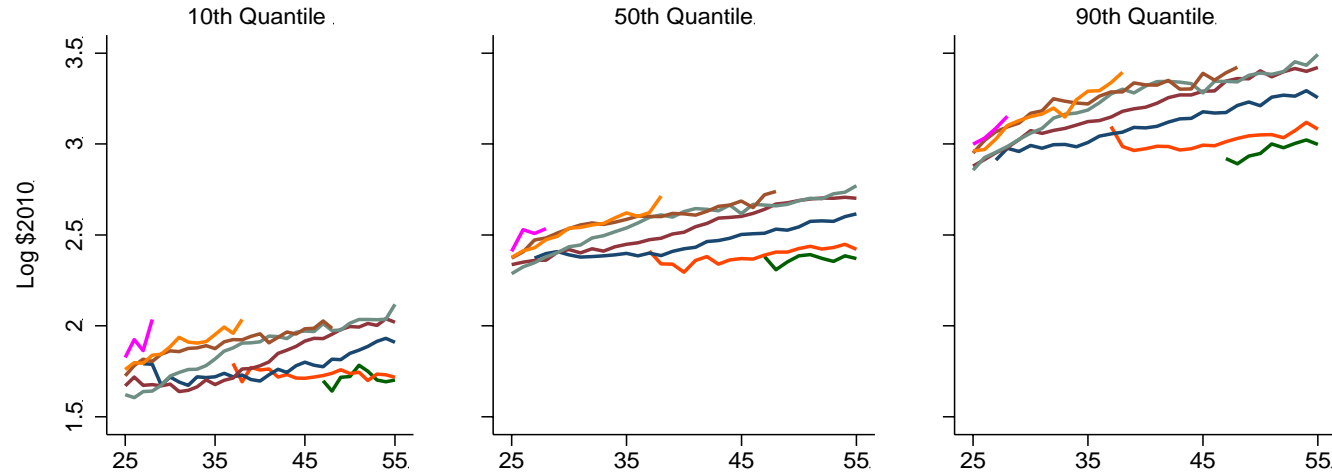
Much of the inequality and in-work poverty policy debate is now about enhancing progression for the less educated.

Current Population Survey (CPS) spanning the 1976 to 2018 calendar years. The sample consists of men and women born between the years 1921 and 1993 who are ages 25 to 55.

1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990

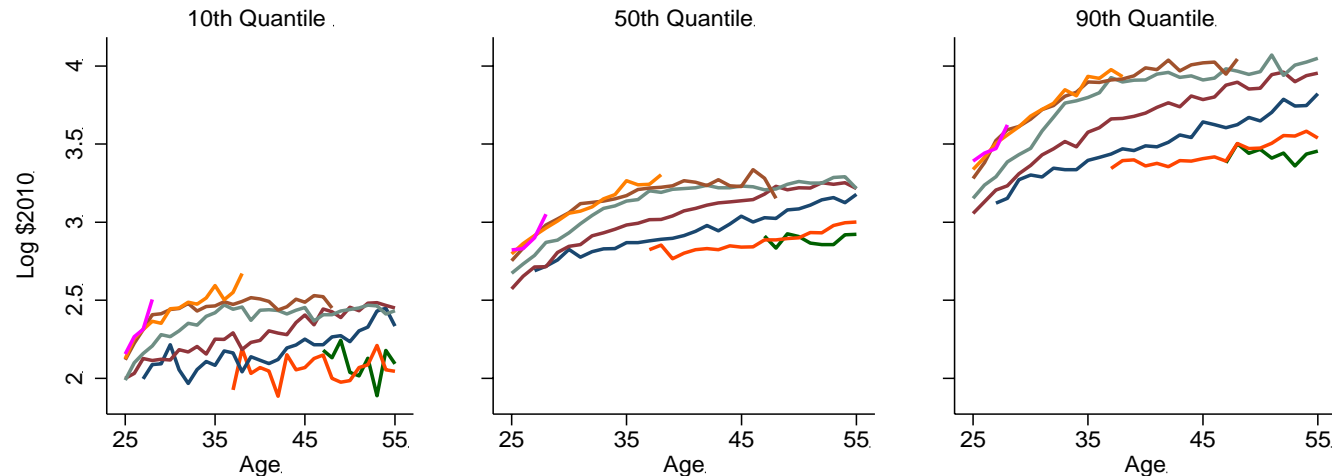
Insights on progression: Distribution of Life Cycle Real Hourly Wages of Women across Cohorts

Some College or Less



- The wage profile of women is more similar across skill groups than among men, but cross-cohort differences are greater across the distribution

College or More



Current Population Survey (CPS) spanning the 1976 to 2018 calendar years. The sample consists of men and women born between the years 1921 and 1993 who are ages 25 to 55.

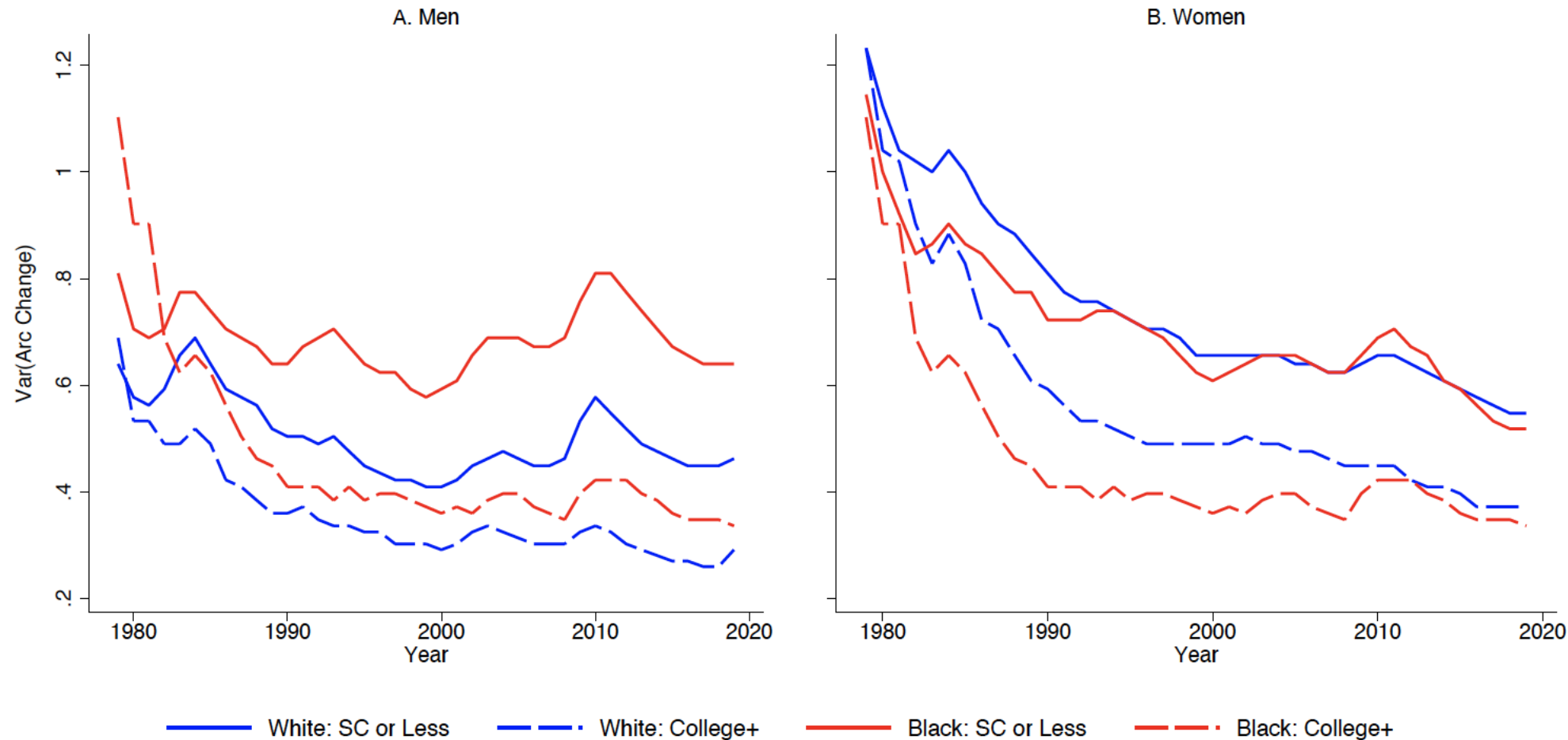
Insights on progression

- Much of the within- and between-gender inequality research examines inequality at a point in time rather than over the person's working life,
 - however, the sources and patterns of lifetime inequality differ considerably from the cross section,
 - progression is key to understanding life-time inequality.
- Upper-tail inequality increased in recent cohorts, and at earlier ages in the working life,
 - consistent with the hollowing out of the middle found in cross-sectional inequality literature (e.g. Autor et al 2008).
- The selection-corrected gender wage gap increases sharply early in the working life, consistent with female fertility cycles,
 - evidence of sharp convergence across older cohorts, though with stalled progress among more recent cohorts of women.

Digging deeper: The 'beauty' of linking household surveys to administrative earnings panels

- CPS/LIS often doesn't contain long earnings histories, SS earnings don't contain education, race, family,... example, the US data
 - link panel of Social Security Administration Detailed Earnings Records (DER) for years 1978-2019,
 - the DER is an extract of Social Security's Master Earnings File and includes data on total earnings as reported in Form W-2, wages and salaries and income from (positive) self-employment.
- Unpacking inequality into volatility and persistent inequality:
- write log income for household i in time period t , net of household characteristics
 - $y_{it} = \eta_{it} + e_{it}$
 - where η_{it} is a process of permanent/persistent shocks,
 - $\eta_{it} = \eta_{it-1} + v_{it}$ and where e_{it} is a transitory shock (some low order MA process).
- Linking volatility and persistent inequality:
 - Volatility of income: $Var(\Delta y_t) = Var(v_t) + Var(\Delta e_t)$
 - Cross-time covariances identify the permanent and transitory components.
- Extend this second moment structure to linkages across the complete distribution.

Summary Volatility Over Time



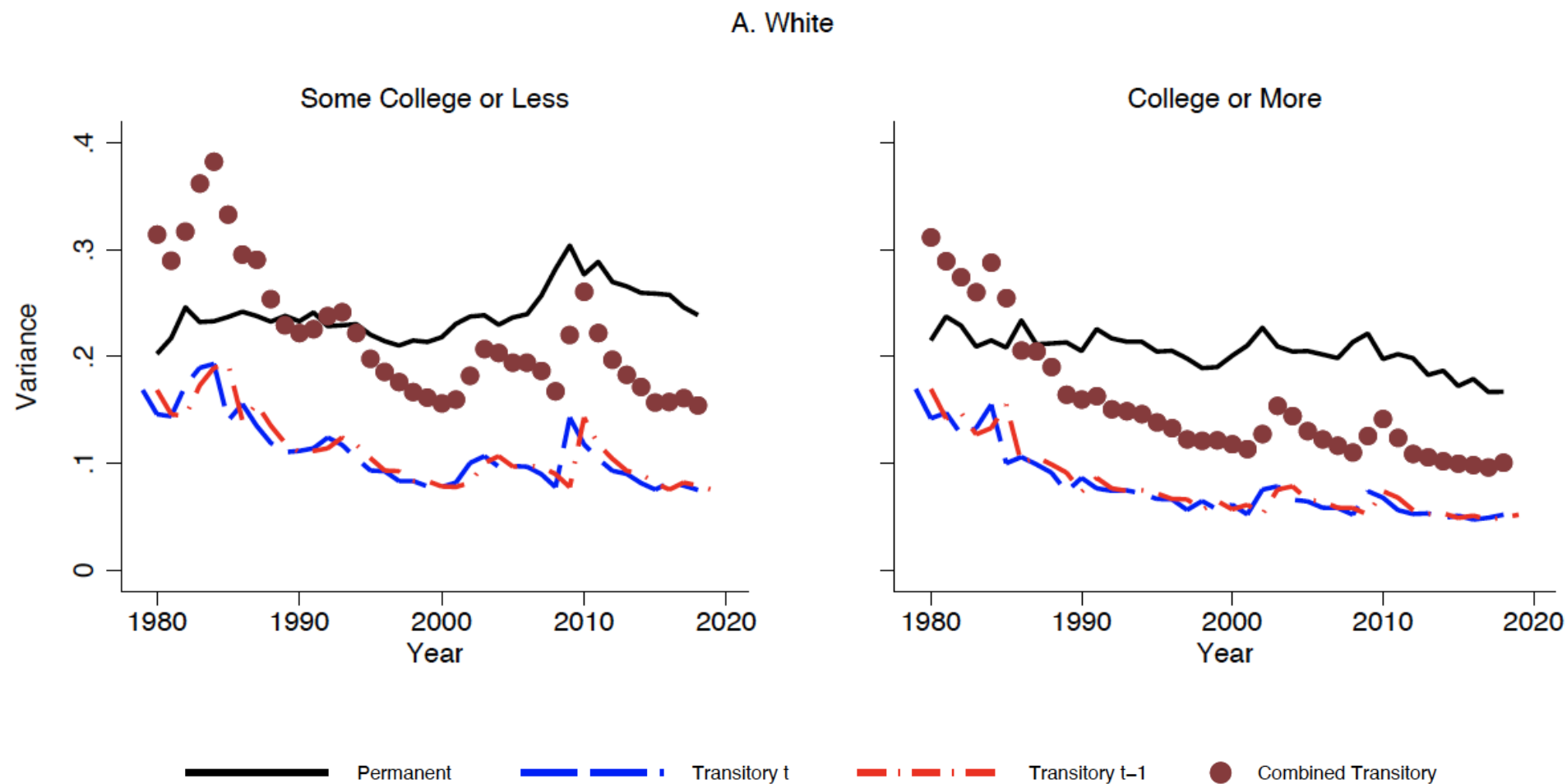
Source: Blundell and Ziliak (2023)

Notes: Summary volatility is measured as the variance of the arc percent change. The sample is individuals ages 25- 59 in a given year, and includes those without earnings in one of the two years. SC = Some College or Less; College+ = College or More.

Data Sources: U.S. Census Bureau, Current Population Survey, 1996-2020 Annual Social and Economic Supplement.

Social Security Administration, Detailed Earnings Record, 1978-2019.

Permanent and Transitory Volatility of Over Time: White Men

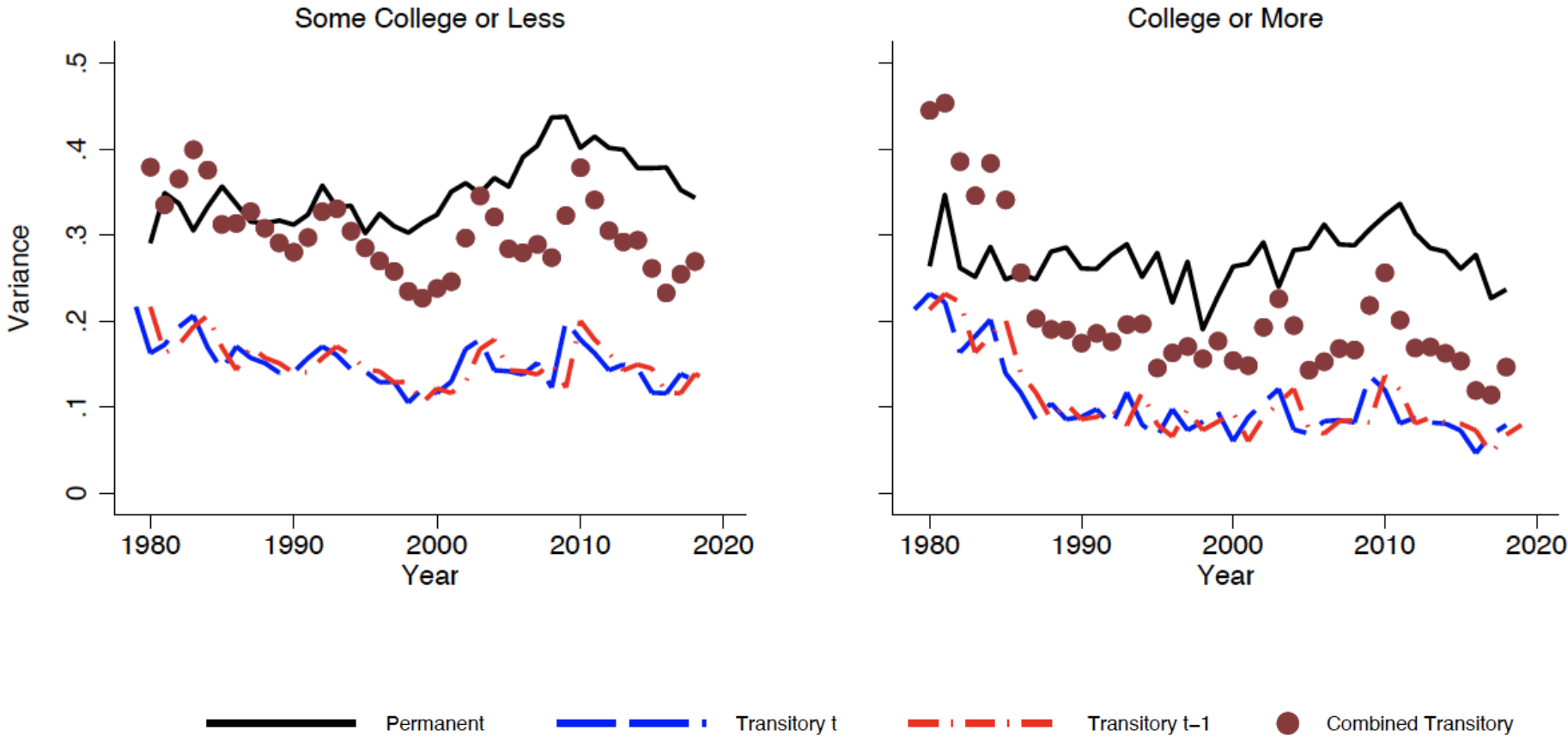


Source: Blundell and Ziliak (2023)

Notes: Variance components are measured using the change in log earnings net of aggregate time effects and cohort specific quadratic age profiles. The sample is men ages 25-59 in a given year, and drops those without earnings. Data Sources: U.S. Census Bureau, Current Population Survey, 1996-2020 Annual Social and Economic Supplement. Social Security Administration, Detailed Earnings Record, 1978-2019.

Permanent and Transitory Volatility of Over Time: Black Men

B. Black



Source: Blundell and Ziliak (2023)

Notes: Variance components are measured using the change in log earnings net of aggregate time effects and cohort specific quadratic age profiles. The sample is men ages 25-59 in a given year, and drops those without earnings. Data Sources: U.S. Census Bureau, Current Population Survey, 1996-2020 Annual Social and Economic Supplement. Social Security Administration, Detailed Earnings Record, 1978-2019.

Incorporating consumption: from cross-section to panel data

Three broad designs:

1. Separate repeated cross-section surveys

- Income and Consumption (and wealth) in separate cross-section surveys
- LIS: FRS (UK), CPS(US)
- Combined with expenditure surveys LCFS/FES (UK), CE (US)

2. Comprehensive cross-section surveys

- Income and Consumption (and wWealth) in same cross-section surveys
- LCFS/FES (UK), CE (US)

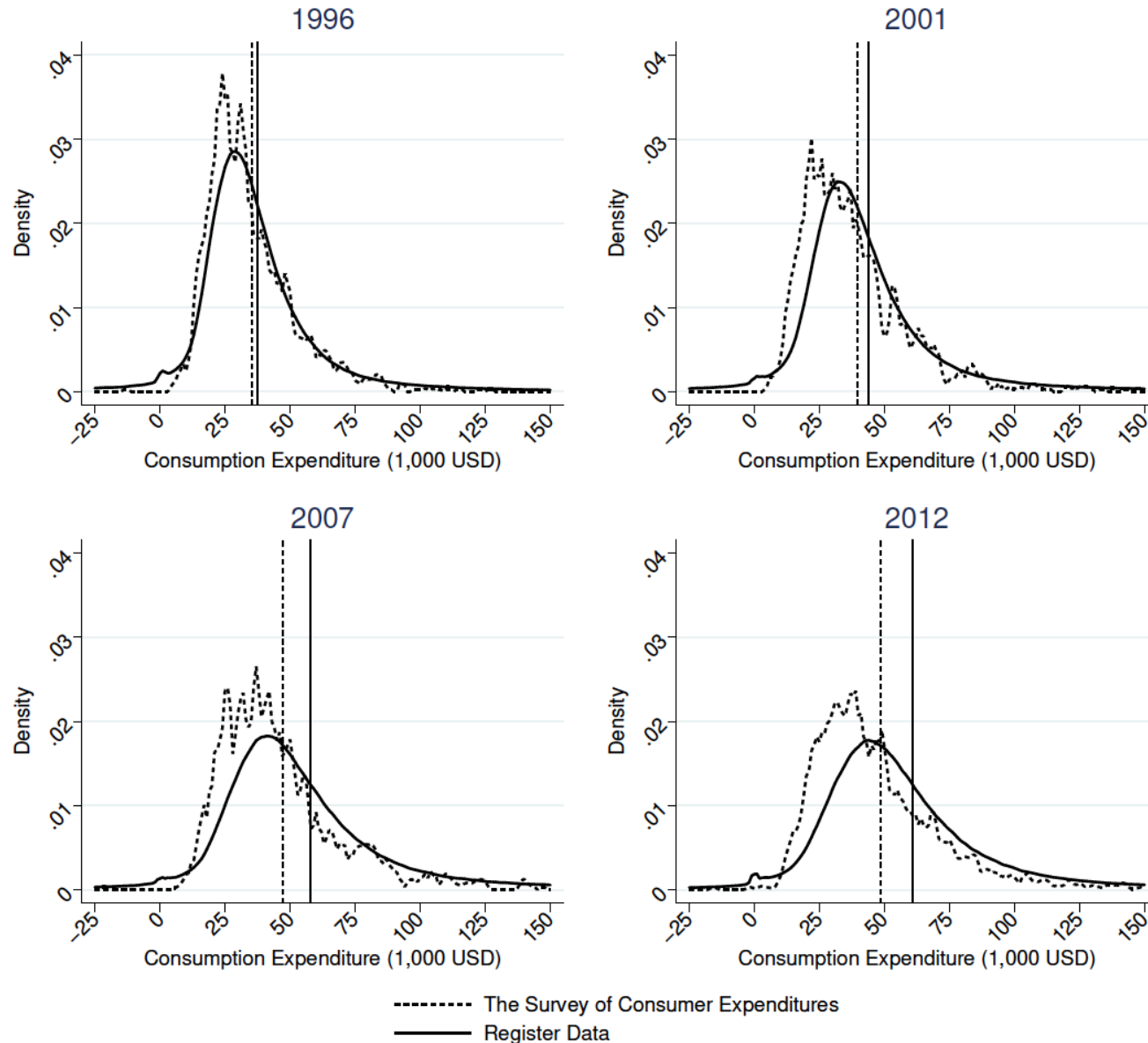
3. Panel data

- Income and consumption in same panel: PSID (US), EEF (Spain),
- Homescan consumer panels, Kantar, Neilson,
- Bank account and dashboard data: Clearscore (UK), BBVA (Spain)
- Population Registers of tax and bank account data (Norway, Denmark,..)

Pros and cons of different approaches to measuring consumption

- Consumer expenditure surveys, CE, LCFS,
 - **pros:** detailed consumption items, income and demographics,
cons: declining coverage and small sample sizes
- Panels, e.g. PSID (new), BdE,
 - **pros:** dynamics and lifetime measurements in 3D!
cons: attrition and often less detail on consumption
- Population registers with tax data and financial accounts
 - **pros:** all tax records, bank accounts, and linked demographic sources
cons: no direct consumption, no qualitative measurements, ..
- Homescan surveys, e.g. Kantar, Nielson
 - **pros:** detailed items, high frequency, unit prices
cons: only fast moving products, few demographics
- Dashboard/ Bank account data, e.g. Clearscore, BBVA
 - **pros:** dynamics, large sample, assets
cons: individual info, poorly separated cons items,

Norwegian Register vs Survey of Consumer Expenditures: measurement issues



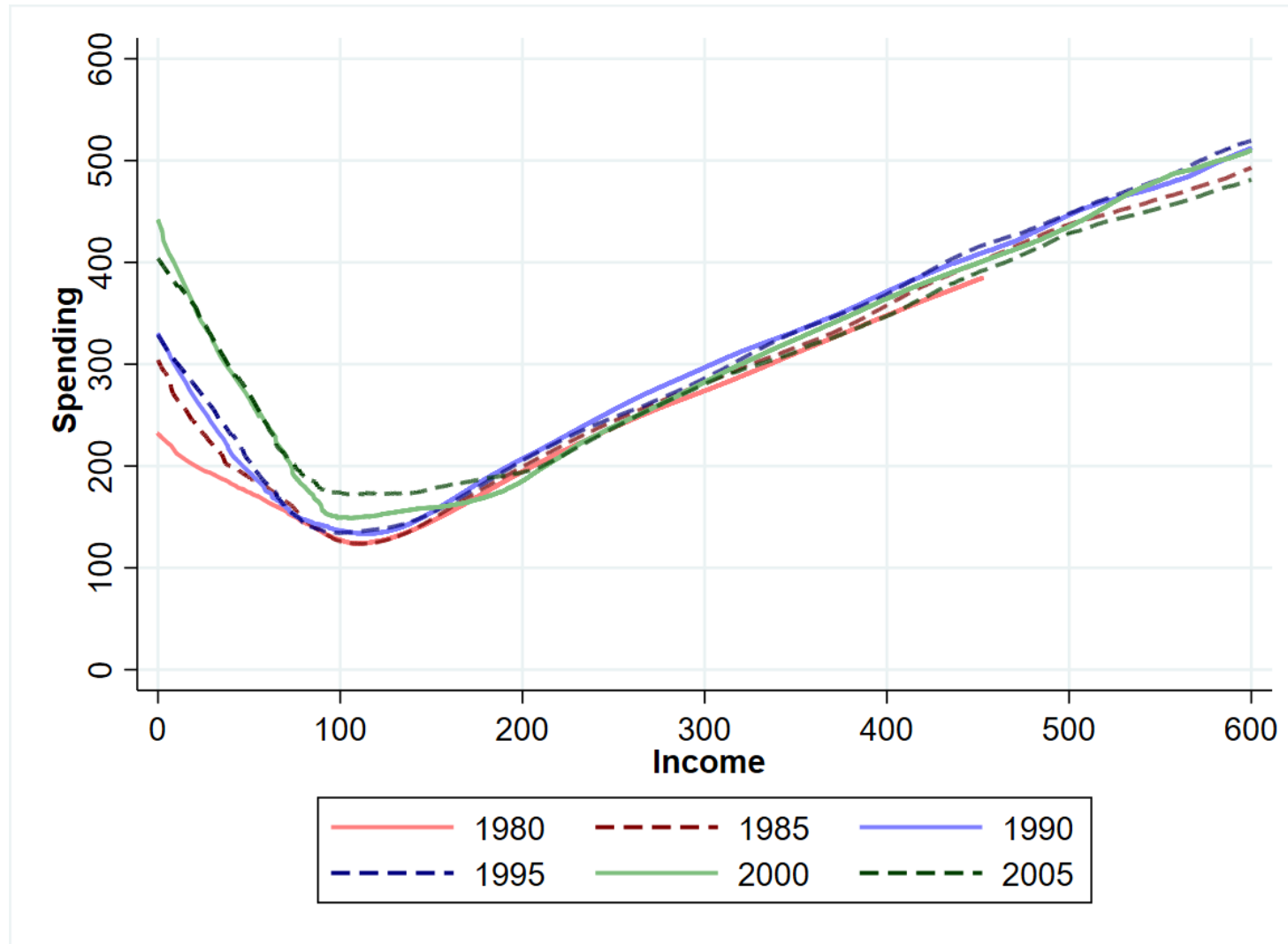
Source: Eika, Mogstad and Vestad (2018). Notes: Measures are expressed in 2014 USD and adjusted for household size using the EU scale. Vertical lines denote sample averages. Households are weighted by the number of household members below the age of 80 (and SCE sample weights).

Poverty: using income and expenditure measurements

- Drawing the poverty line
 - absolute or relative
 - deep or moderate
- Which 'goods' to include?
 - all expenditures - total expenditures
 - imputed service flows – full consumption
 - minimum bundle necessary to meet basic needs – narrow expenditure
 - individual item data across broad necessities is (almost) essential for this
- Some explorations from UK and US data
 - the tick (or check) in expenditures by income
 - overlap of income and consumption/expenditure measurements
 - child poverty rates from income in LIS

The 'tick' in spending at low incomes in the UK

Median Expenditure by Period (Five Year Averages)



Source: IFS Analysis published in EJ 2017.

Notes: Data are from UK FRS/LIS and Living Costs and Food Survey (LCFS). Values on the axes are given in equivalised real pounds per week, expressed in December 2009 prices. Equivalisation is carried out using the modified OECD equivalence scale. The solid lines in the graph represent smoothed conditional medians and are generated by performing locally-weighted median regressions.

Measures of relative poverty in UK

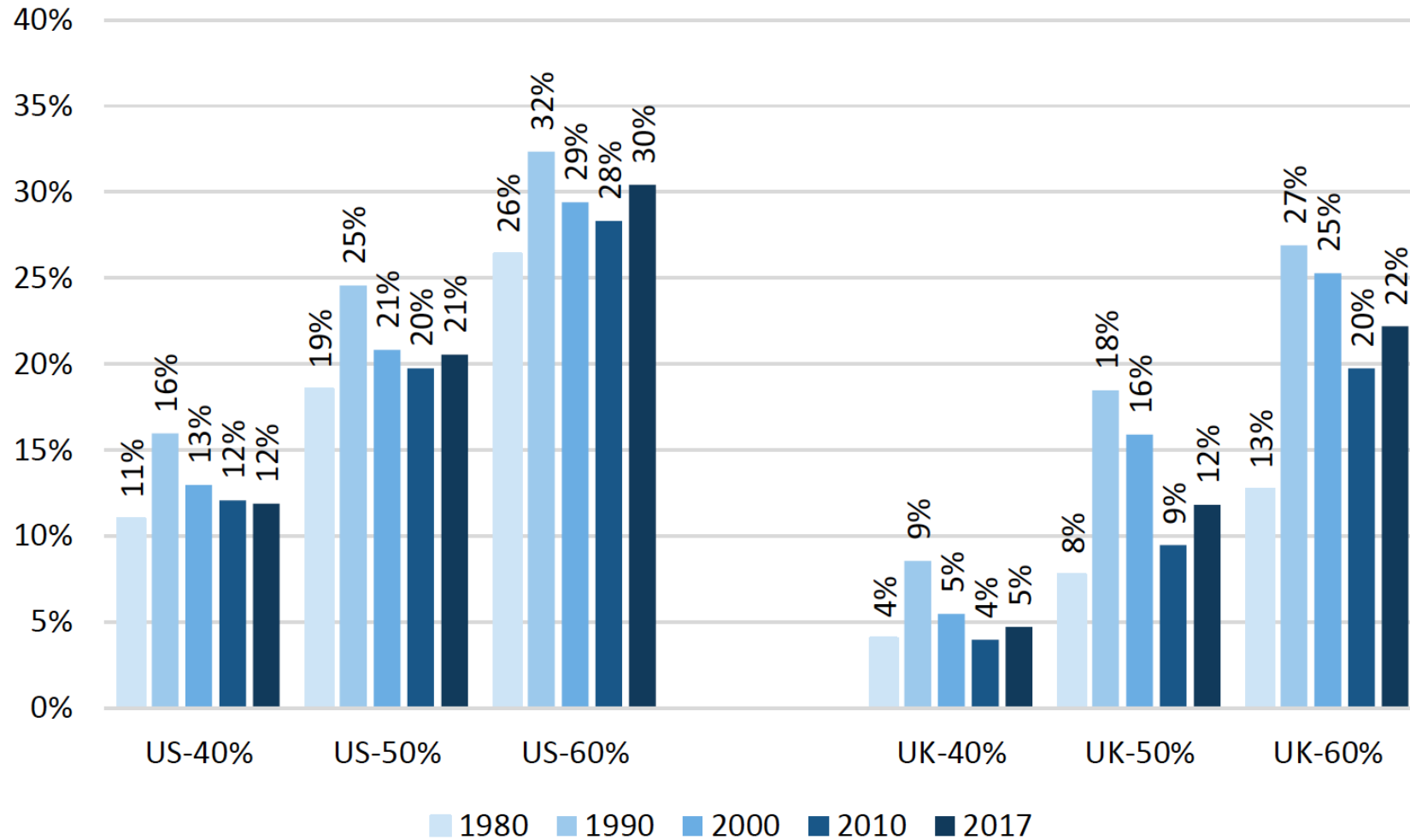
Relative poverty defined as living in household with less than 60% of median income.

	HBAI income	Standard error	Broad income	Standard Error	Consumption	Standard Error	Cash income	Standard Error	Cash outlays	Standard error
2000	0.194	0.005	0.176	0.005	0.155	0.005	0.222	0.005	0.220	0.005
2001	0.198	0.005	0.173	0.005	0.140	0.005	0.225	0.005	0.214	0.005
2002	0.191	0.006	0.173	0.005	0.151	0.005	0.216	0.005	0.227	0.005
2003	0.175	0.005	0.165	0.005	0.143	0.005	0.205	0.005	0.214	0.005
2004	0.177	0.005	0.164	0.005	0.141	0.005	0.202	0.005	0.211	0.005
2005	0.177	0.006	0.167	0.005	0.145	0.005	0.209	0.005	0.210	0.005
2006	0.177	0.006	0.175	0.006	0.146	0.006	0.208	0.006	0.212	0.006
2007	0.176	0.006	0.162	0.006	0.136	0.006	0.205	0.006	0.200	0.006
2008	0.179	0.006	0.173	0.006	0.145	0.006	0.214	0.006	0.219	0.006
2009	0.176	0.007	0.173	0.007	0.136	0.007	0.212	0.007	0.194	0.007

Source: IFS Analysis, EJ 2017.

Notes: Data are from UK FRS/LIS and Living Costs and Food Survey (LCFS). Values on the axes are given in equivalised real pounds per week, expressed in December 2009 prices. Equivalisation is carried out using the modified OECD equivalence scale. The solid lines in the graph represent smoothed conditional medians and are generated by performing locally-weighted median regressions.

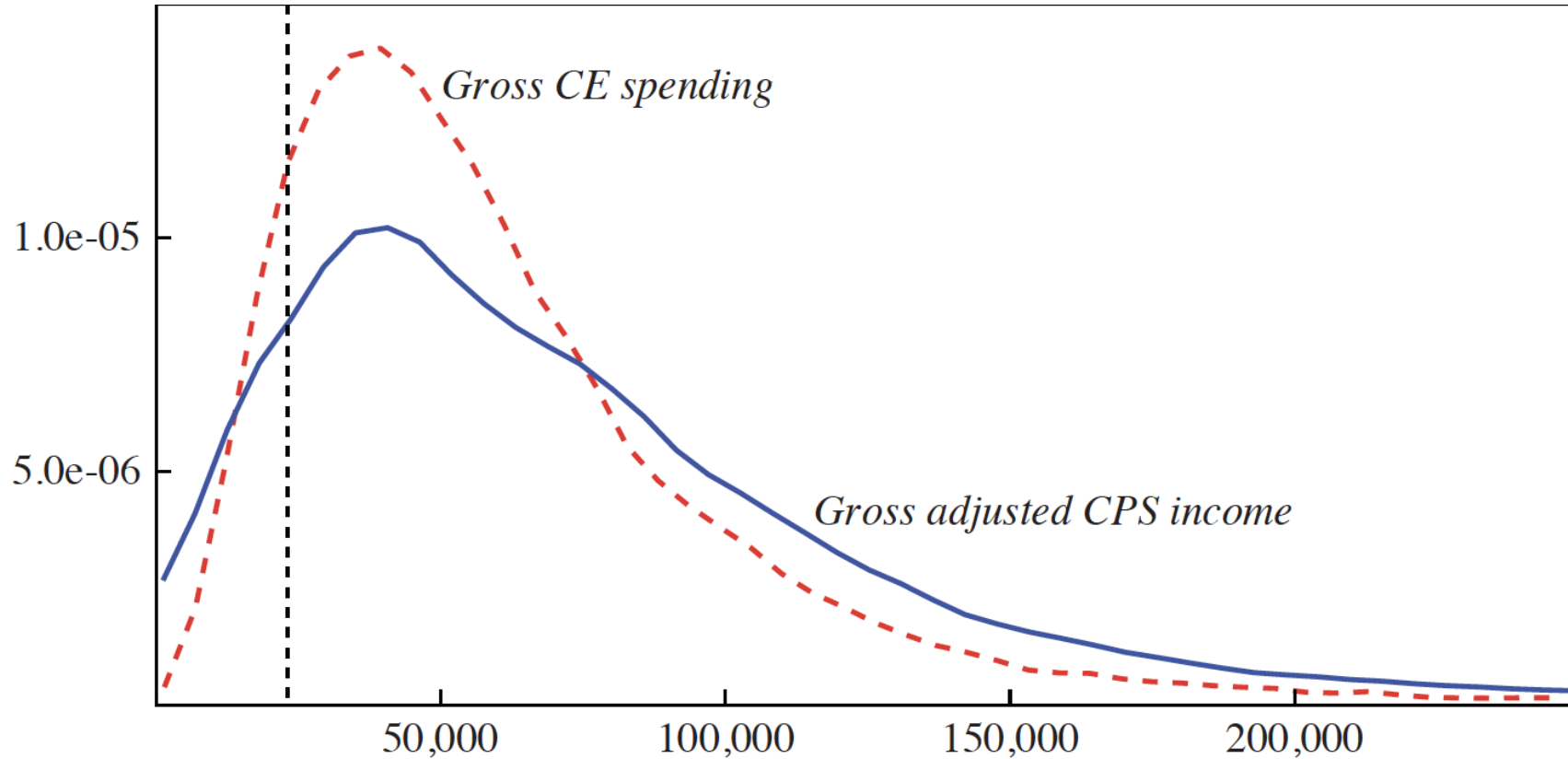
Child poverty rates, post-tax/post-transfer income, 40%, 50% and 60%



Source: Gornick, J. C. (2022), 'Income inequality and income poverty in a cross-national perspective', *IFS Deaton Review of Inequalities*.
Data: LIS data sets from multiple years, for the US and the UK.

Poverty in the US

Distribution of Gross CE Spending and Gross Adjusted CPS Income, 2017–2019



Source: Fitzgerald and Moffitt (2022), Brookings Papers on Economic Activity: 253–286

Notes: Kernel density. 'dotted' line is the SPM line (income). Gross CE spending is total household spending on all items in the year. Gross adjusted CPS income is total income in the year after tax and with SNAP benefits added. Vertical dashed line denotes average threshold.

Measures of relative poverty in UK – the latest pre-pandemic data

Relative poverty defined as living in household with less than 30%, 40% 50% and 60% of median income.

		Less than % of median			
Outcome		30	40	50	60
FRS 2015 - 2017	Net income	2.9%	5.4%	9.9%	16.6%
Consumption 2015 – 2017	Consumption	2.3%	5.3%	9.8%	15.6%

Source: IFS Analysis Deaton Review 2023.

Notes: Data are from UK FRS/LIS and Living Costs and Food Survey (LCFS).

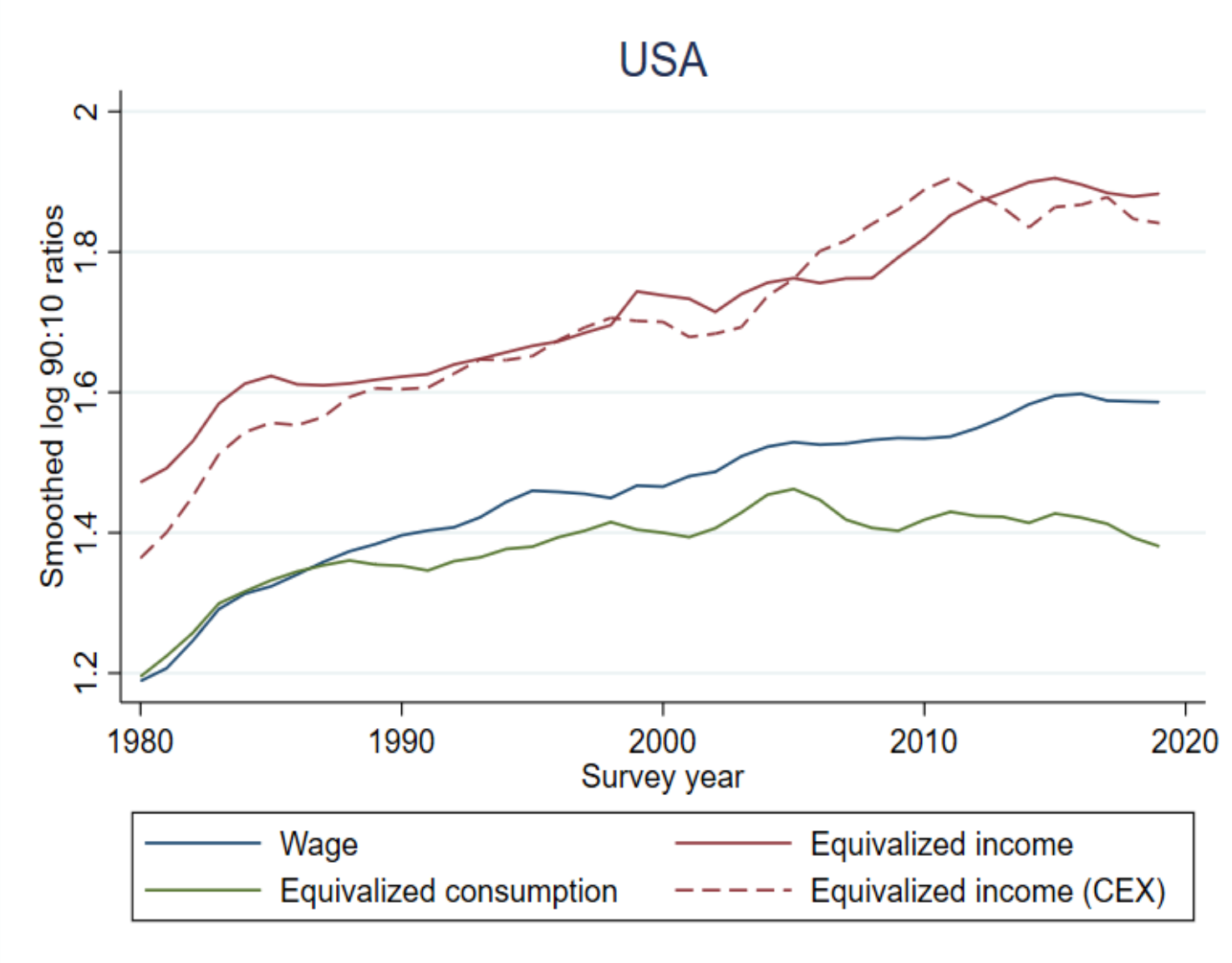
Poverty measurement: some summary issues

- Which 'goods' to include?
 - all expenditures - total expenditures
 - imputed service flows – full consumption
 - minimum bundle necessary to meet basic needs – narrow expenditure
- Relative and absolute measures
 - choice of threshold and the problem of 'deep' poverty measurement
- Improving measurement
 - repeat observations in improved surveys
 - use consumer panel and dashboard information
 - nature of family units at the bottom
- Price variation
 - across time and location
 - use consumer panel and dashboard information
- Access to resources
 - use wealth data and liquidity measures to improve and check measurement

Inequality: The role of income, consumption and wealth

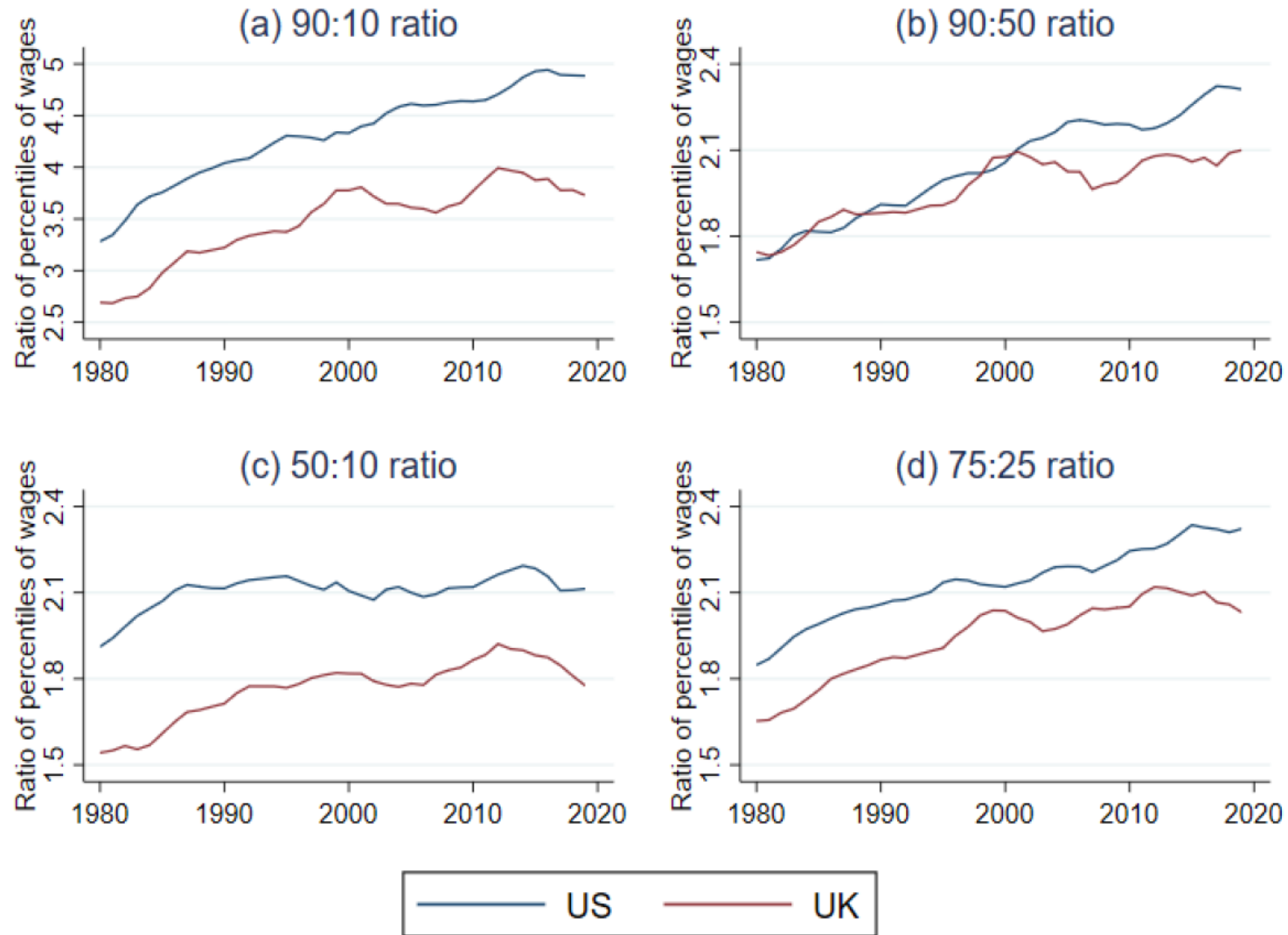
- As with poverty measurement, none of these provide a complete picture
 - taken together they can bring important insights,
 - separating permanent/persistent inequality from shorter run changes,
 - uncovering the key role of liquidity and wealth,
 - allowing us to examine the distributional dynamics of inequality across these three dimensions.
- The three cases again:
 1. when consumption and income are not in the same survey: we can learn about the distribution of persistent inequality but only under strong assumptions,
 2. with consumption and assets in the same survey: we can learn about more about the mechanisms of income ‘insurance’,
 3. with consumption, assets and income in a panel: we can recover the complete relationship between income and consumption over time, as well as study the role of liquidity.

Inequality in wages, income, and consumption, CE and CPS, US 1980 to 2019



Source: IFS Analysis, Deaton Review 2023.
Notes: Data are from US CE(X) and CPS.

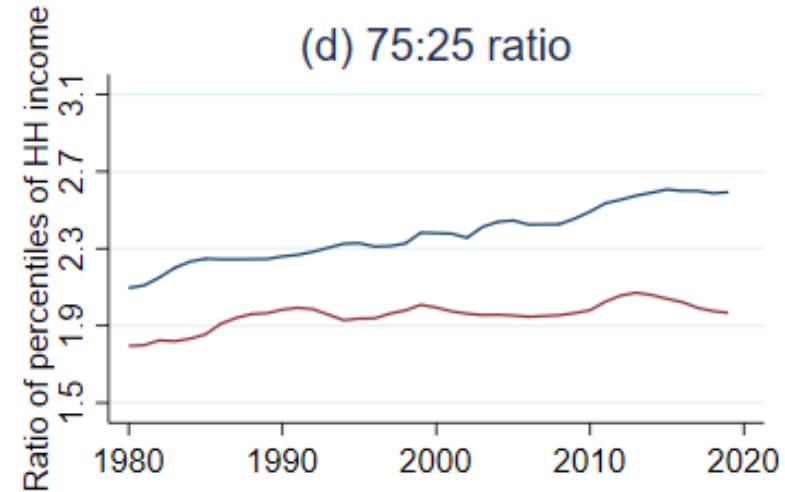
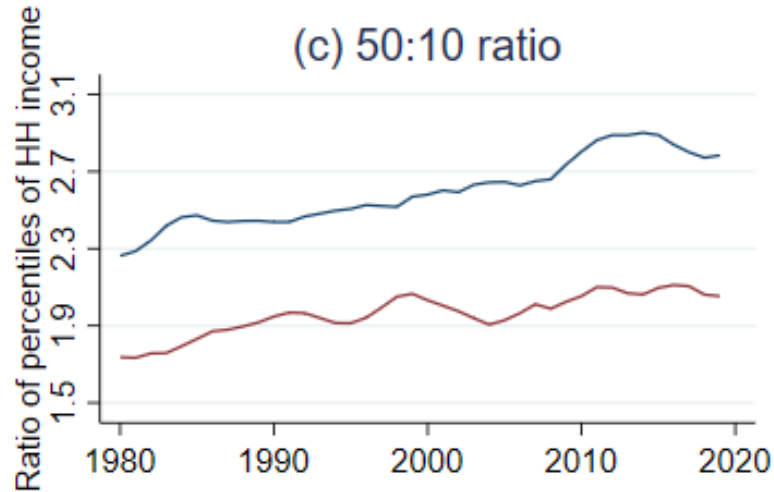
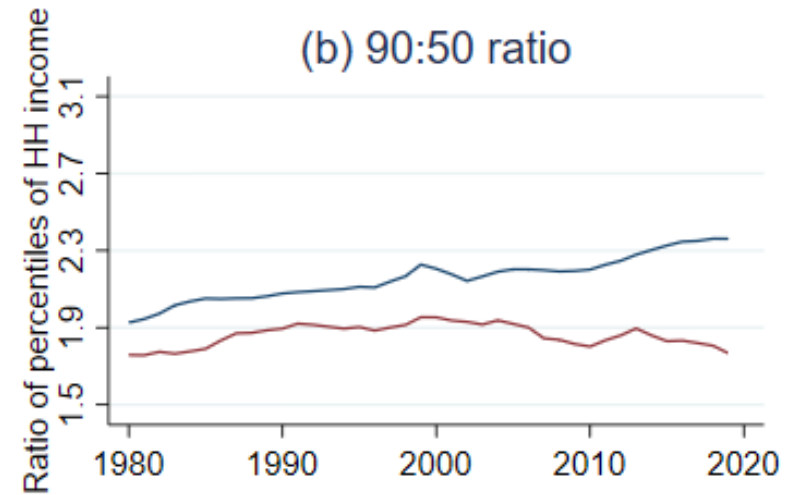
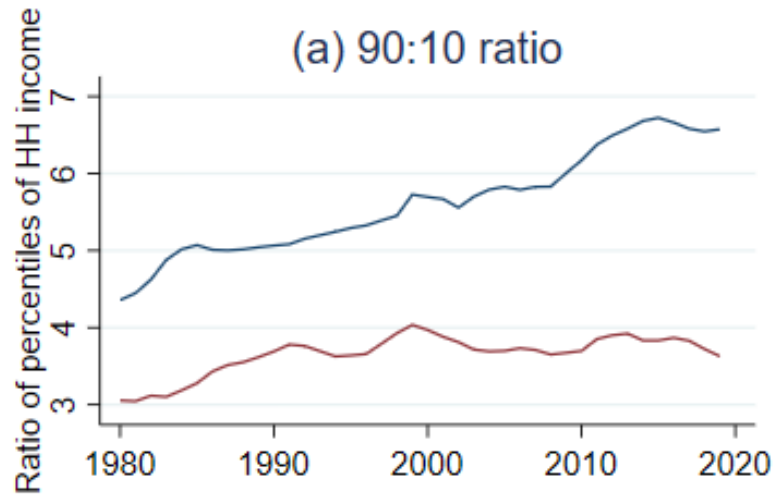
Smoothed percentile ratios of wages, US and UK 1980 to 2019



Source: IFS Analysis, Deaton Review 2023.

Notes: Data are from US CE(X) and CPS.

Smoothed percentile ratios of household incomes, US and UK 1980 to 2019



Source: IFS Analysis Deaton, Review 2023.

Notes: Data are from US CE(X) and CPS.

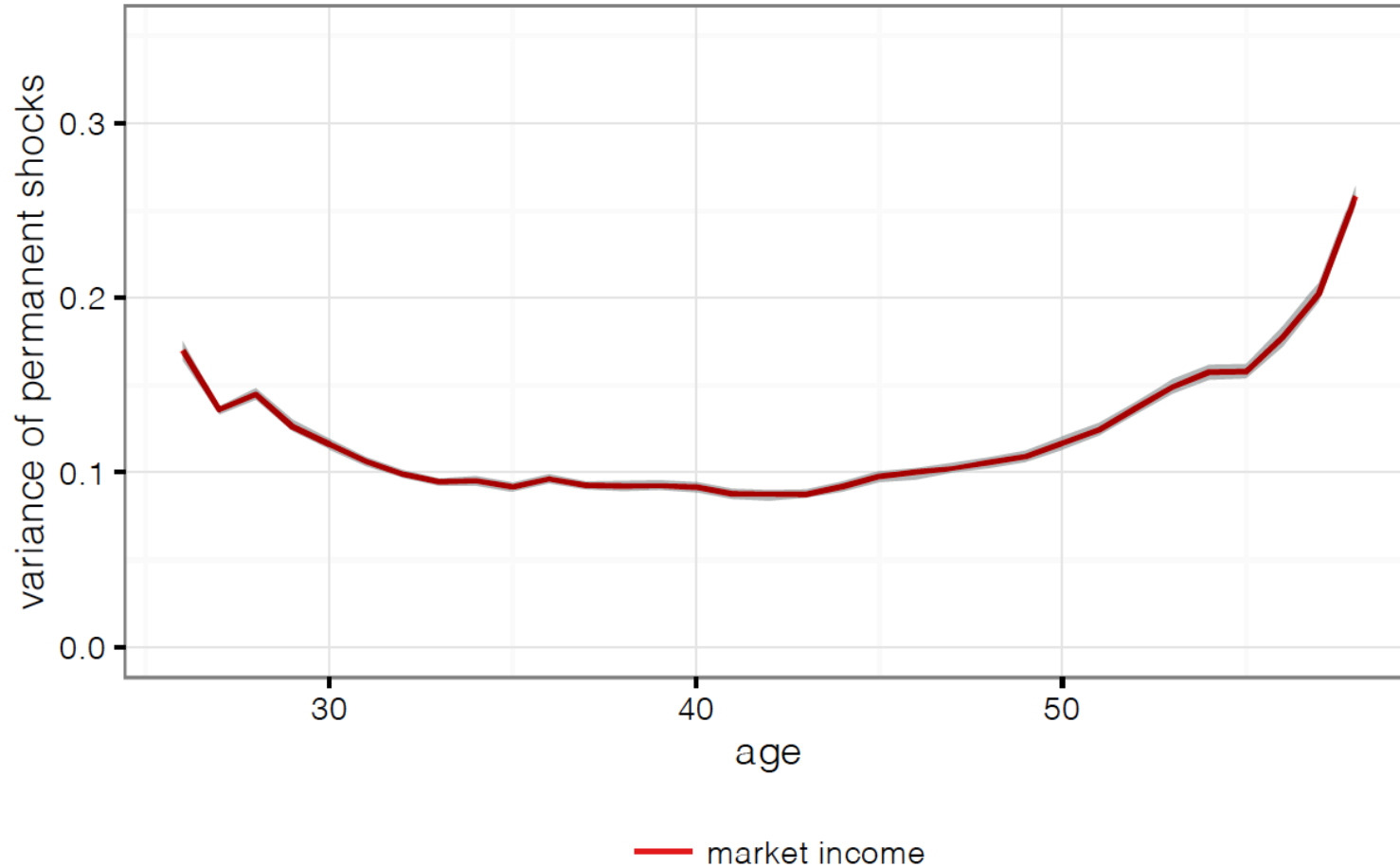
Inequality across income, consumption and wealth – new data sources, in 3D!

- I. **Administrative linked data: e.g. Norwegian population register.**
 - linked registry databases with unique individual identifiers.
 - containing records for every Norwegian from 1967 to 2017.
 - detailed earnings, cash transfers, and sociodemographic information.
- Links to real estate, assets and bank accounts; creating new consumption measurements.
- Identifiers allow to match spouses, and intergenerational links.
 - see Blundell, Graber and Mogstad (2015, 2022).
- II. **Re-designed panel surveys: e.g. PSID since 1999.**
 - Collection of consumption and assets had a major revision in 1999
 - the sum of food at home, food away from home, gasoline, transportation, utilities, clothing, many more.
 - intergenerational links to parents
 - Earnings and hours for all earners; Assets measured in each wave.
 - see Blundell, Pistaferri and Saporta-Eksten (2016, 2018).

Inequality – the decomposition, in 3D!

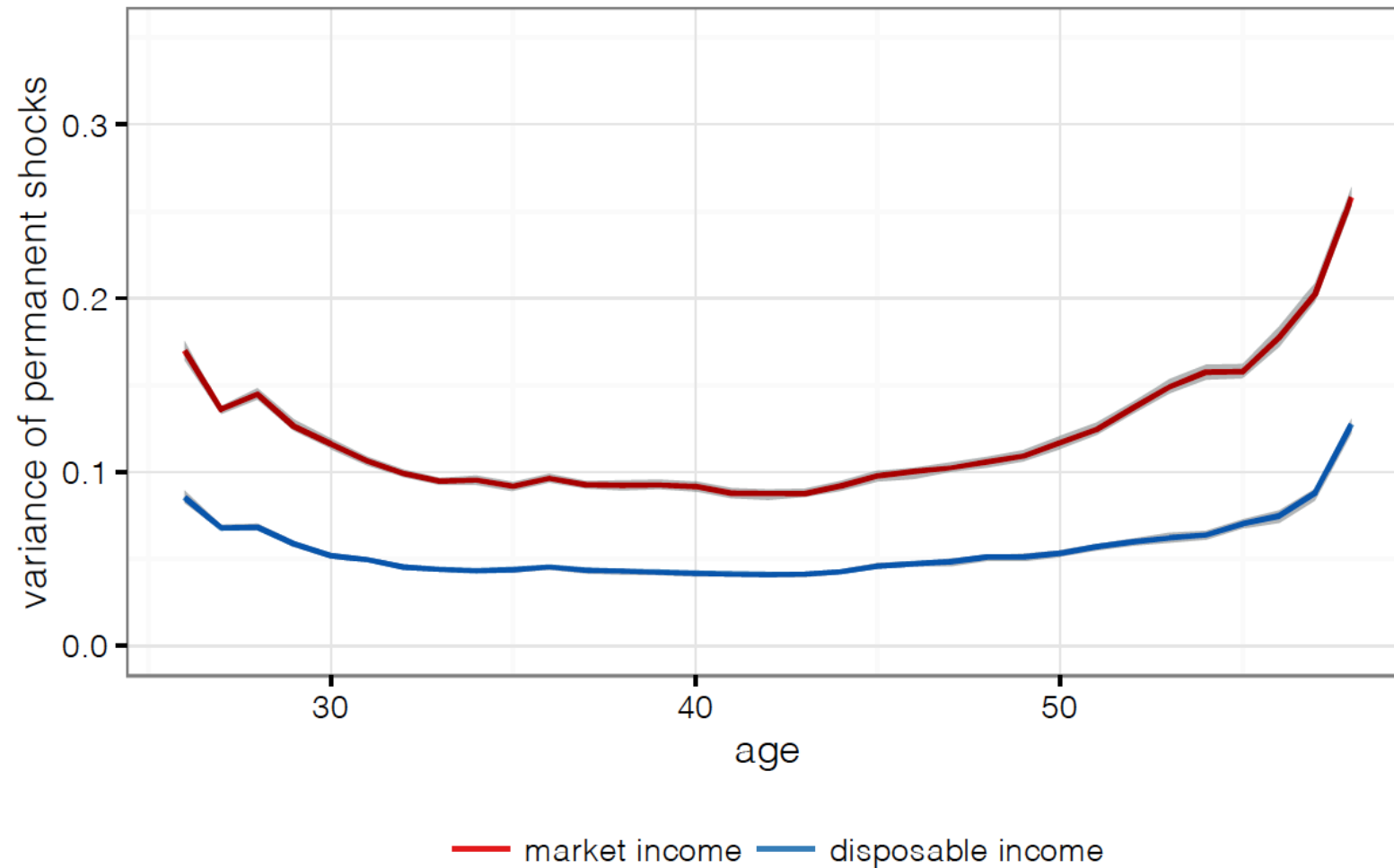
- Volatility of income:
 - $Var(\Delta y_t) = Var(v_t) + Var(\Delta e_t)$.
- Consumption growth responds according to
 - $\Delta c_{it} = \phi_t v_{it} + \psi_t e_{it} + \xi_{it}$
- Provides the link between consumption and income distributions
 - allow transmission parameters ϕ_t and ψ_t to depend on assets/liquidity, age, and education, etc.
- The second moment panel data decomposition:
 - Volatility of income: $Var(\Delta y_t) = Var(v_t) + Var(\Delta e_t)$
 - Distribution of consumption: $Var(\Delta c_t) = \phi_t^2 Var(v_t) + \psi_t^2 Var(e_t) + Var(\xi_t)$
 - Relationship between them: $Cov(\Delta c_t, \Delta y_t) = \phi_t Var(v_t) + \psi_t Var(e_t)$
- Using conditional quantiles we extend this second moment structure to linkages across the *complete distribution* over time and the life-cycle, complete results on my webpage.
- Results for the PSID and the Norwegian register data

Income Inequality in the Norwegian Register Data



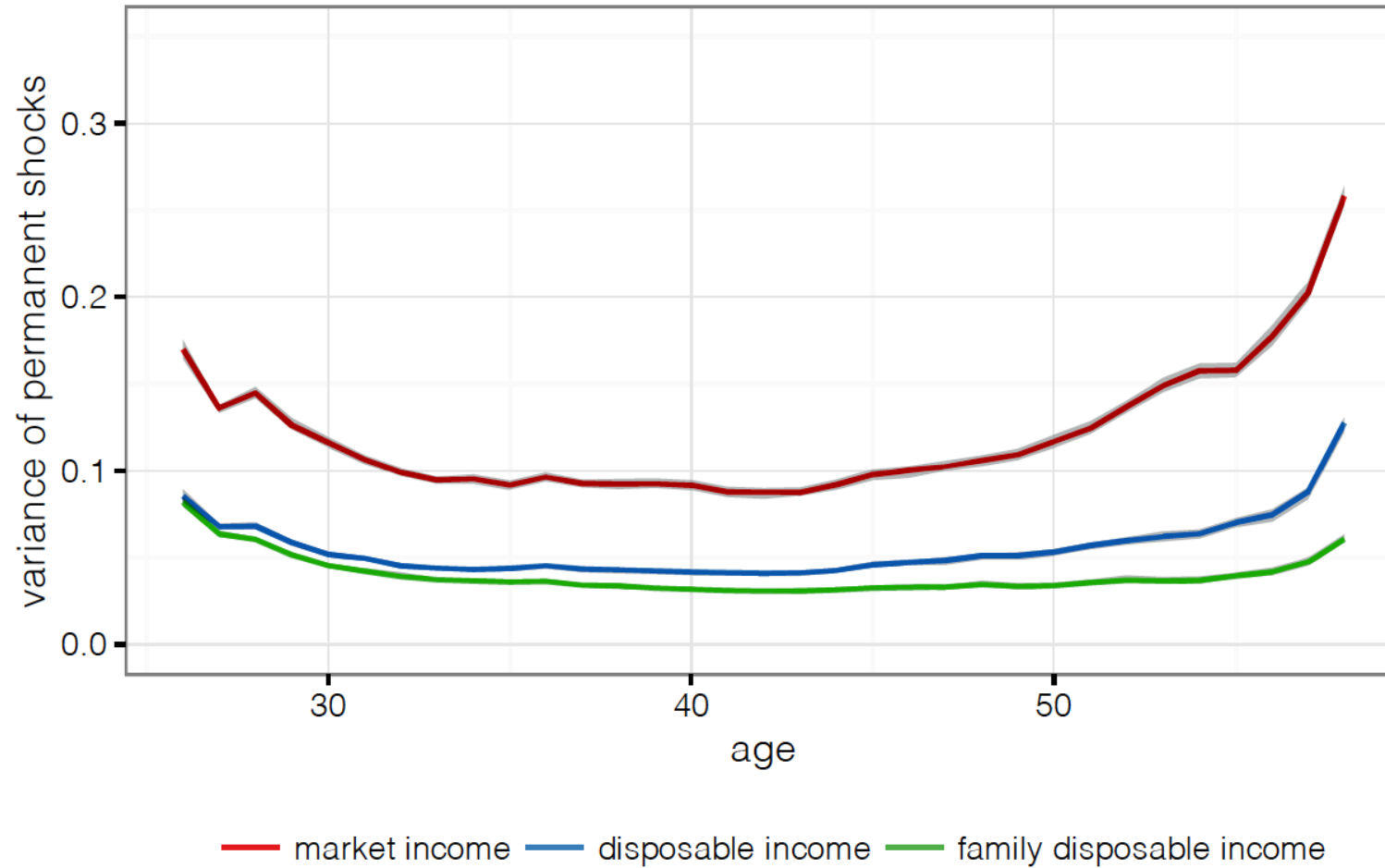
Source: Blundell, Graber and Mogstad (2015, 2023).

Income Inequality in the Norwegian Register Data



Source: Blundell, Graber and Mogstad (2015, 2023).

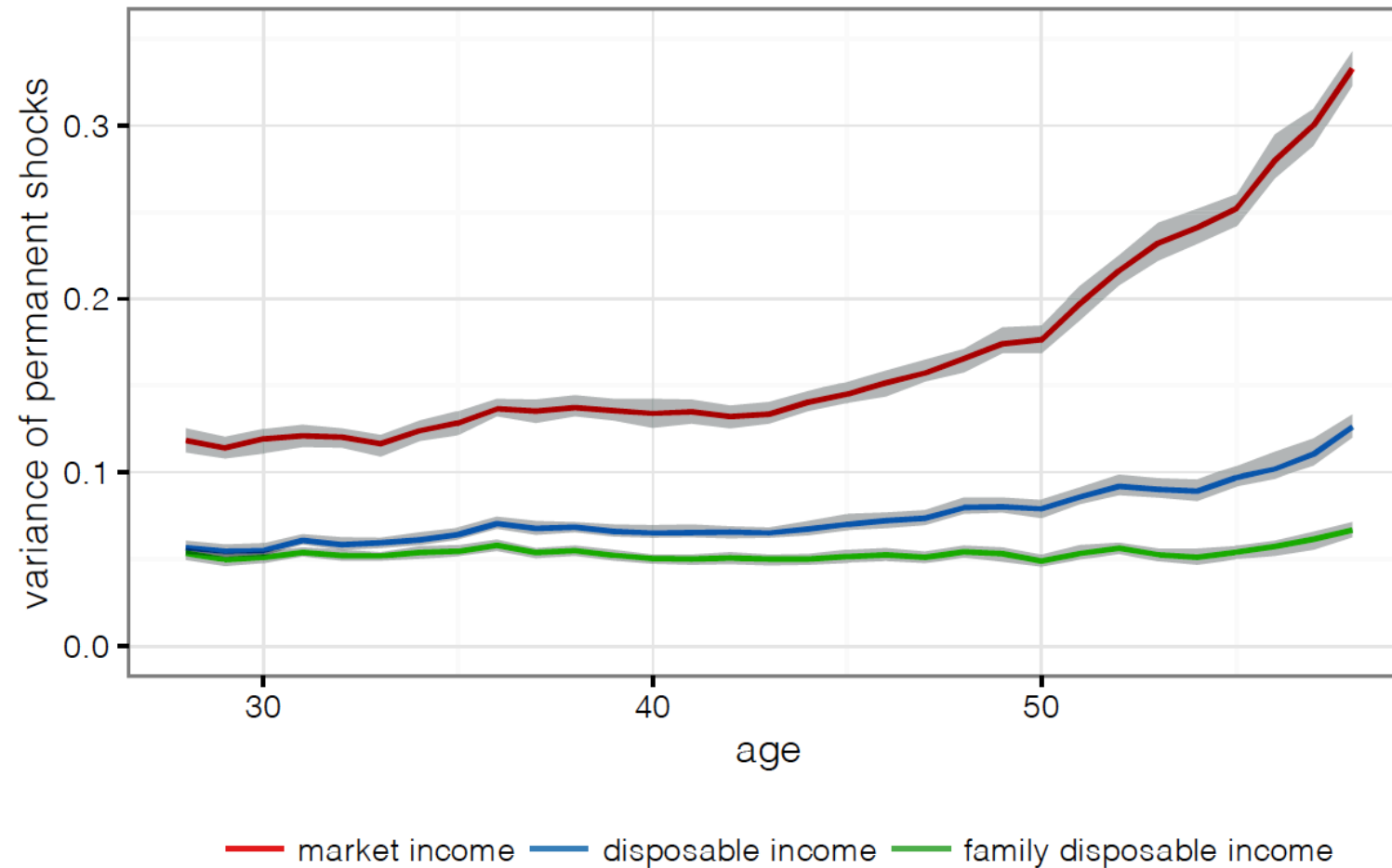
Income Inequality in the Norwegian Register Data



Source: Blundell, Graber and Mogstad (2015, 2023).

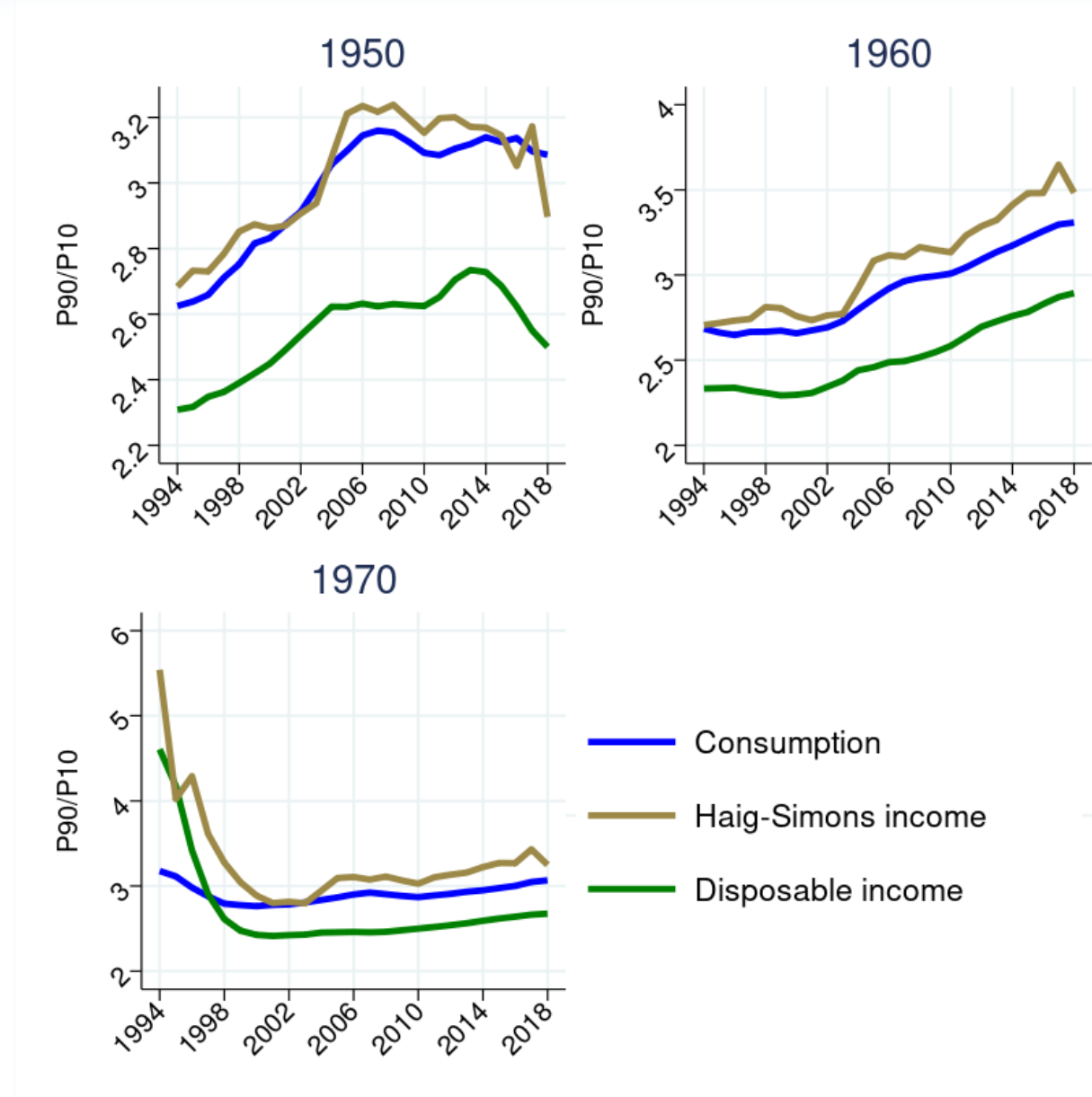
Income Inequality in the Norwegian Register Data

Lower educated.



Source: Blundell, Graber and Mogstad (2015, 2023).

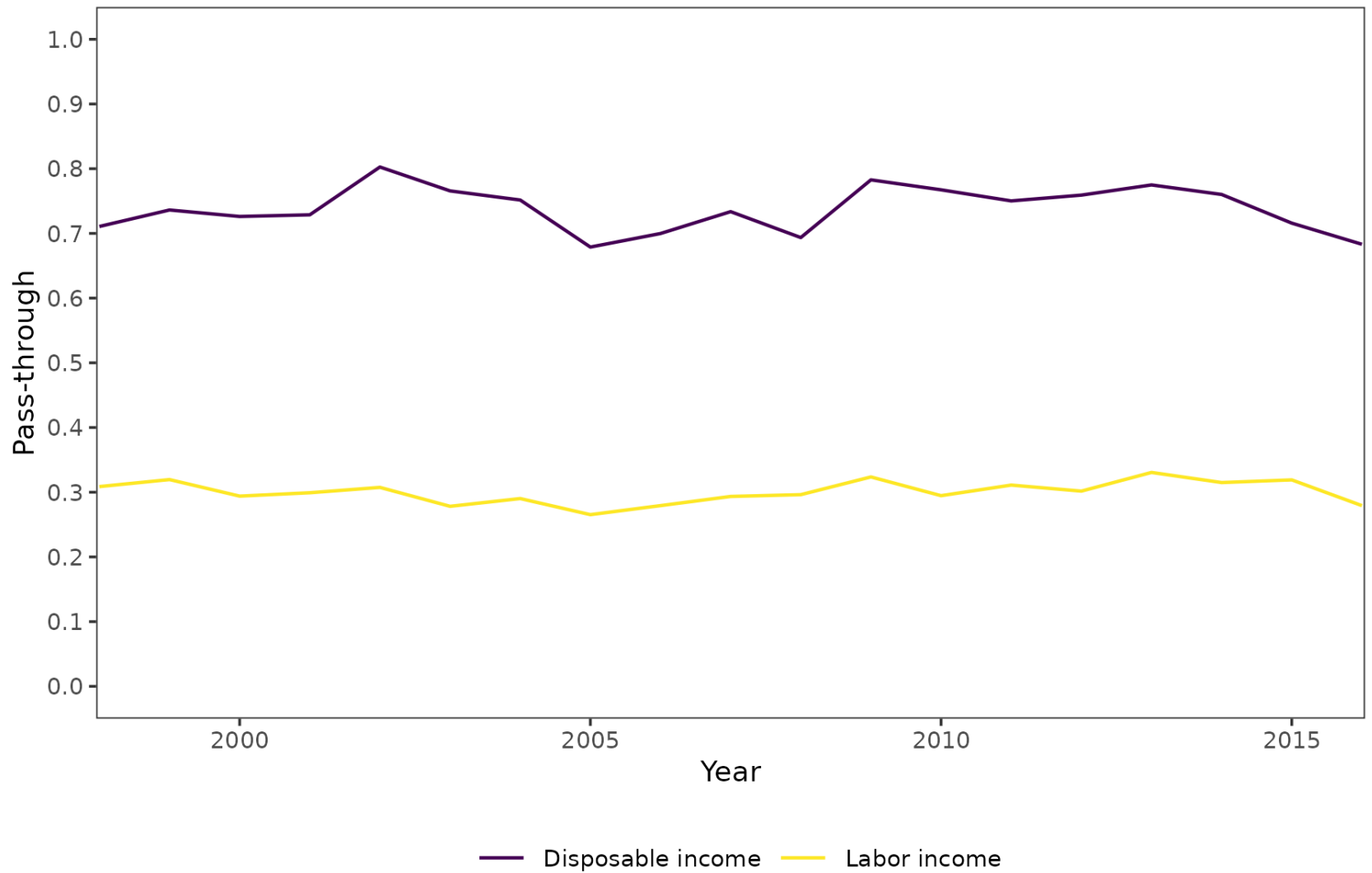
Consumption and Income Inequality in the Norwegian Register Data: birth cohorts



Source: Blundell, Graber and Mogstad (2023).

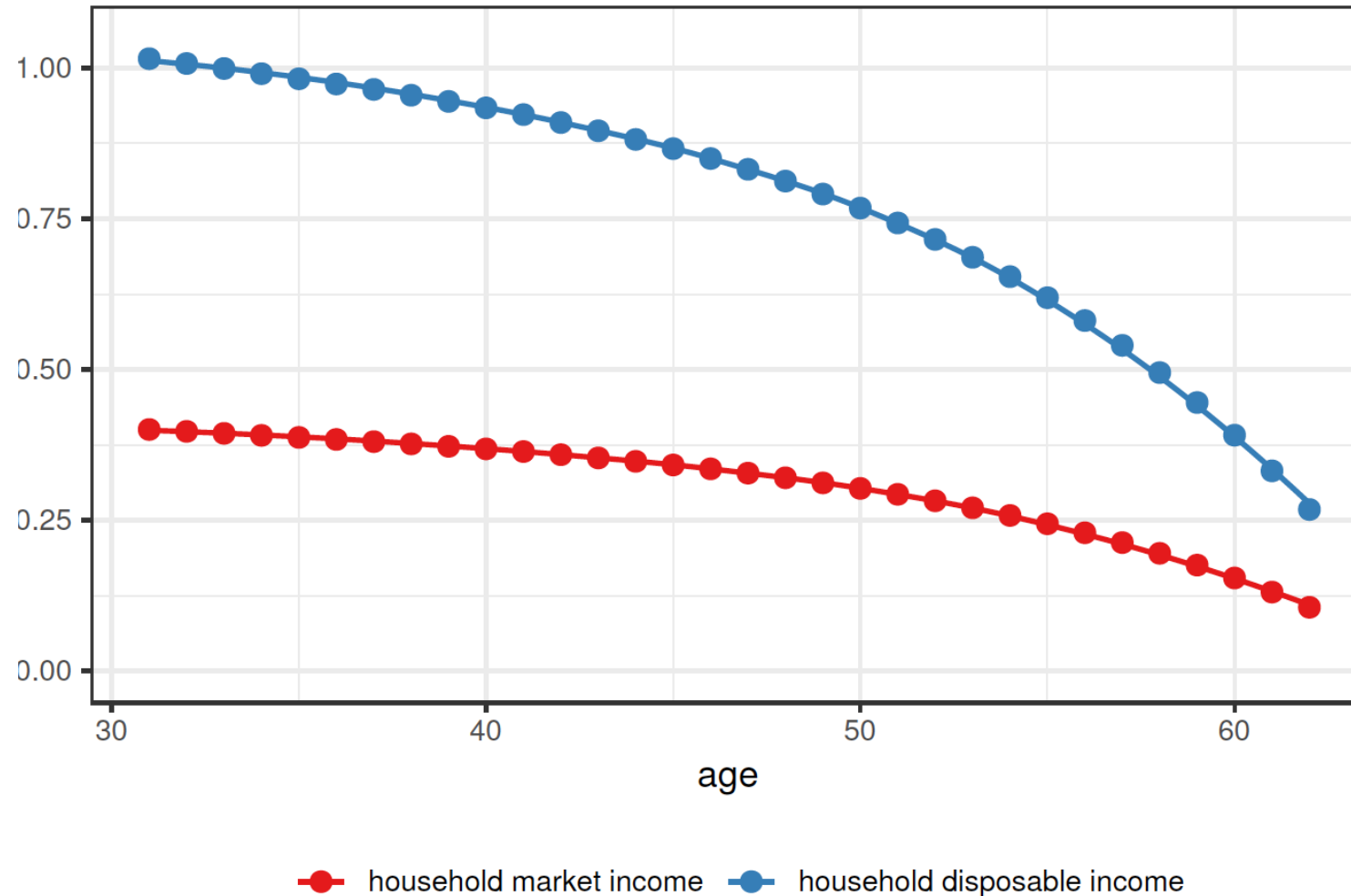
Income and Consumption Inequality in the Norwegian Register Data:

The transmission of permanent income shocks ϕ_t



Income and Consumption Inequality in the Norwegian Register Data:

The transmission of permanent income shocks ϕ_t



- key new links to liquidity and to parents assets.....

Results from the US PSID and CPS/DER

- Detailed analysis on the PSID and CPS/DER link – very happy to discuss!
- As we have seen volatility falling but persistent inequality increasing – especially among specific education, gender and race groups.
- How much ‘insurance’? Using the PSID the estimates of the transmission parameter ϕ_t
 - 0.6423 (.09) overall,
 - 0.9439 (.13) for the sample without college education, and
 - 0.7928 (.18) for those born in the 1940s.
 - the estimates fall by more than 30% if we exclude taxes, EITC and food stamps for the no college group.
- For the low liquidity and wealth sample ϕ_t is .9489 – almost complete pass through - and there are significant impacts of transitory fluctuations in income too.
- Extended to the complete distribution of consumption, income and net worth.
- Results from the Bank of Spain data are available. BBVA data is in process.

Building a picture of inequality and poverty: new directions

- Celebrating 40 years of income survey data: beyond the cross-section
 - unique insights over time and over life-cycles.
- Incorporating consumption
 - exciting new measurement approaches.
- The beauty of linkages with administrative and register data
 - the best of both worlds.
- Inequality, volatility and persistent poverty and inequality
 - combining measurements and data sources.
- Exploiting new links across generations
 - a key role for parental wealth.
- Looking within households
 - unequal sharing of income changes.
- Conditional quantile and dynamic distribution methods.... for another day, I'm afraid!

LIS: Congratulations on the 40th Birthday!

A remarkable success

A wonderful time to be continuing on this journey!

LIS 40th Anniversary Lecture

May 25th 2023

Richard Blundell

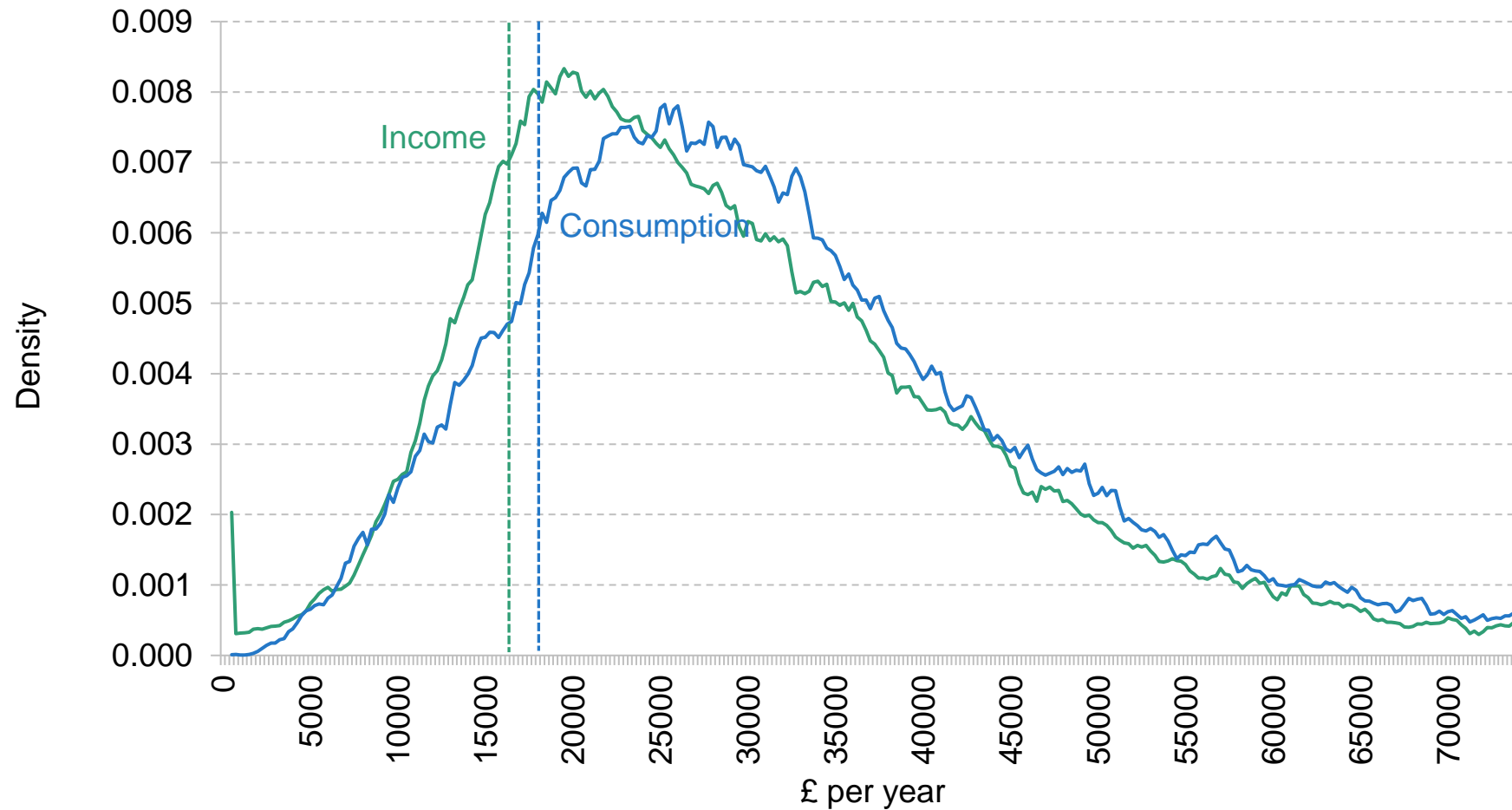
University College London and Institute for Fiscal Studies

<https://ifs.org.uk/inequality/>

Extra Slides

- New Data Sources
- Spare slides

Measures of relative poverty in UK



Source: IFS Analysis Deaton Review 2023.

Note: Dashed lines give 60% of contemporary medians of income and consumption. Source: FRS 2015-16 to 2017-18 for income data, LCFS 2015-16 to 2017-18 for consumption data

Inequality: The role of income, consumption and wealth

- Seek to answer the question: How do individuals and families deal with labour market shocks over their working life?
 - investigate how assets and labor market shocks combine to impact on household consumption.
 - the aim of this work here is to explore the mechanisms families and households use to accommodate (adverse) labour market shocks, and to assess the effectiveness of the tax and welfare system.
- Draw on panel and administrative data from the US, UK and Norway.... and make use of new information on consumption, earnings and assets.
 - show that family labor supply, credit market and the tax/welfare system all have key roles to play in the 'insurance' of shocks.
 - credit and family labor supply act together to insure shocks.
- Finding: Once assets, family labor supply and taxes (and welfare) are properly accounted for, we can explain the link between these series and there is less evidence for additional insurance.

Income and Consumption in the Norwegian Register Data

- Linked registry databases with unique individual identifiers.
 - Containing records for every Norwegian from 1967 to 2014
 - Detailed socioeconomic information (market income, cash transfers).
 - Recent links to financial transactions data on real estate and assets; and to hours of work) new consumption measurements.
 - Family identifiers allow to match spouses and children.
- The analysis combines several data sources for the period 1994-2014
 - Tax records on income and wealth
 - Real estate transactions from Norwegian Land Register
 - Transactions in listed and unlisted stocks from Norwegian Registry of Securities.
 - In each year, we keep only households with a male head, age 30 - 60, cohort 1945 - 1975, with non-missing information on schooling and location.
- Detailed description of the dataset and consumption measurement in Eika, Mogstad and Vestad (2018).

Total household consumption expenditure:

$$C_{it} = \underbrace{\left(Y_{it} - \tau_{it} + \sum_k r_{kt} A_{ikt-1} \right)}_{\text{disposable income}} - \underbrace{\sum_k (W_{ikt} - W_{ikt-1})}_{\text{changes in wealth}} + \underbrace{\sum_k (p_{kt} - p_{kt-1}) A_{ikt-1}}_{\text{capital gains}}$$

— net savings

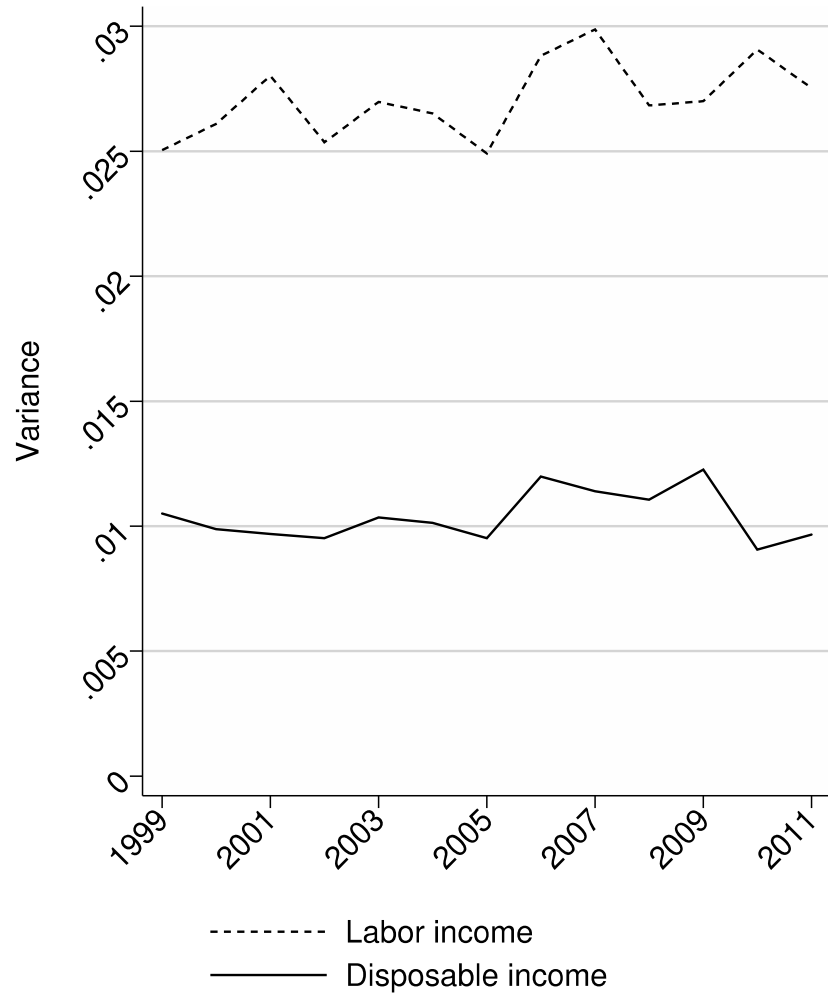
where

- ▶ Y_{it} : labour income and cash transfers
- ▶ τ_{it} : taxes
- ▶ $W_{ikt} = p_{kt} A_{ikt}$: wealth held in k at the end of period t
- ▶ A_{ikt-1} : assets held in k at the end of period $t - 1$

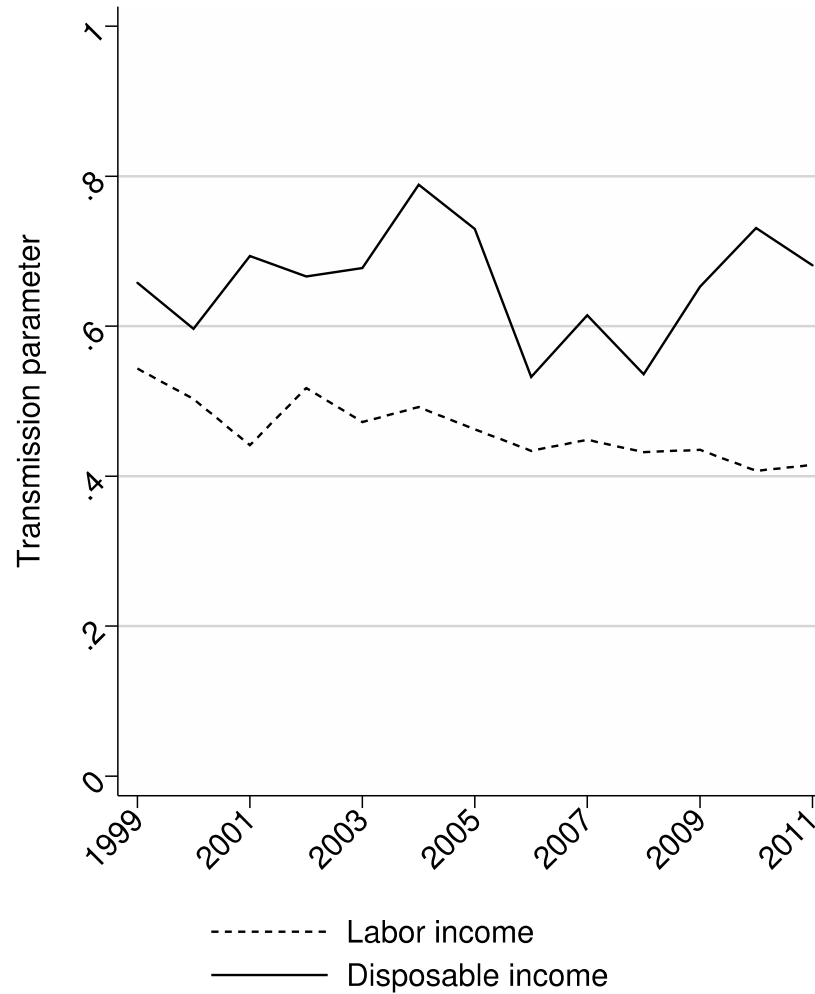
Combining the last two terms using transaction data has been key.

Variiances of permanent income shocks and transmission parameters.

(a) Variances of permanent income shocks ($\sigma_{\eta t}^2$)



(b) Permanent transmission parameters (ϕ_t)



Notes: The sample consists of individuals born between 1954 and 1969. Labor income includes wage income, income from self-employment, sickness allowance, and parental leave benefits. Disposable income is less dividends, gifts, and inheritance. As in BPP, we estimate the parameters by diagonally weighted minimum distance and allow consumption to be measured with measurement error.

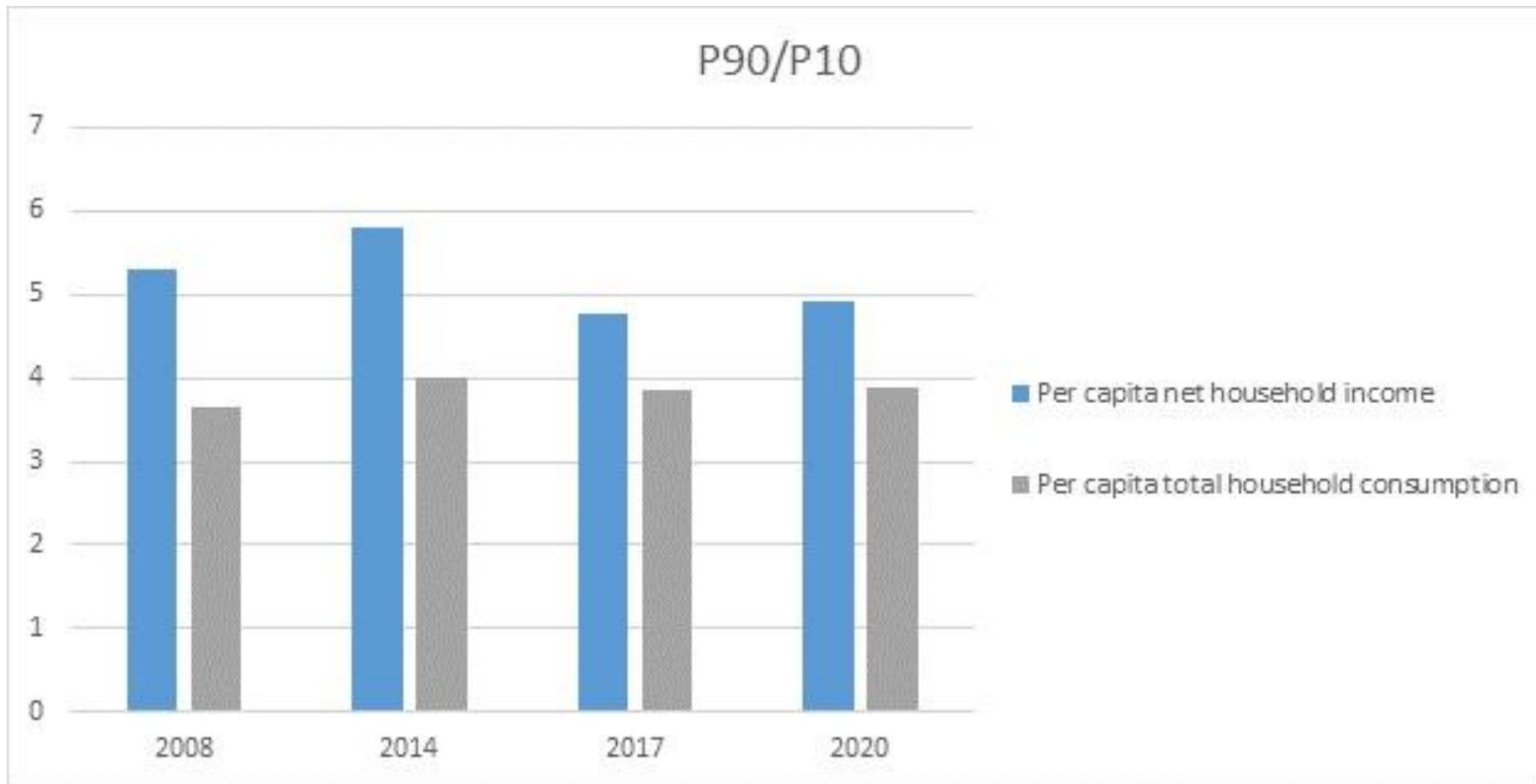
Consumption data in the Spanish EEF (BdE)

Panel survey on income, consumption and wealth.

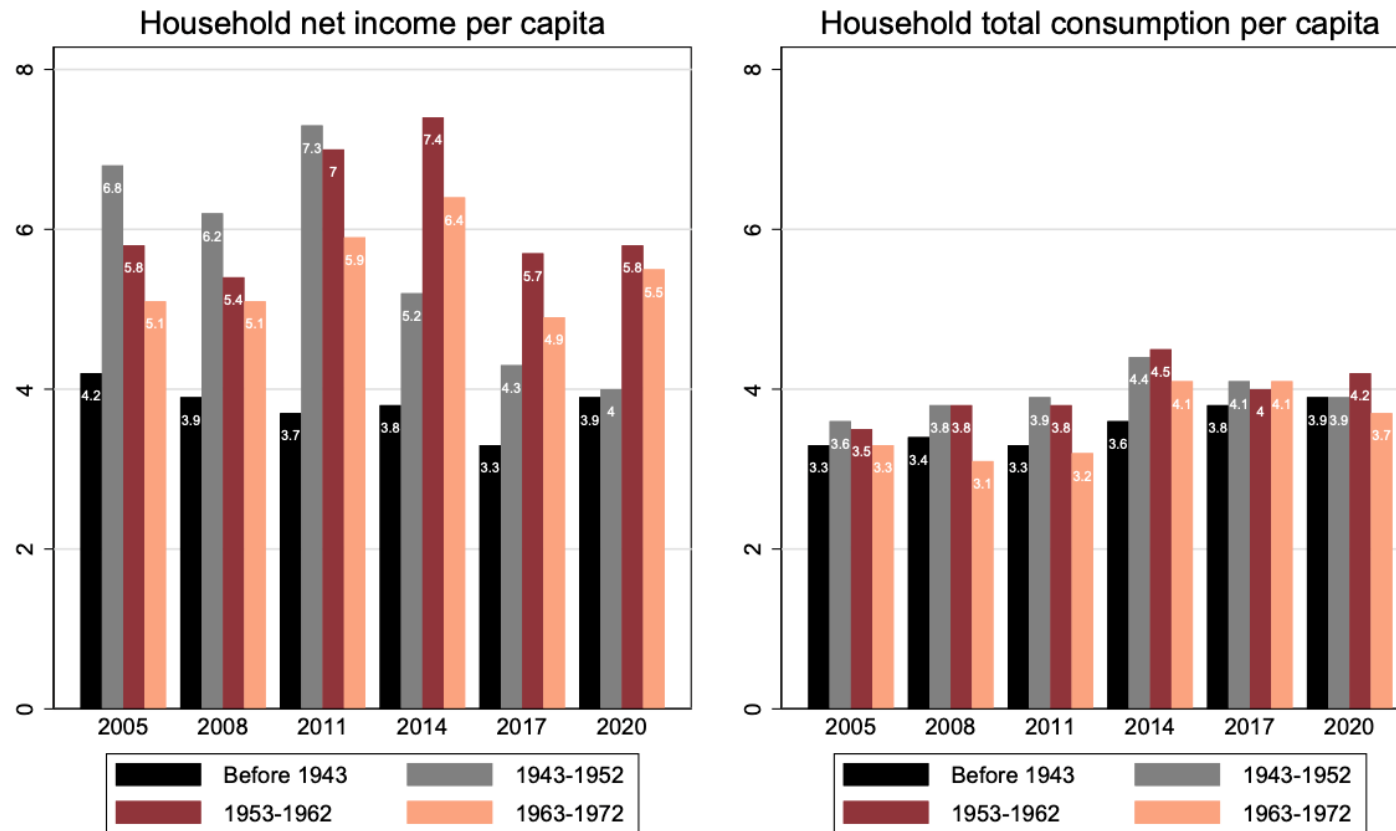
- The measure of total consumption that we use is the sum of annual expenditure on durable and non-durable household goods (includes food, schools, travel, mobile phones, service charges, utility bills...).
- Expenditure of non-durable household goods is obtained from:
 - **FOOD EXPENDITURE:** Annual average household expenditure on food, both in and outside the home.
 - **OTHER NON-DURABLE GOODS EXPENDITURE:** Annual average household expenditure on non-durable goods (water, electricity, travel, education, etc.).
- Expenditure on durable goods is obtained as the depreciation value of the stock of the household equipment of real estate property and the value of household vehicles and other modes of transport:
 - **CARS AND OTHER VEHICLES EXPENDITURE:** Household expenditure on the purchase of cars and other vehicles over the previous 12 months.
 - **OTHER DURABLE GOODS EXPENDITURE:** Household expenditure on furnishings, fittings and appliances for the home or for other real estate properties owned by the household over the previous 12 months.

Newly designed panel surveys: Spanish EEF, BdE

Consumption and income P90/P10 ratios over time



Ratios P90/P10 Over time and by birth cohorts



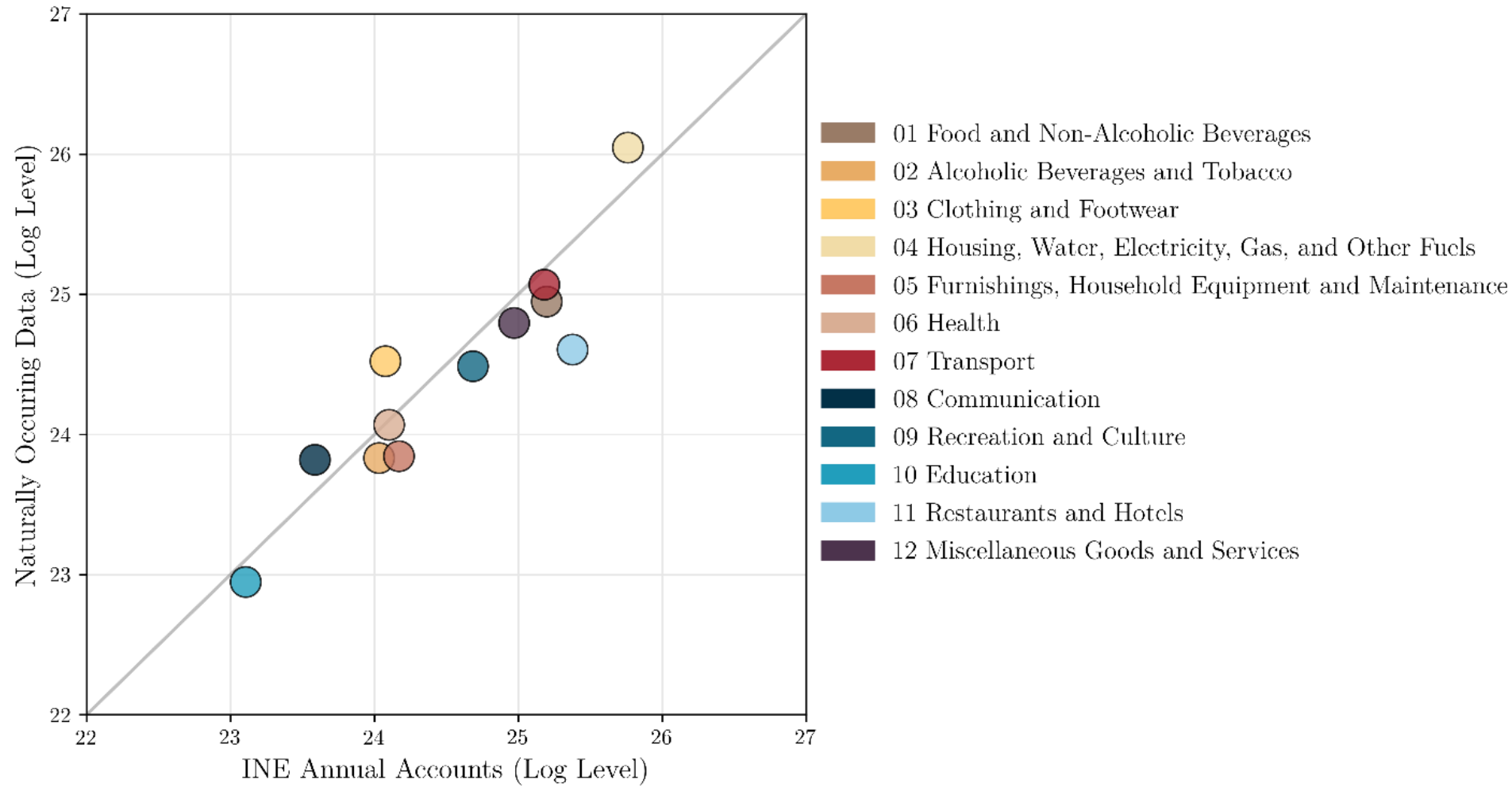
Source: EEF.

Consumption/Income Panel built from Naturally Occurring Data: BBVA Spain

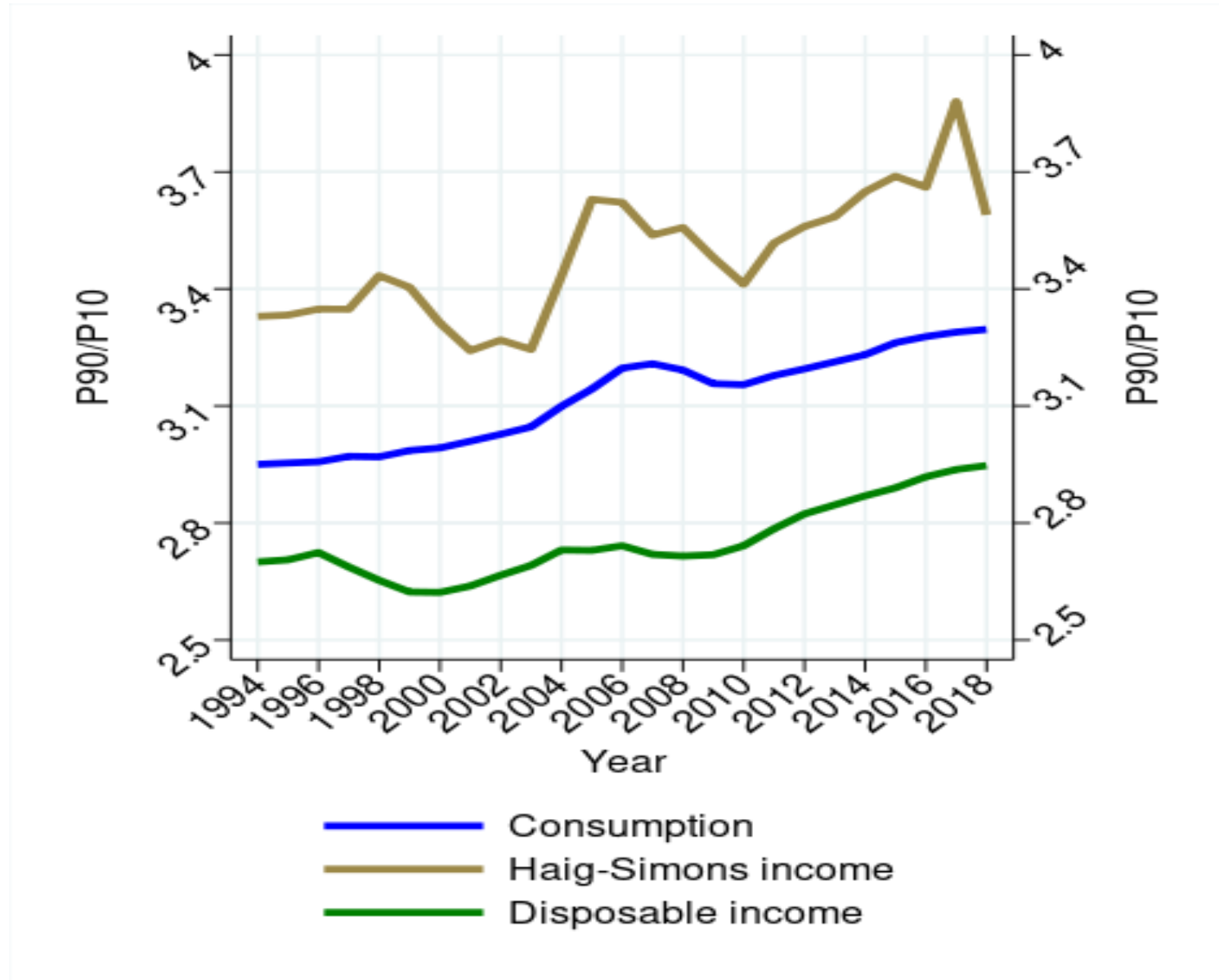
- Data source is all BBVA-mediated outflow transactions originating from all retail banking clients in Spain. These include cash withdrawals, card payments, direct debits, one-off transfers.
 - Daily frequency from 2015Q1 onwards, but data become fully reliable in 2016.
 - Balanced panel structure with 1.8 million unique individuals selected on the basis that they use their BBVA accounts frequently enough.
 - Metadata observed for individuals: sex, age, street address. Define a household to be a collection of clients that: 1) reside in the same postal code (street address not used directly for privacy reasons); 2) have entered joint financial contracts.
- Organize the remaining transactions into twelve two-digit COICOP categories. Build a model to impute the rental value of housing.
 - Individual consumption is then formed as: sum all household members' consumption spending together with imputed rental value, and divide by the number of household members.
- Coverage ratio much better than that of Spain's Household Budget Survey (equivalent of CEX) or of card spending alone.

Consumption/Income Panel built from Naturally Occurring Data: BBVA Spain

Good coverage in levels across COCIOP categories (including housing) with respect to national accounts totals. Results from 2019



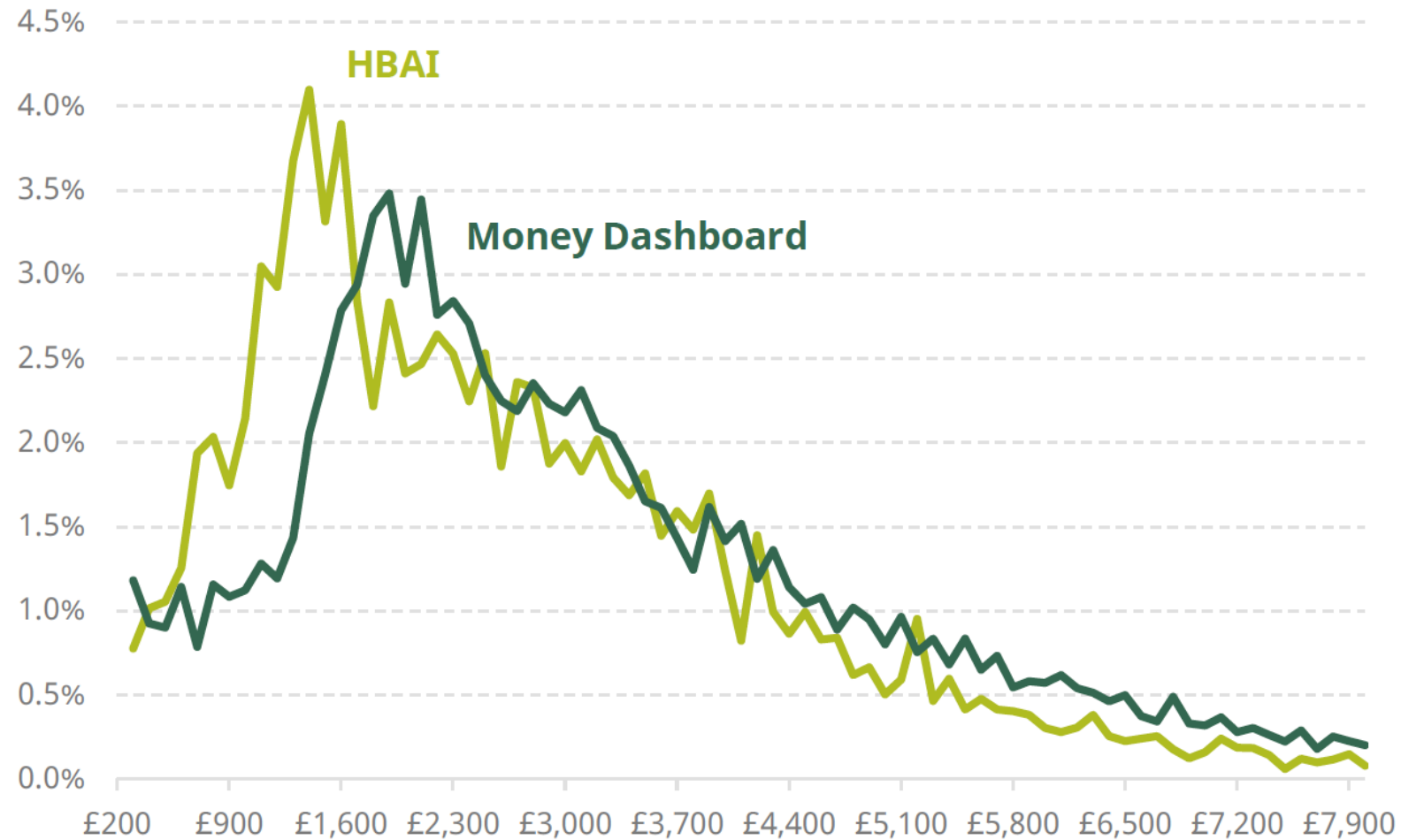
Consumption and Income Inequality in the Norwegian Register Data: overall



Source: Blundell, Graber and Mogstad (2023).

Money Dashboard data

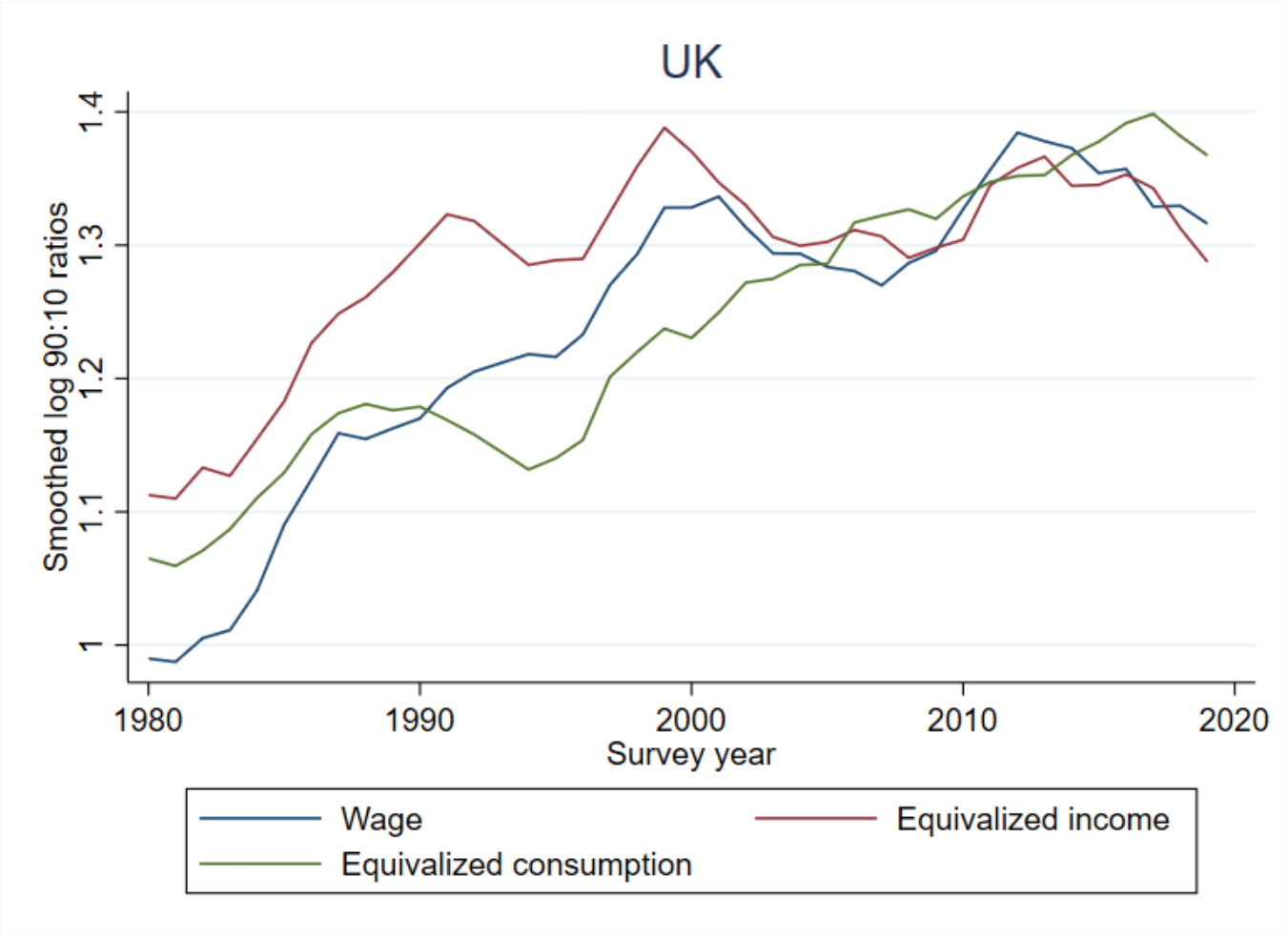
Distribution of monthly household earnings



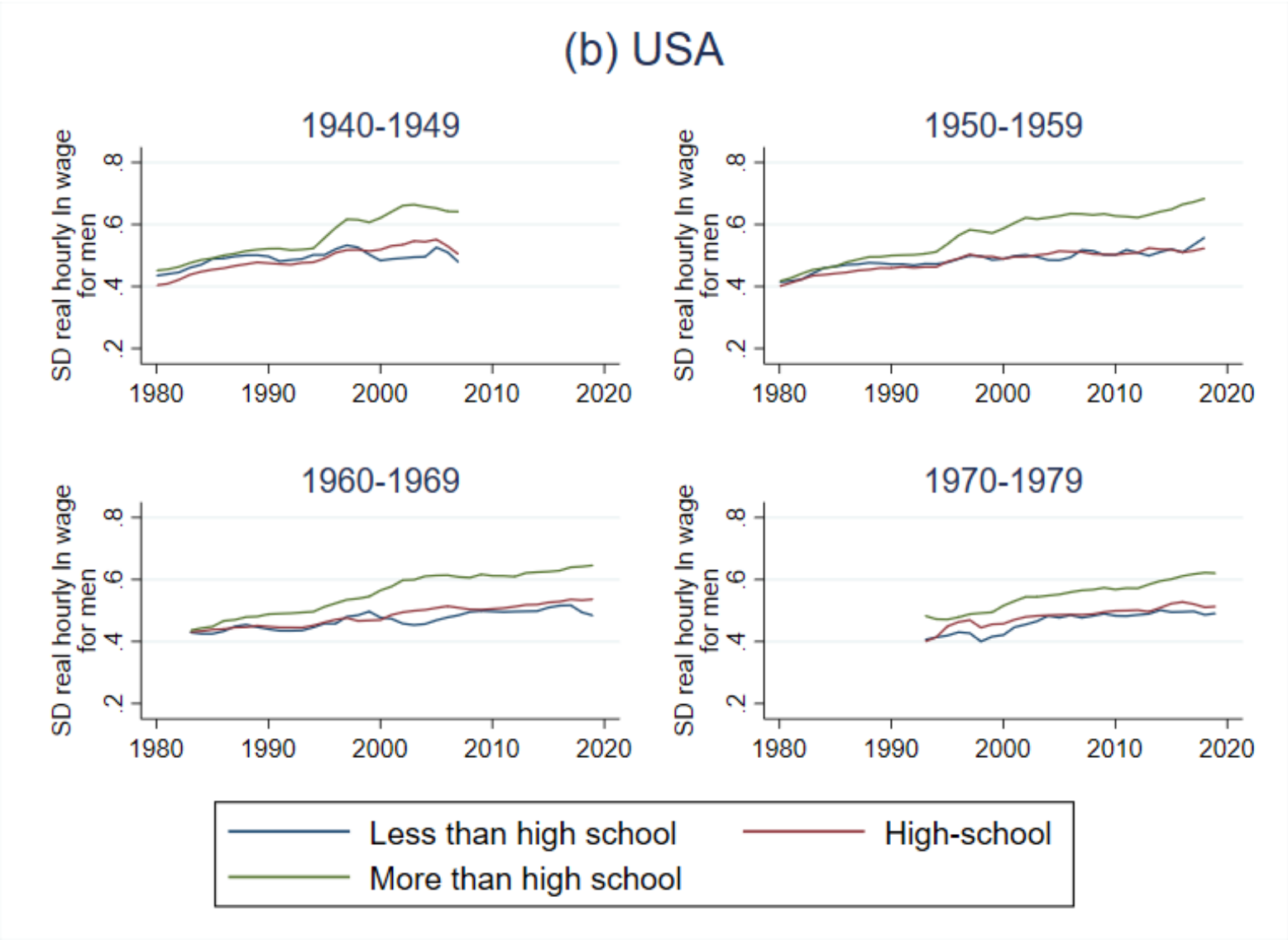
Notes: MDB data have been reweighted to match the national age and region distribution, as described in the text. Earnings transactions are identified in the Money Dashboard data using the algorithm described in IFS paper. The sample is trimmed to exclude households with earnings of less than £150 or more than £8,000.

Source: IFS calculations using Money Dashboard data available 12 June 2020 and HBAI 2018–19.

Inequality in wages, income, and consumption, UK 1980 to 2019

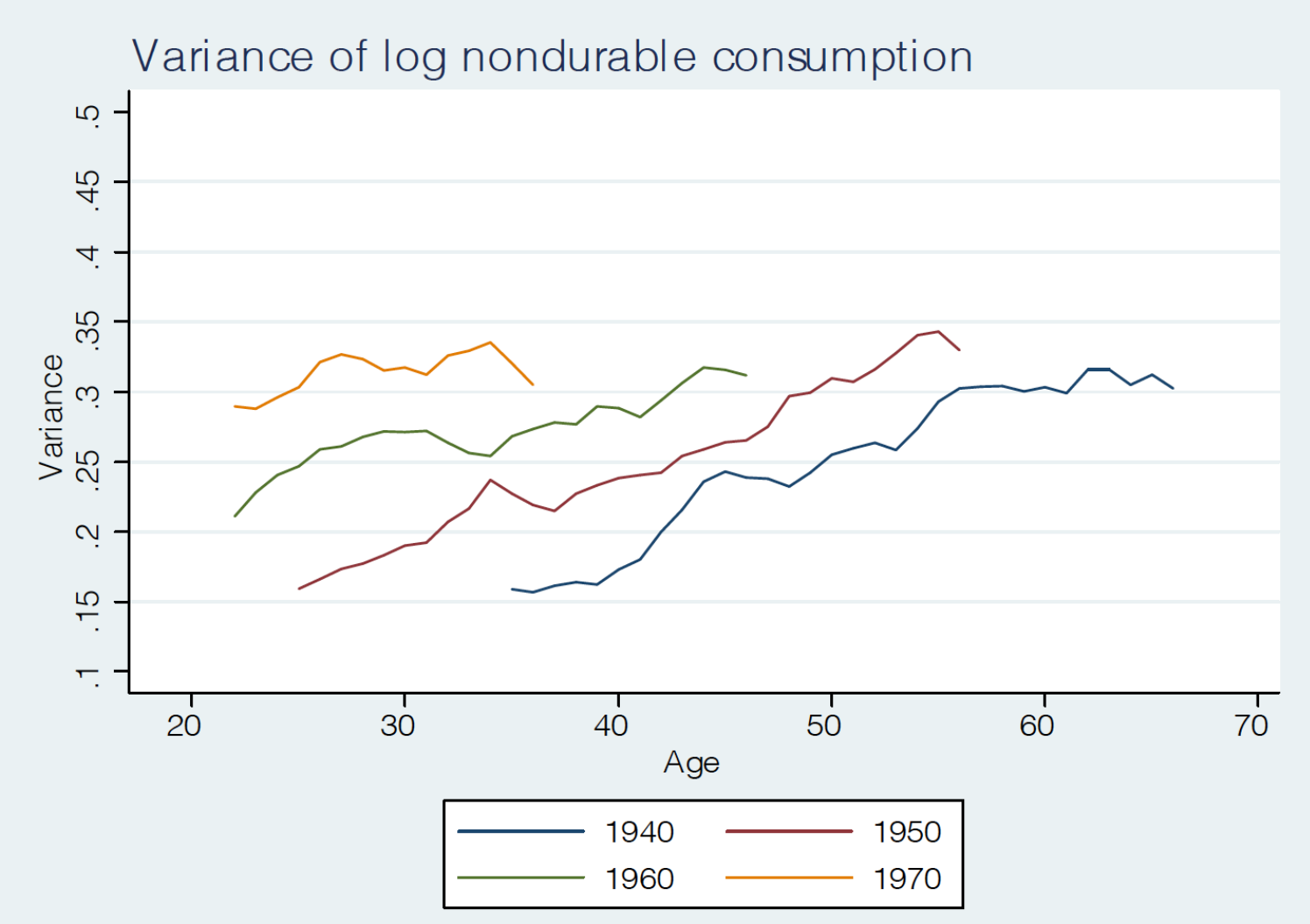


Smoothed percentile ratios of wages, US 1980 to 2019

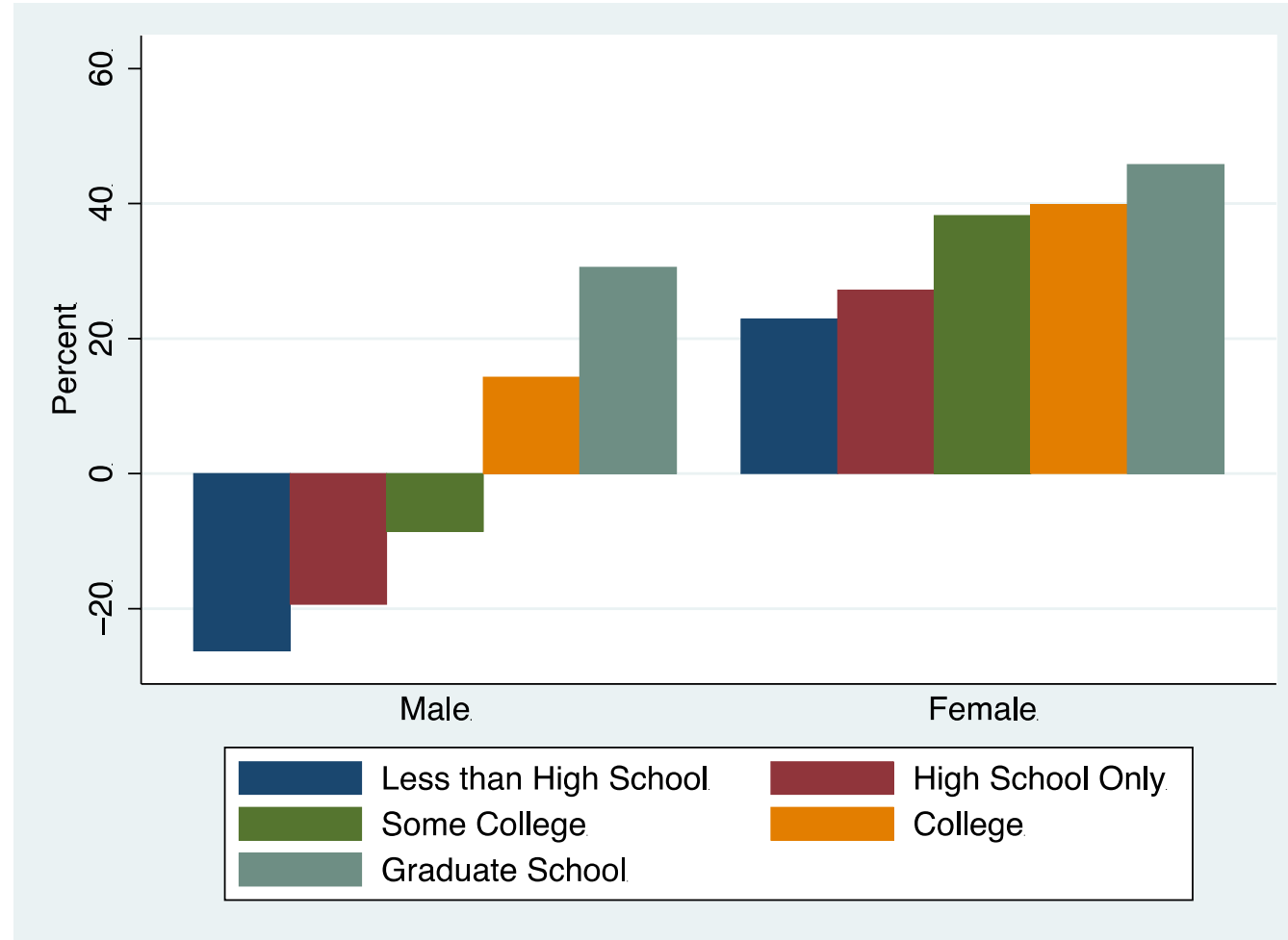


CONSUMPTION INEQUALITY IN THE UK

By age and birth cohort



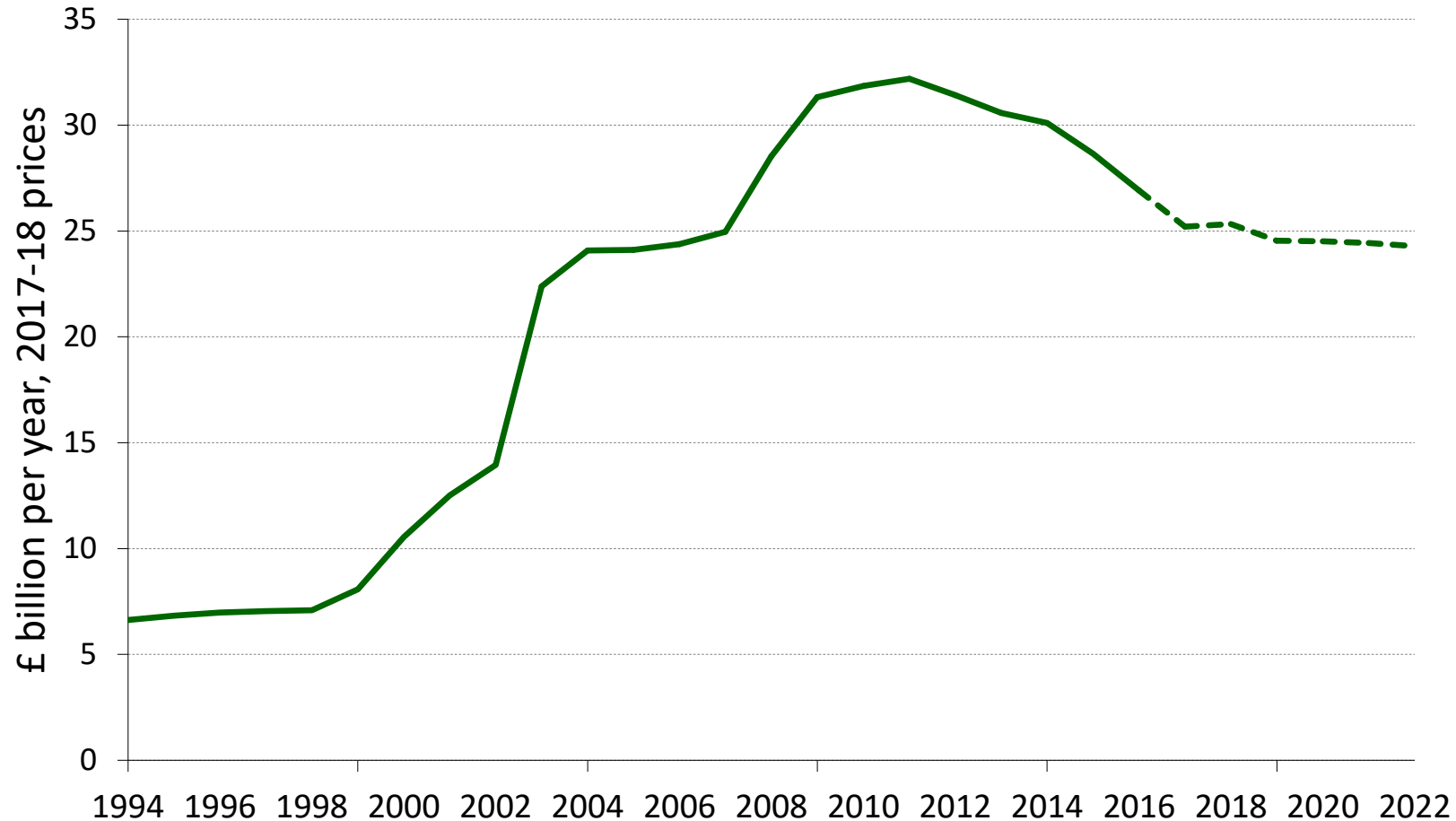
Growth in pre-tax earnings in US: 1974/5 to 2015/6



Notes: CPS, Includes self employment income and self-employed households.

Source: Blundell, Joyce, Norris Keiller and Ziliak (2018)

Real spending on work-related tax credits and equivalents in the UK

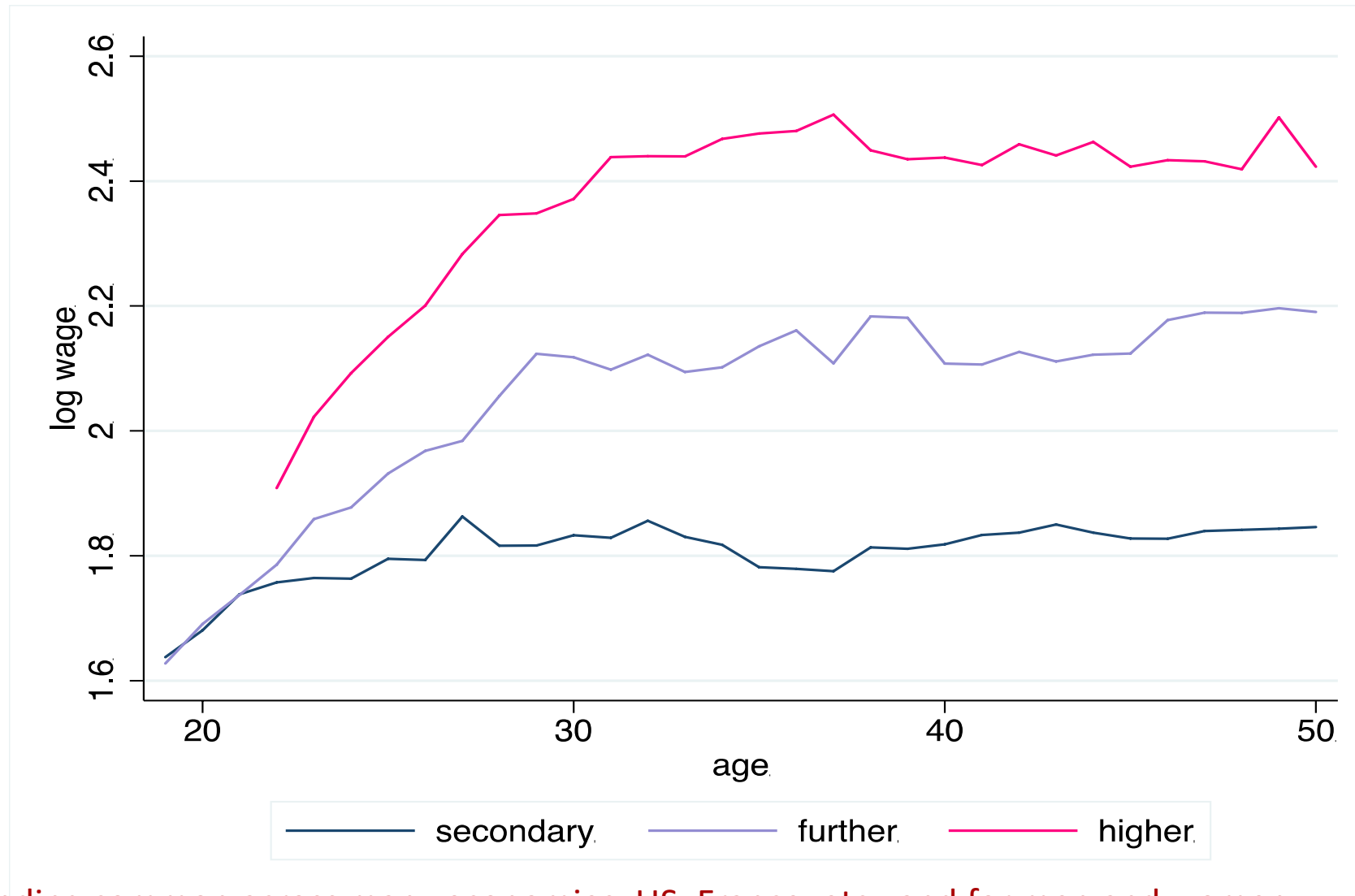


Driven by the 1999 WFTC reform.

Source: IFS calculations from DWP (UK) benefit expenditure tables.

It's depressing at the bottom: wage profiles by education and age

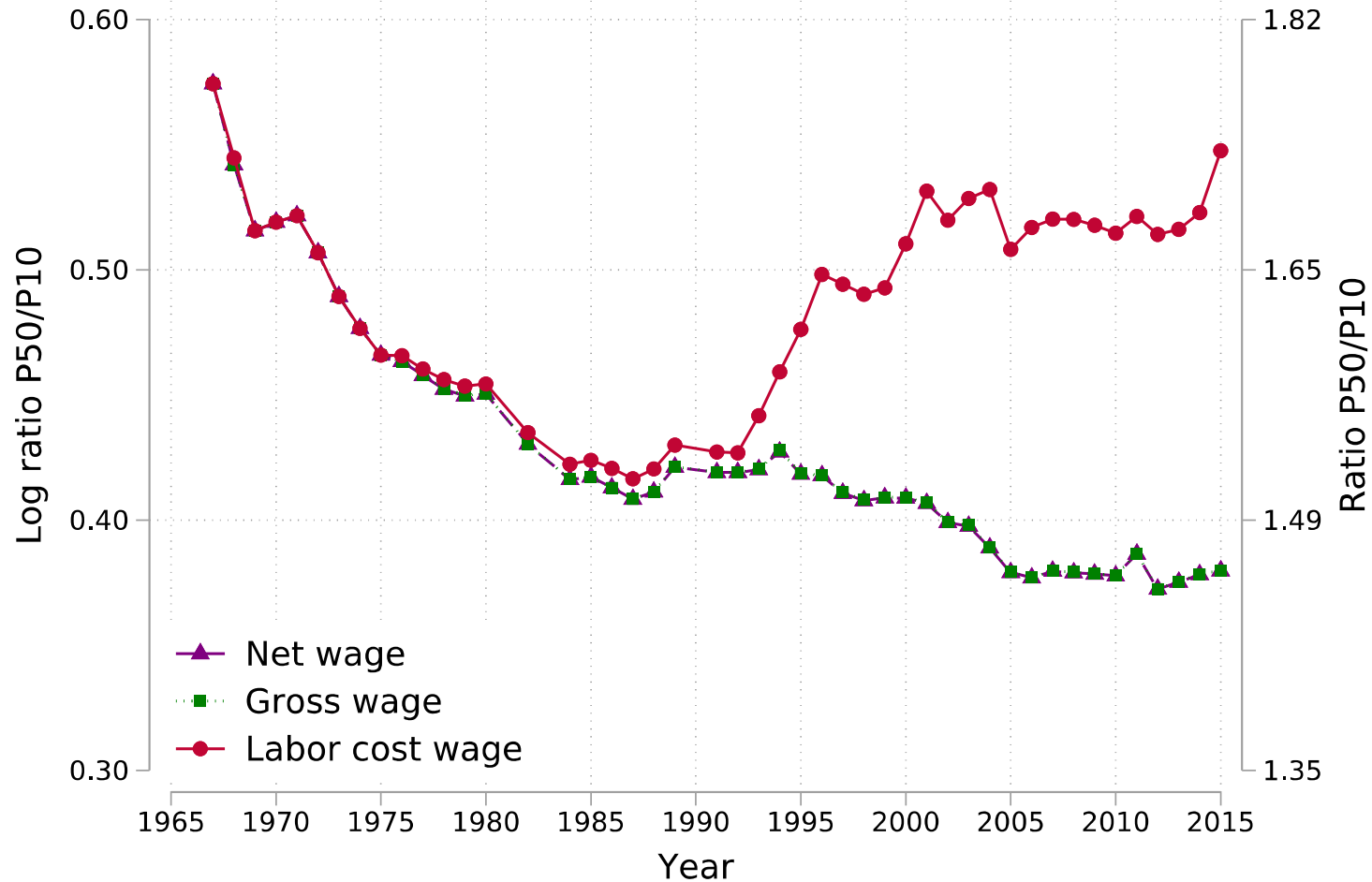
- returns to experience appear strongly *complementary* with education



A finding common across many economies, US, France, etc., and for men and women,

Source: Blundell, Dias, Meghir and Shaw (2016), Notes: Women, UK BHPS

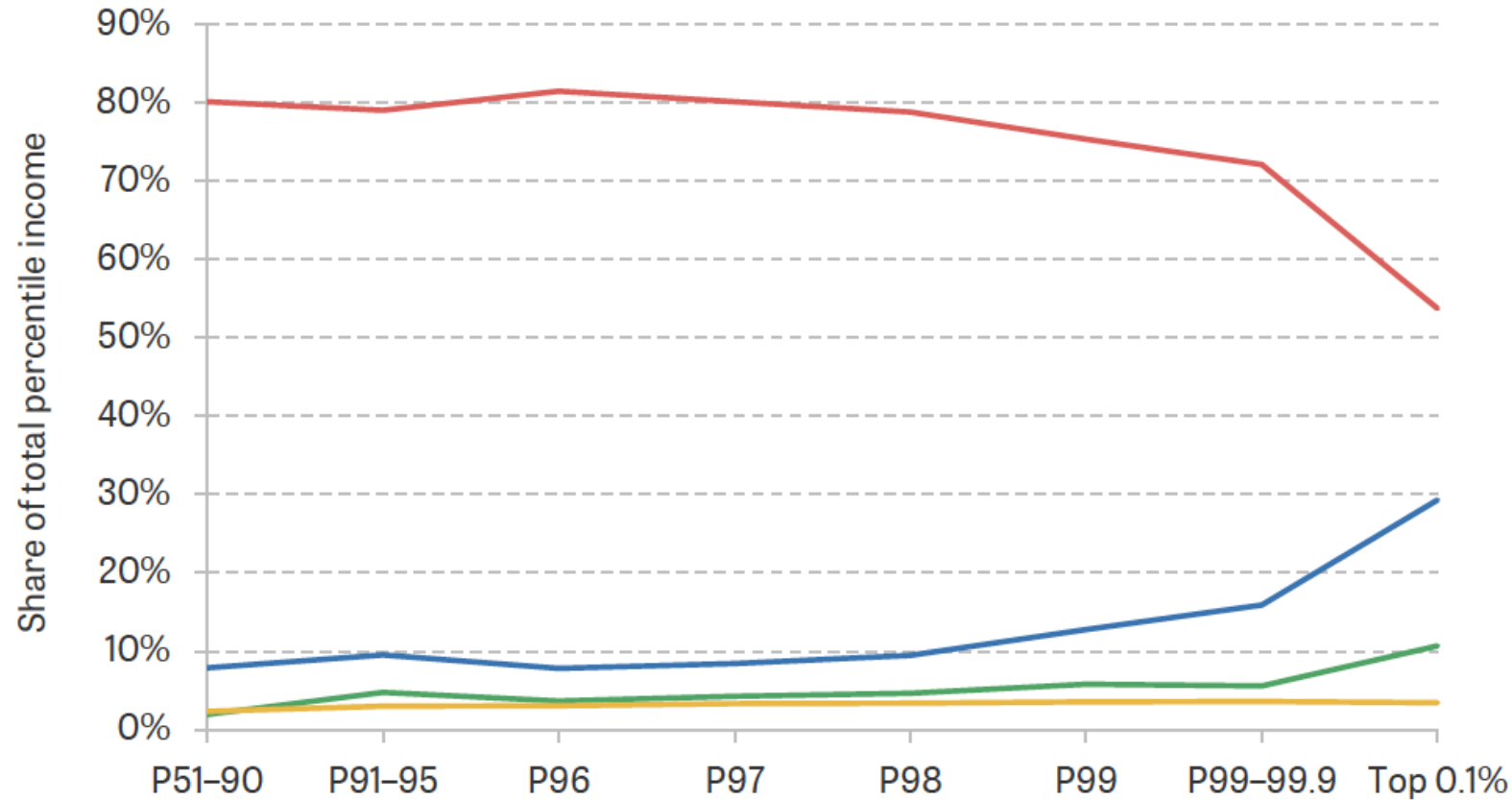
What role employer contributions? Lower-tail Inequality in France, P50/P10



Source: Guillot, Bozio, and Breda (PSE 2020), “non-contributory” part.

In 1967, low-wage earners were taxed at a 24% rate, while the rate of contribution reached 5% at P99. In 2015, the rate is close to 0 in the bottom and gets higher than 30% in the top. The difference moved from -24 percentage points to + 30.

Income sources for the top 50% of UK adults, 2018–19



Source: IFS Deaton Review;
Survey of Personal Incomes
2018–19.

— Active business income — Passive business income
— Employment income — Other capital income

- **Shifting:** Rates vary widely by income source ‘inefficient’ changes in organisational form and shifting of labour income to capital gain and other forms of business income.

Source: IFS Deaton Review, 2022.

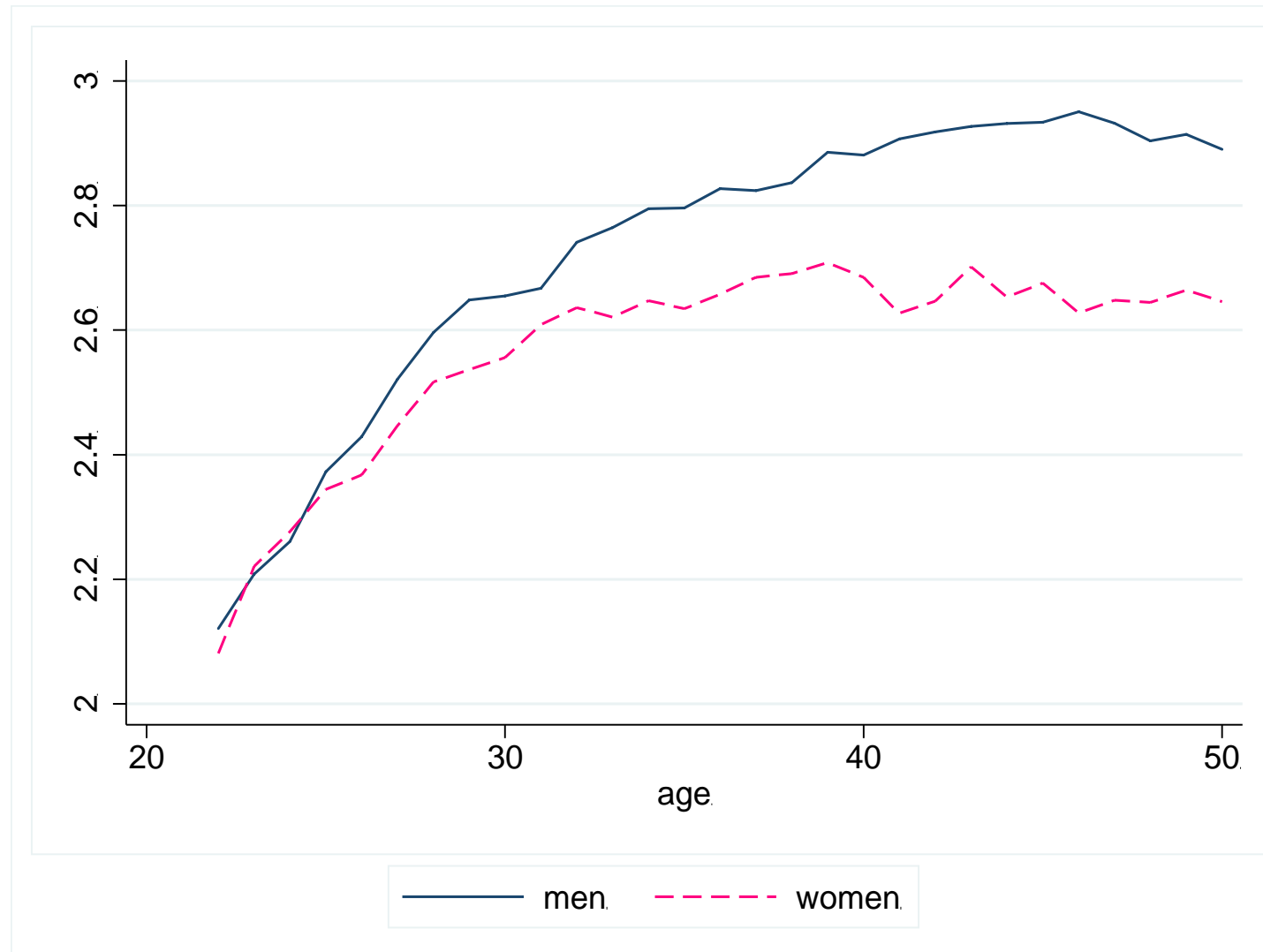
Wage progression is a key component of life-cycle earnings inequality and differences between men and women...



Notes: Wages are shown in 2016 constant-wage terms (population-wide wage growth over time is effectively stripped out). People in the bottom two and top one percentiles of the gender- and year- specific hourly wage distributions are excluded.

Source: Authors calculations. Data used is LFS 1993Q1-2017Q2.

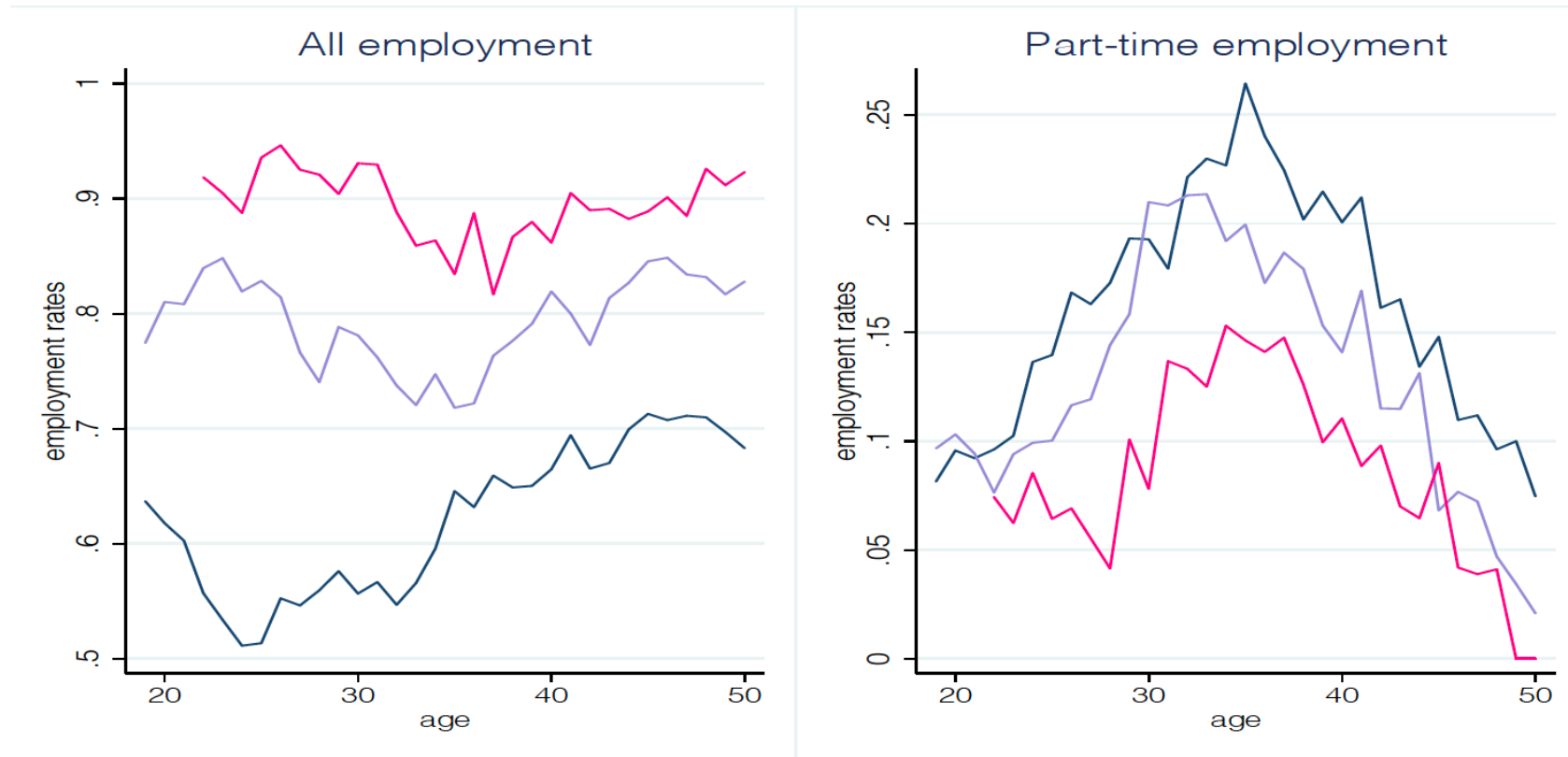
Wage-age profiles by for university graduates by gender



Source: Blundell, Costa-Dias, Meghir and Shaw (2016, updated).

Notes: Log hourly wage, College graduates, UK HLS, 1991- .

Female employment and part-time work by education



---- secondary - - - - high school - - - - university

Source: Blundell, Costa-Dias, Meghir and Shaw (2016), updated UK HLS

Notes: Plots are for all women. Note too the growth of part-time work for lower educated men.

Evolution of the Gini during the pandemic without and with policy

Citation Countries	Method	Without policy response	With policy response (Overall effect)
Almeida et al. (2020) EU (27)	Simulating effect of policies	+3.6%	-0.7%
Brunori et al. (2020) Italy	Simulating effect of policies	+0.67% (0.3396)	-0.67% (0.3396)
Clark et al. (2020) DE, ES, FR, IT, SE	Evolution over time	+2.17% (0.322)	-2.48% (0.322)
Li et al. (2020) Australia	Comparison market and post-tax and transfers income	+3.33% (0.539)	- 7.57% (0.330)
O'Donoghue et al. (2020) Ireland	Comparison market and post-tax and transfers income	+20.64% (0.499)	- 6.62% (0.317)
Palomino et al. (2020) EU (29)	Simulating effect of policies	+3.5% to +7.3%	NA

Source: Stancheva (Economic Policy, 2021)

But most policies have been temporary, and income is a narrow measure of the impact on inequality.... we need to go *beyond the Gini* and look at the drivers and the longer-run consequences of inequality.

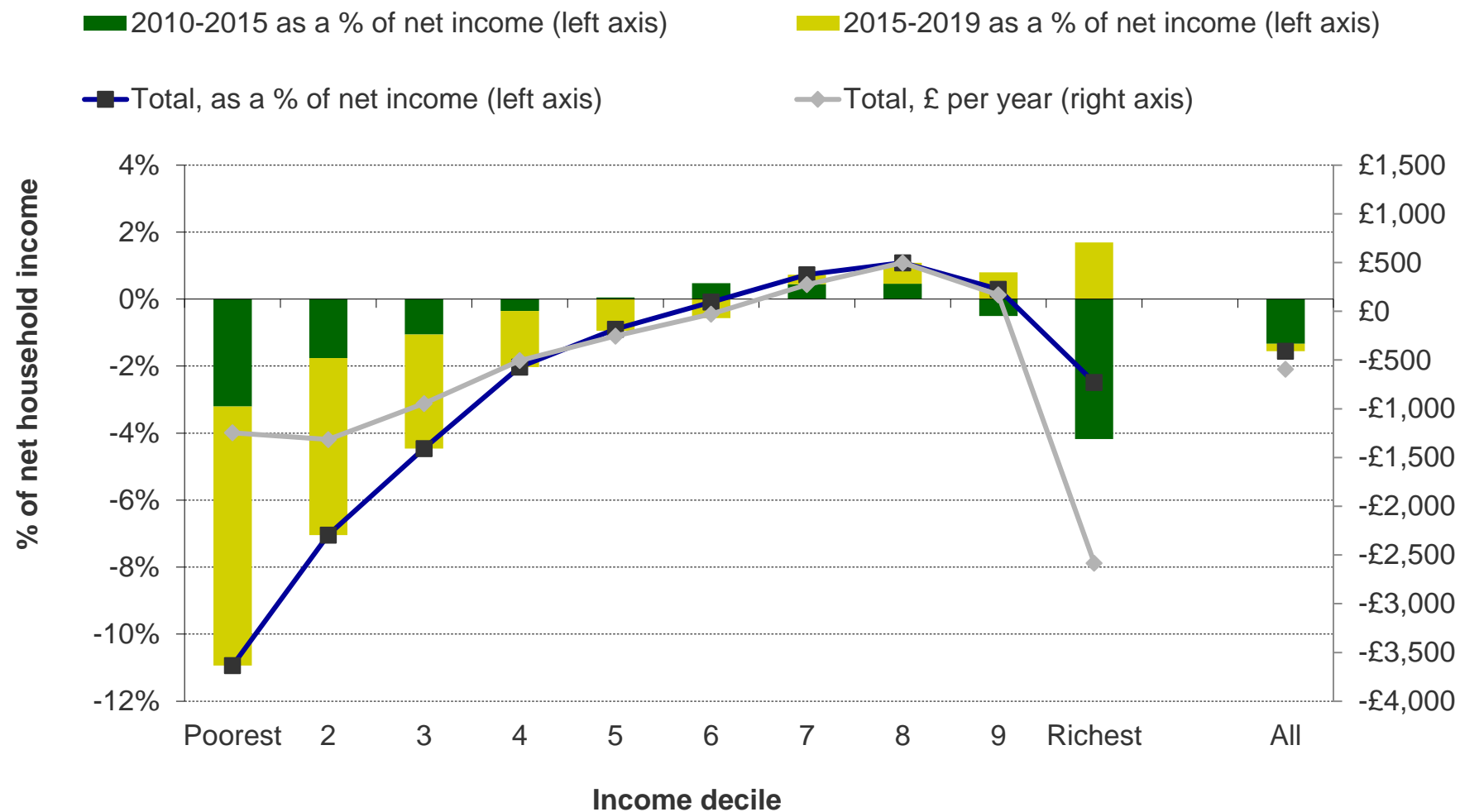
Commissioned studies with commentaries

1. Why inequality, what inequality?
2. Political economy and political polarisation
3. Attitudes to inequality
4. History and technology
5. Gender
6. Immigration
7. Health
8. Race and criminal justice
9. Geography and place
10. Families
11. Early child development
12. Education systems and access
13. Social Mobility
14. Labour markets
15. Firms, innovation and market power
16. Trade and globalisation
17. Corporate, capital and top taxes
18. Transfers, welfare and tax credits

Chapters and commentaries launched online sequentially since Oct 2022 <https://www.ifs.org.uk/inequality/>

Distributional impact of personal tax/benefit reforms in the UK

Tax and benefit reforms, April 2010 to April 2019



Note: Assumes full take-up of means-tested benefits and tax-credits. Policies rolled out are Universal Credit, HB reductions and the 2-child limits.

Source: IFS calculations using the IFS micro-simulation model run on the 2018–19 FRS.