

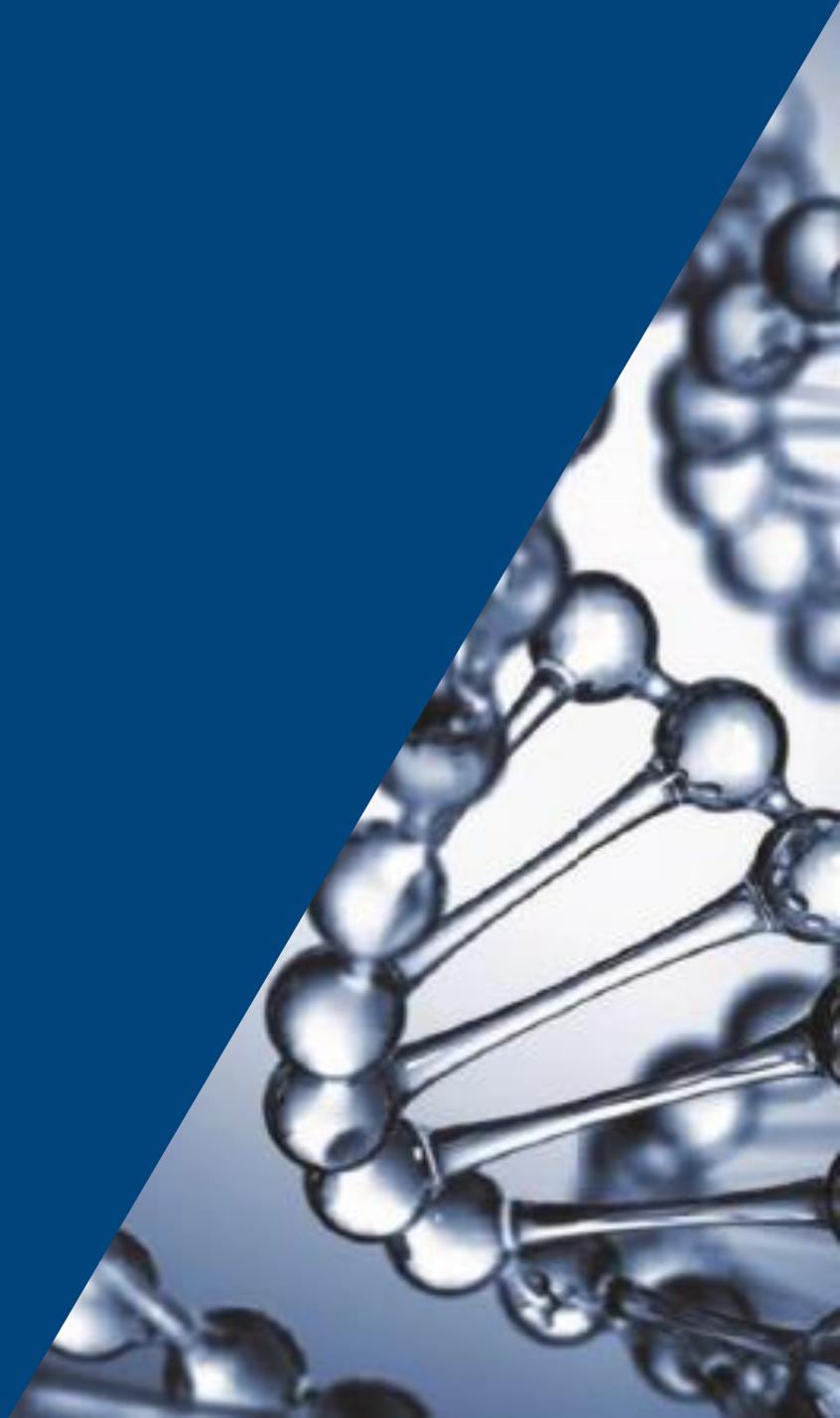
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Distributional National Accounts for Australia, 1991-2018

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Joint work with Matthew Fisher-Post and Roger Wilkins

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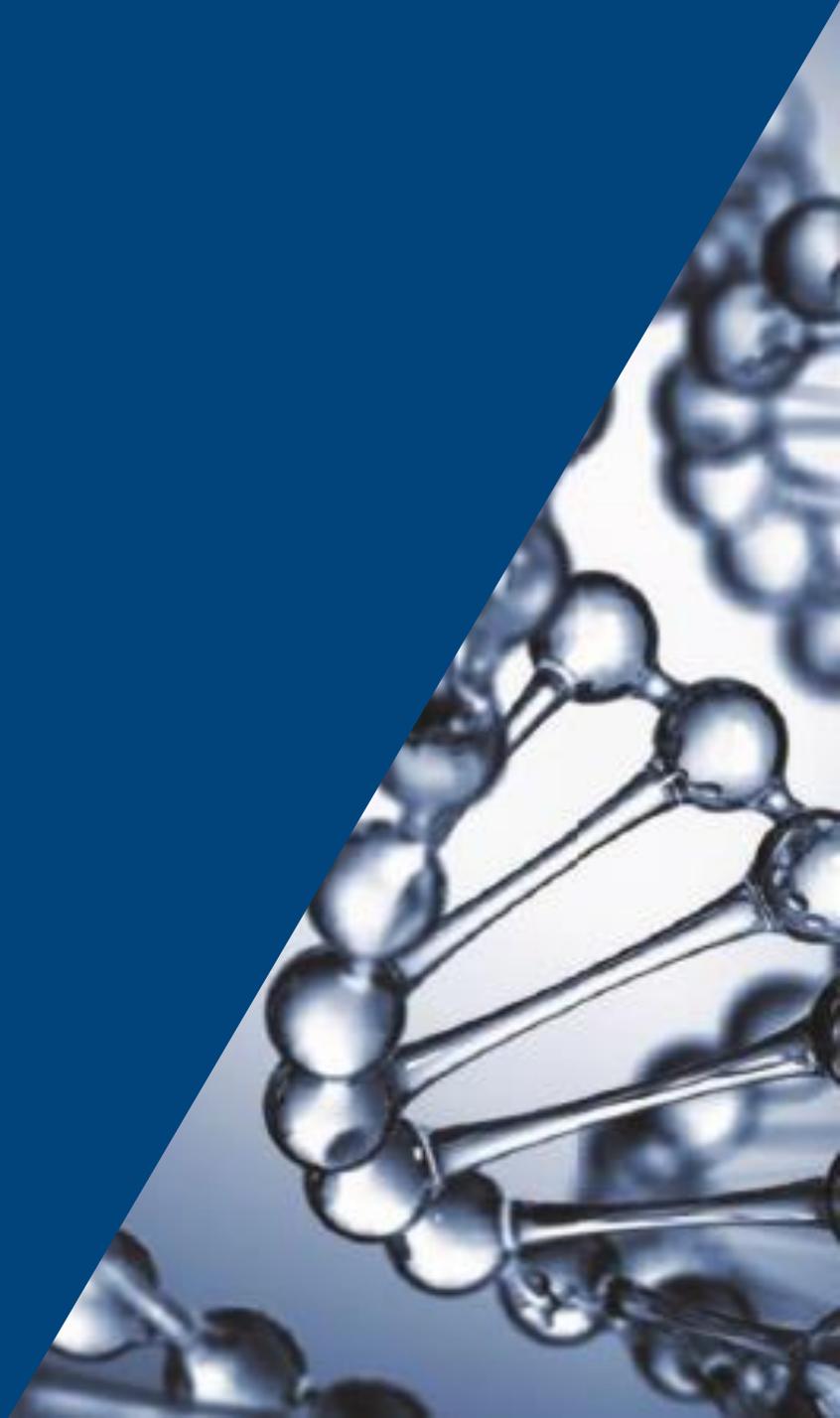
Context and motivation

- DINA: ‘distributional national accounts’ that allocate the entirety of national income to individuals
- Objectives:
 - Provide a more complete picture than survey or tax data, which typically only capture cash incomes
 - DINA adds important components such as in-kind benefits from government-provided goods and services, imputed rents on owner-occupied housing, and retained earnings of companies

This paper

- Provides the first distributional national accounts for Australia
- We follow the DINA guidelines (Alvaredo et al. 2020) but adapted where required to account for the particular institutional features of Australia and the nature of the available data
- 4 income concepts:
 - pre-tax factor income;
 - **pre-tax post-replacement income**;
 - post-tax disposable income;
 - **post-tax national income**
- Comparison with the US and France
- Comparison with traditional household survey based estimates
- Demographic breakdowns

Data & Methods



Data

- National accounts: Australian Bureau of Statistics (ABS)

- Microdata:

1. Alife

- a 10 per cent random sample of all tax filers observed by the Australian Tax Office over the 1991 to 2018 period
- Unit of analysis: the individual (= tax filing unit)
 - Aged 15 or over
 - No partner identifier (yet)
 - No information in years in which a tax return is not filed
- Incomes and income components are not top coded (one exception is the 24 largest 'employment termination' (redundancy) payments each year)

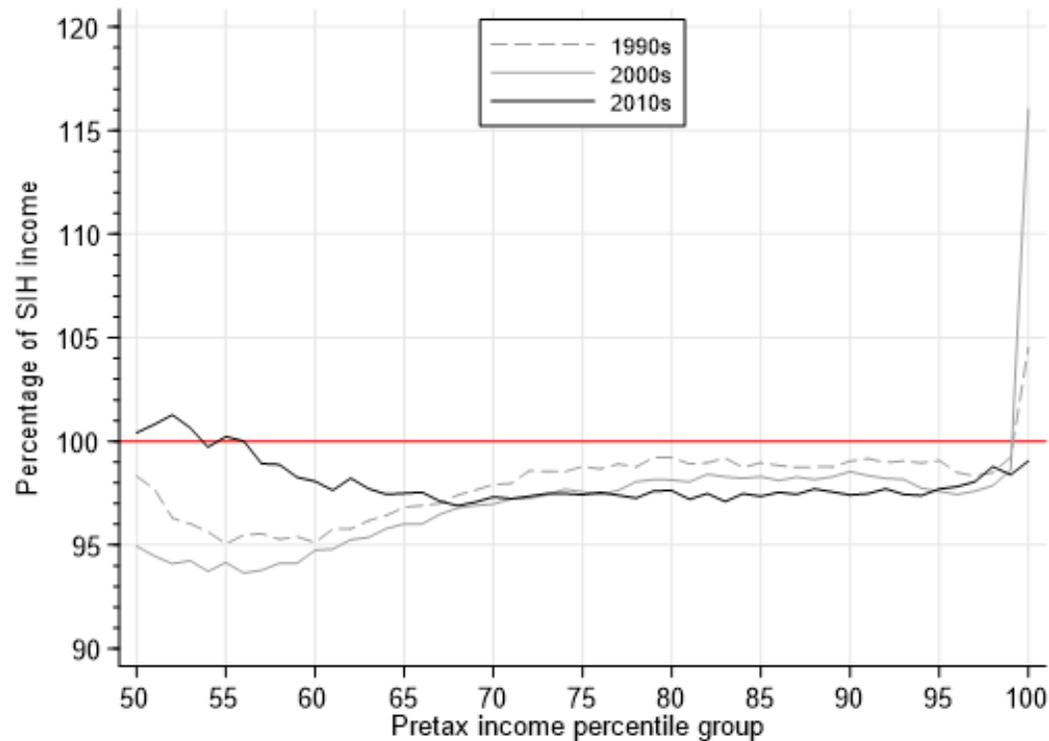
2. ABS Survey of Income and Housing (SIH)

- Nationally representative household survey, 1994 to 2018 (but with some gaps)
- Wealth data (and hence information on superannuation balances and home equity required to distribute capital income; see below) in 2003-04, 2005-06 and 2009-10 onwards

Pre-tax factor income – Pre-tax cash incomes

- SIH used as base, supplemented by Alife for the top 1%
- We use the cell-mean imputation method developed by Burkhauser et al. (2018), which preserves the richness of survey data
- Why use the SIH as baseline? Because overall income coverage is superior

Alife tax data relative to SIH income survey data by percentile - Pretax income



Two main explanations:

1. some forms of income are nontaxable and are even received by high income earners; and
2. there are incentives to minimise income reported to tax authorities that do not apply to statistical agencies

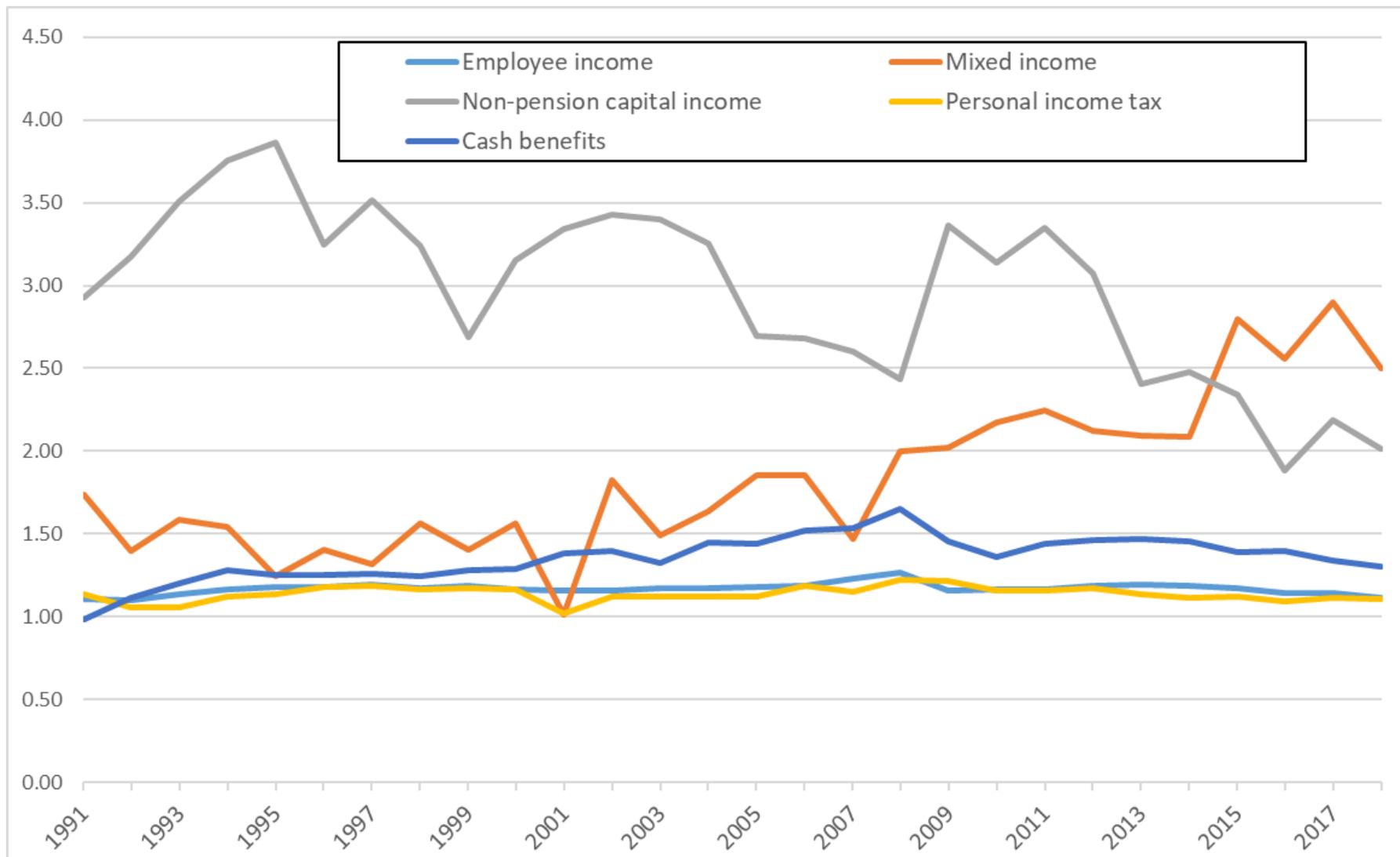
Overall approach

- Step 1: Classify income components in the survey data according to the NA classification, using the finer possible classification compatible with both sources. We distinguish:
 - Labour income
 - Mixed income (self-employment income)
 - Capital income:
 - Superannuation income (distributed according to superannuation balances)
 - Net operating surplus of households (imputed rent)
 - Other capital income (interests, dividends, retained earnings)
 - All taxes and all government cash transfers (post-tax national income only)
 - Government – individual and collective consumption – expenditure (post-tax national income only)

Overall approach

- Step 2: Uniformly/proportionally scale-up survey incomes to match NA aggregates with 2 exceptions:
 - Government – individual and collective consumption – expenditure is allocated to individuals as a lump sum
 - Mostly health and education and government surplus/deficit
 - Indirect taxes:
 - Production taxes are deducted in proportion to household disposable income (a proxy for consumption)
 - Corporate taxes are deducted proportionally to capital incomes after excluding imputed rent

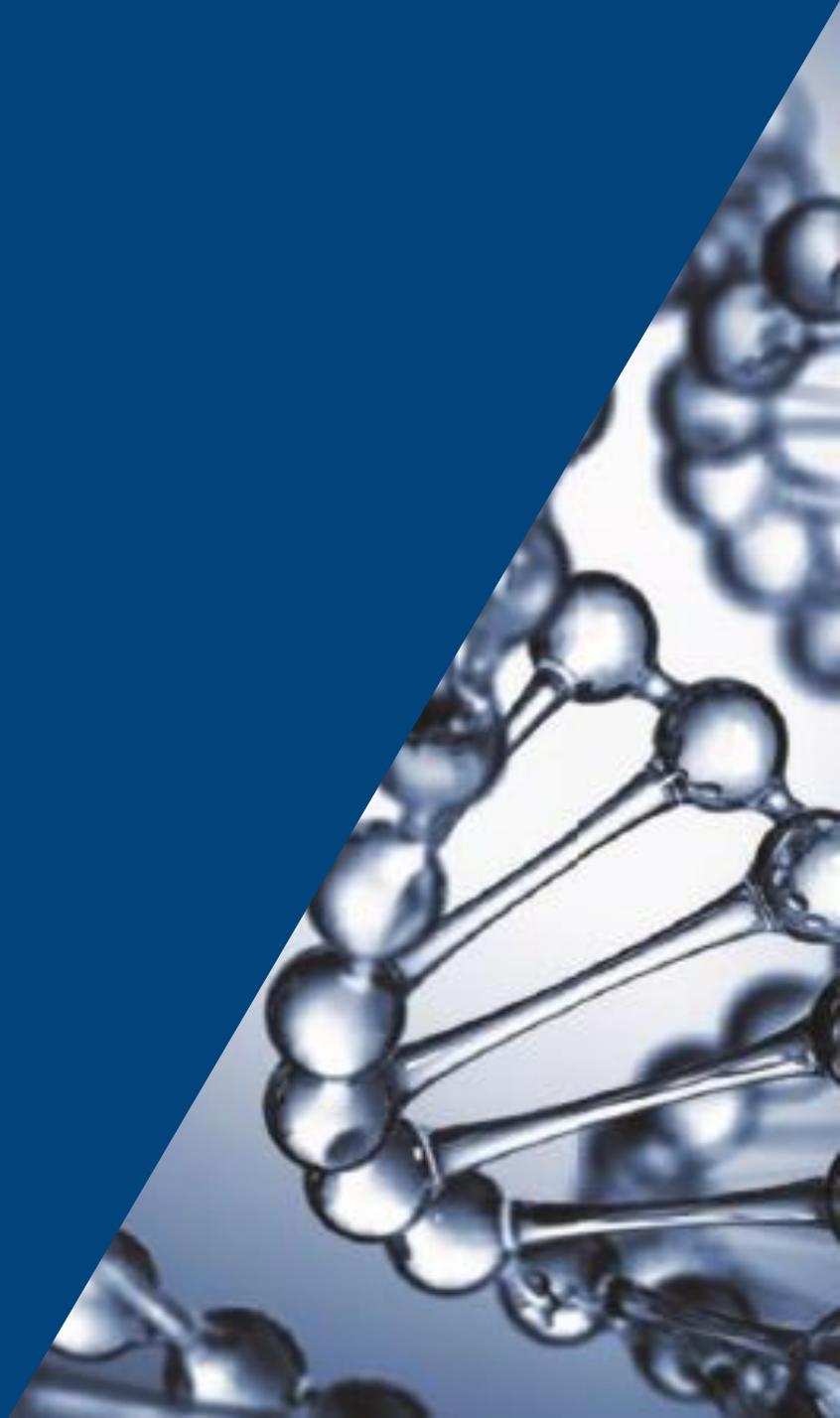
Pre-tax factor income: Survey to National Account grossing-up factors



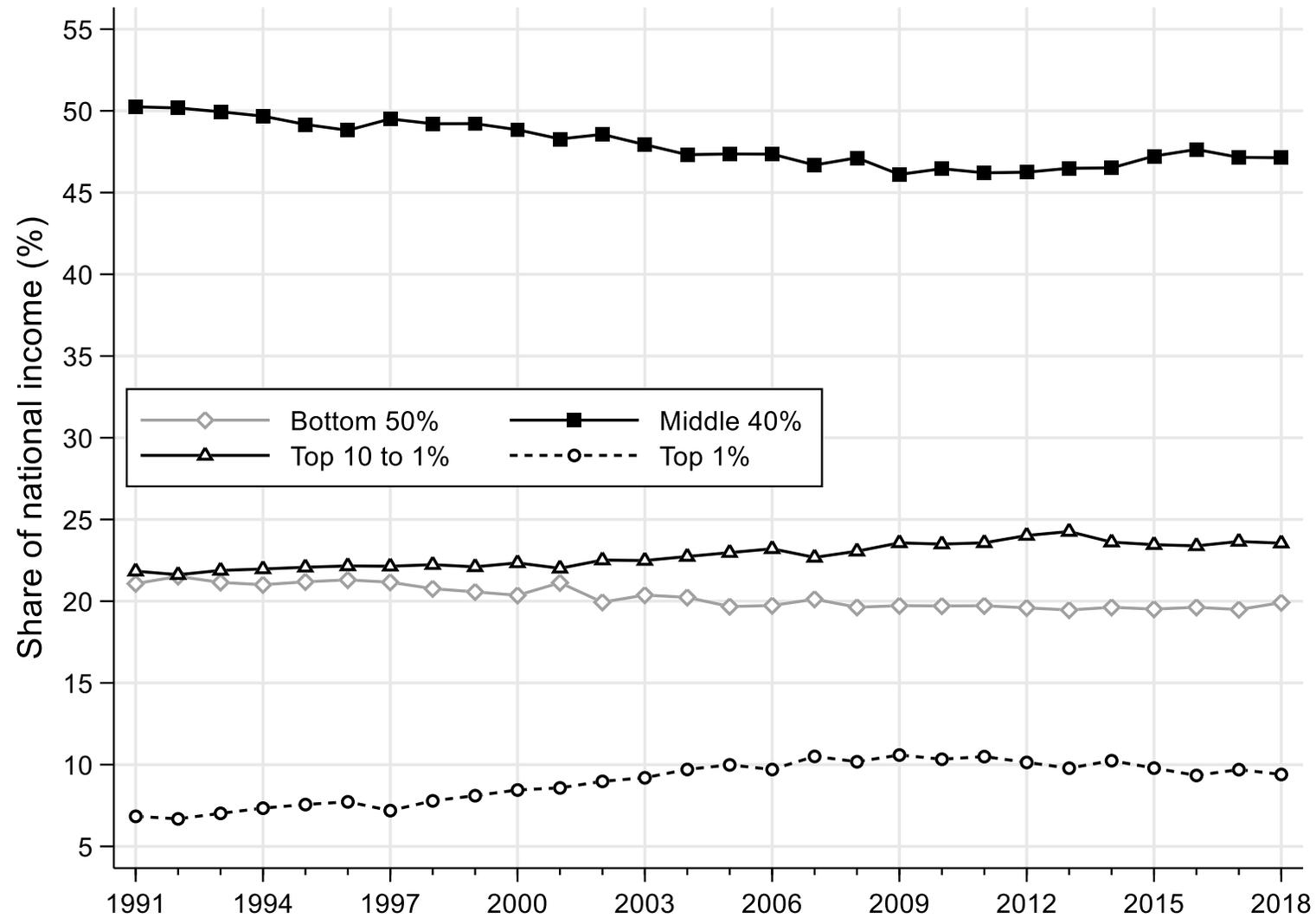
Unit of analysis and income unit

- The unit of analysis: adults defined as all 15+
- Income splitting:
 - **Broad equal split:** household income is split equally among all household adult members
 - **Narrow equal split:** household income is split equally among all income unit adult members
 - **Individualistic:** no splitting, income is attributed to individuals

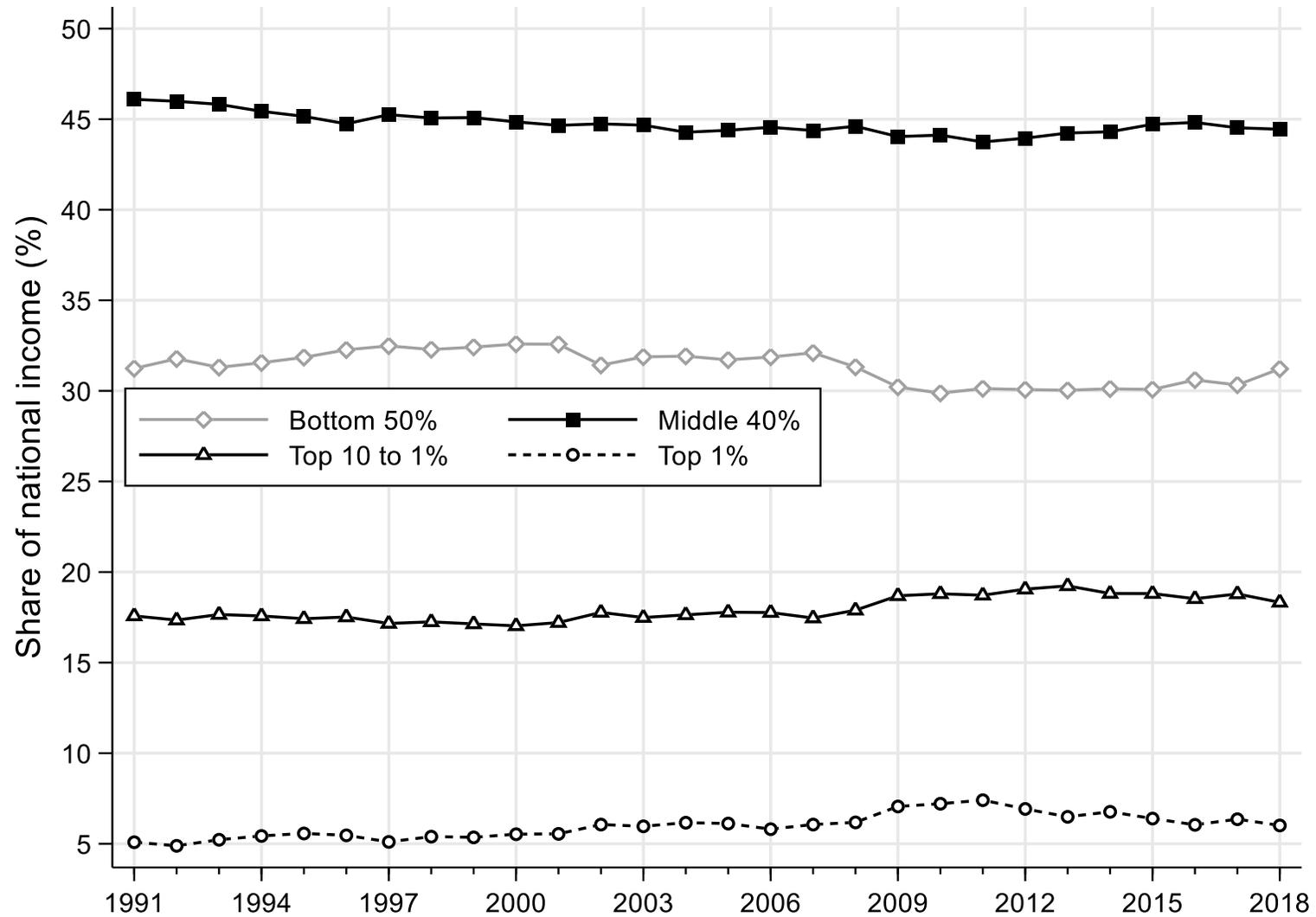
Results



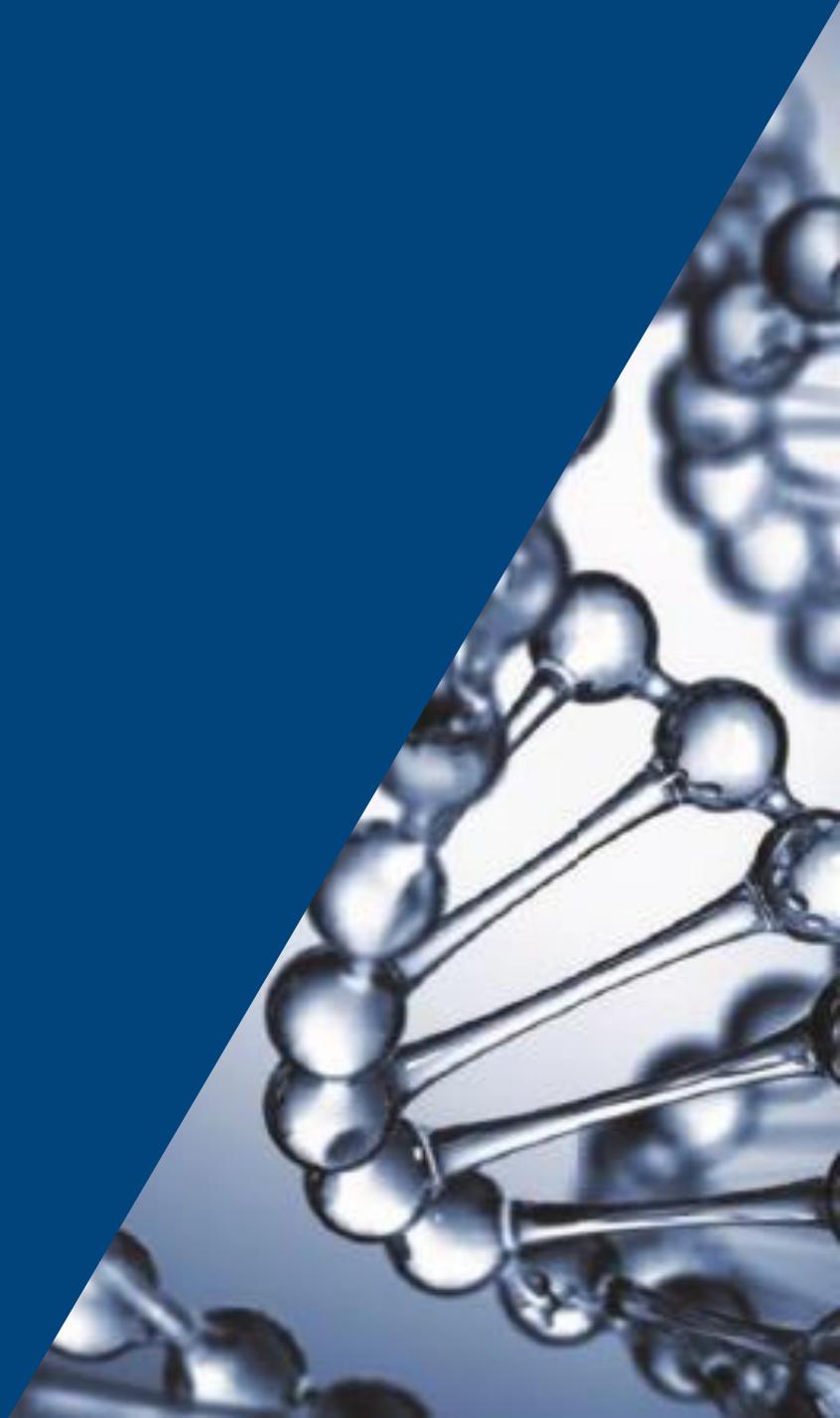
Pre-tax national income shares 1991-2018



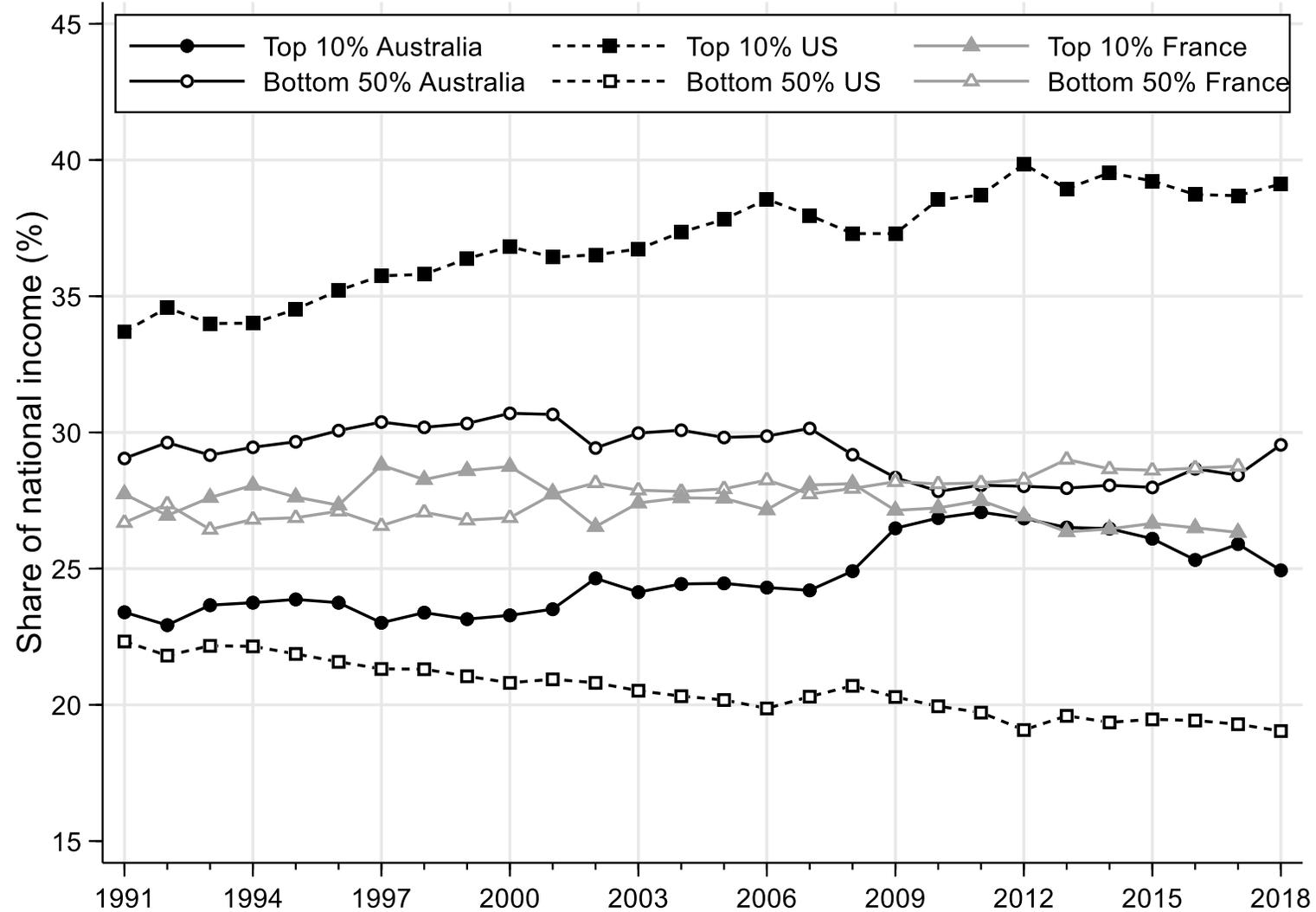
Post-tax national income shares 1991-2018



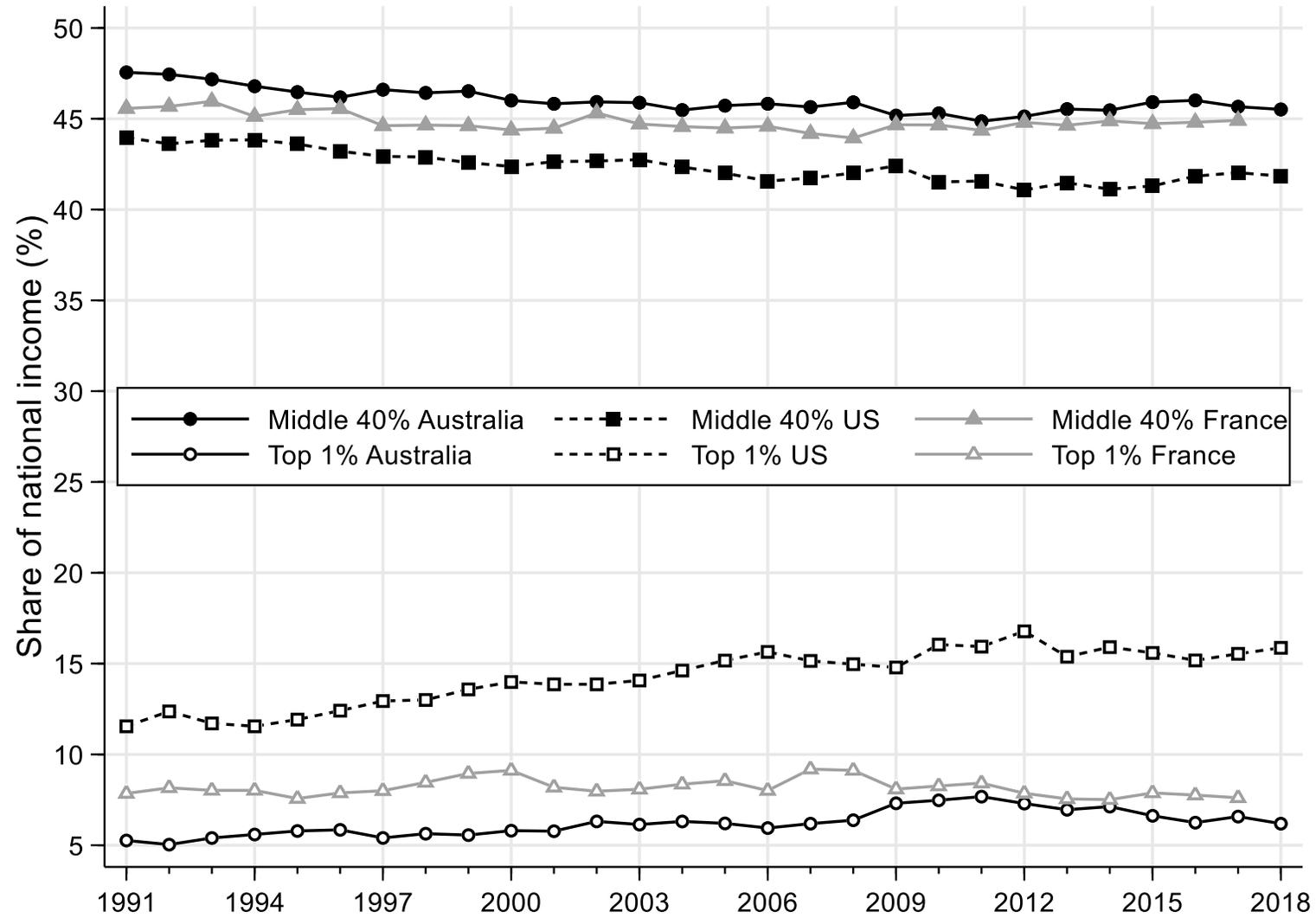
International comparisons: Australia, US and France



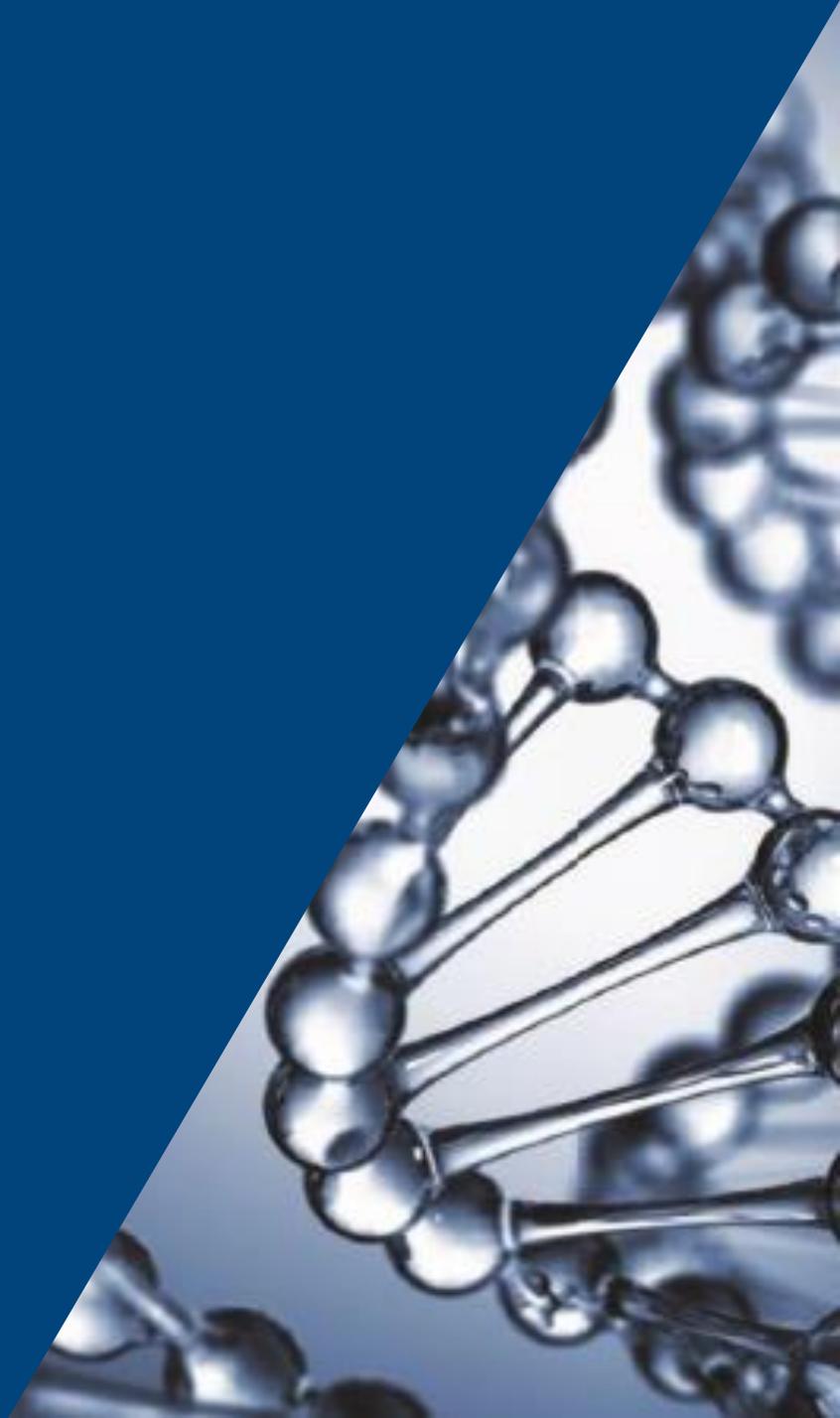
Top 10% and bottom 50% post-tax income shares



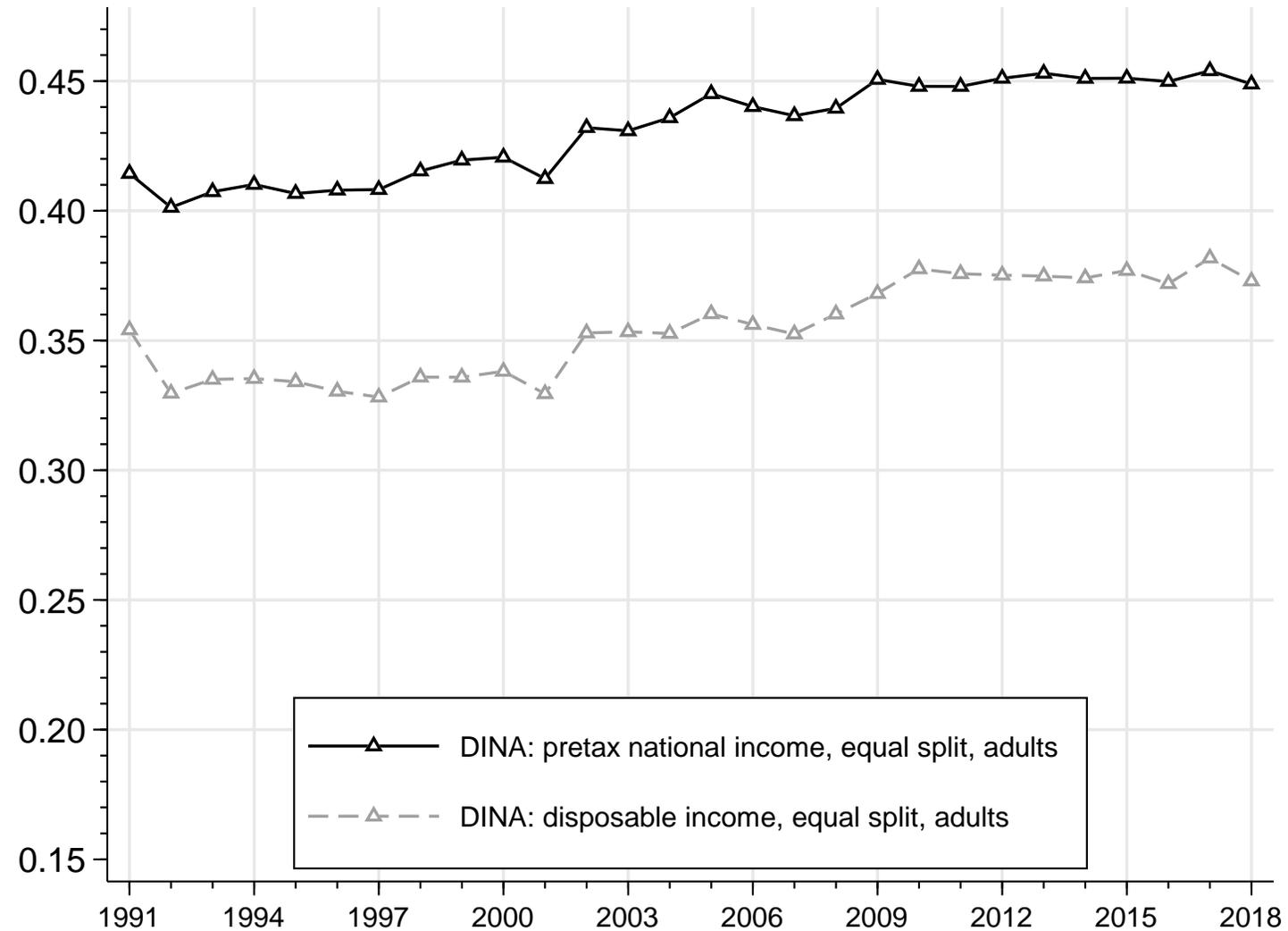
Top 1% and middle 40% post-tax income shares



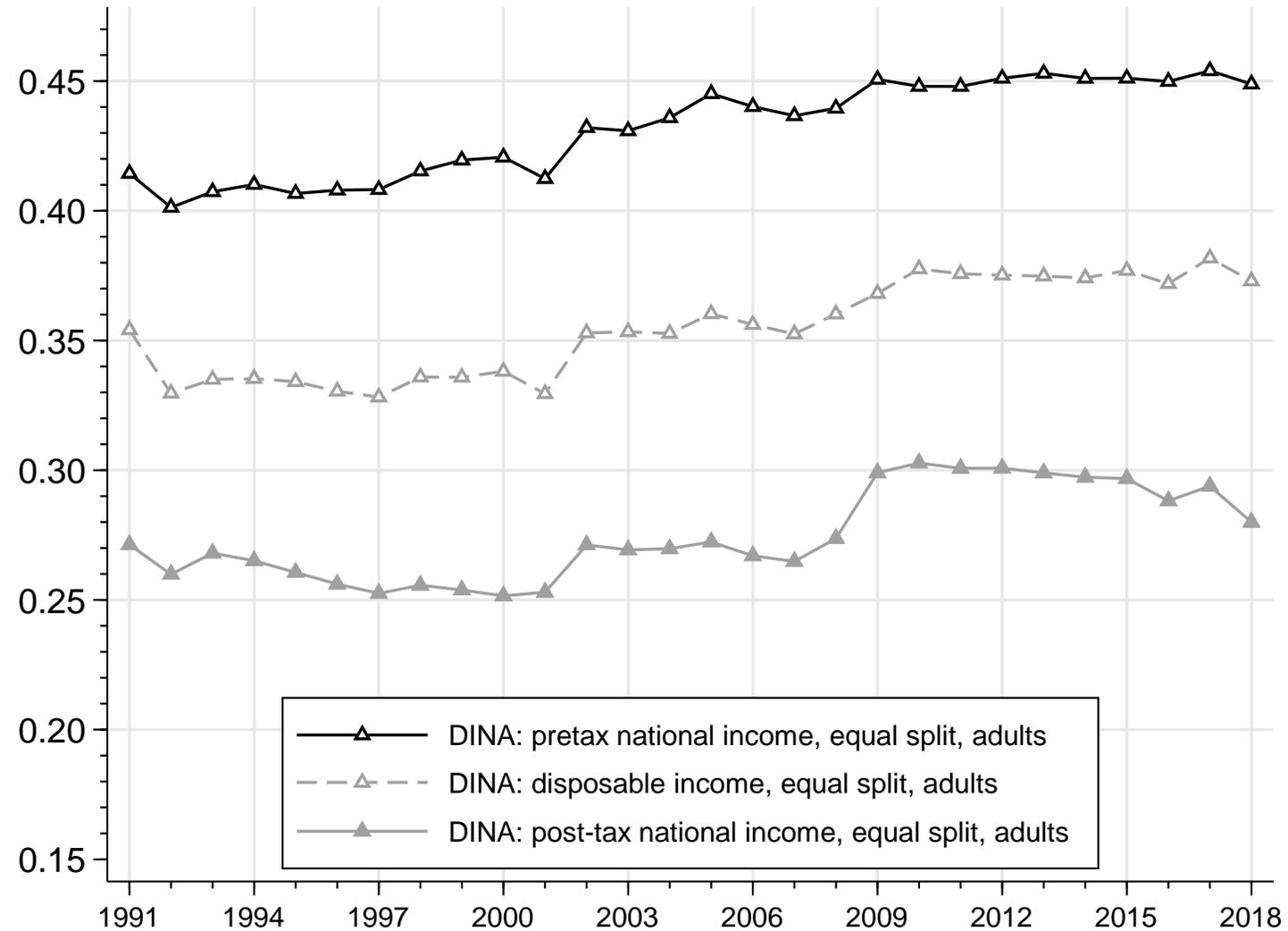
Comparisons with household survey estimates of inequality



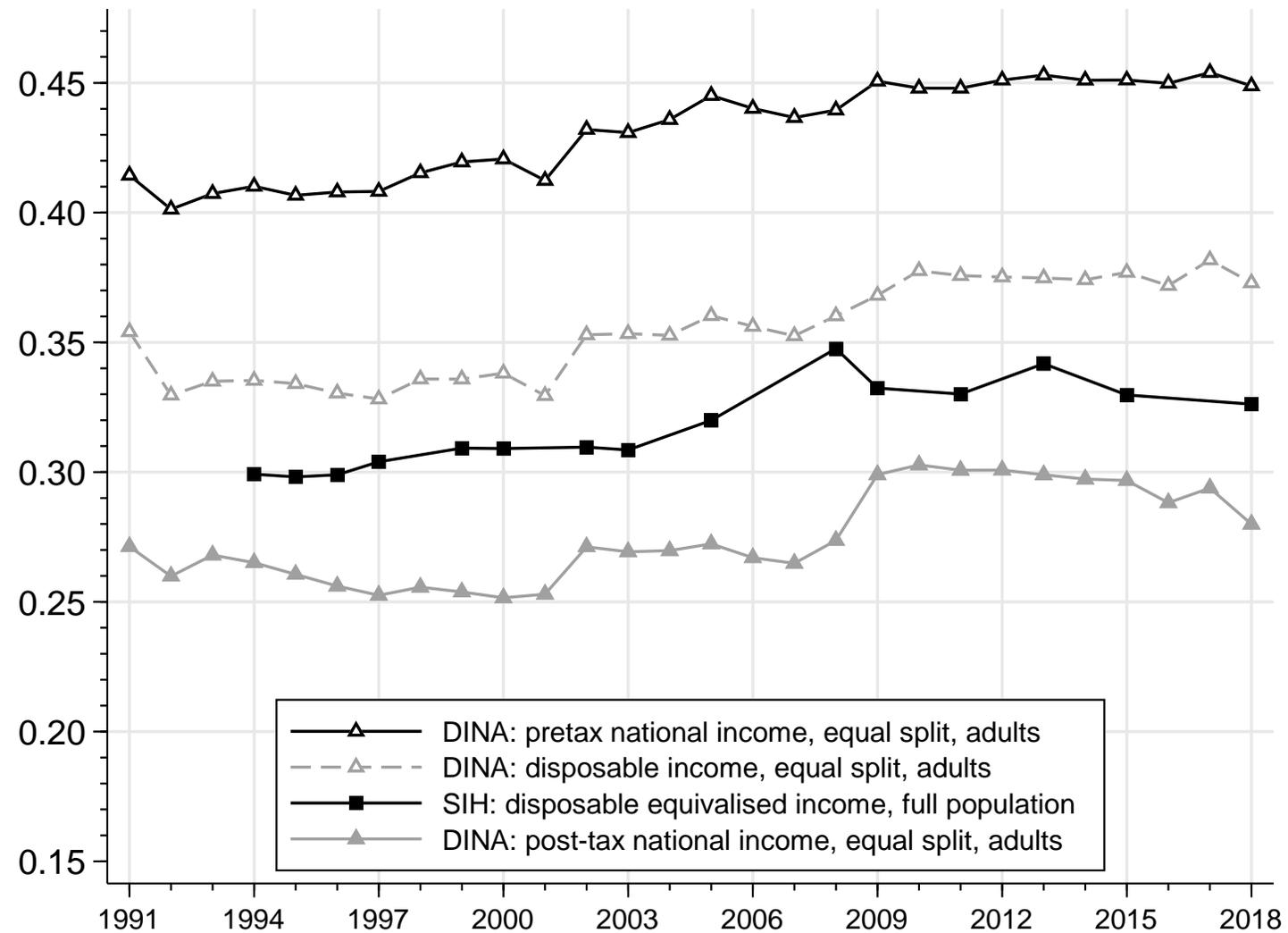
DINA and SIH Gini coefficients



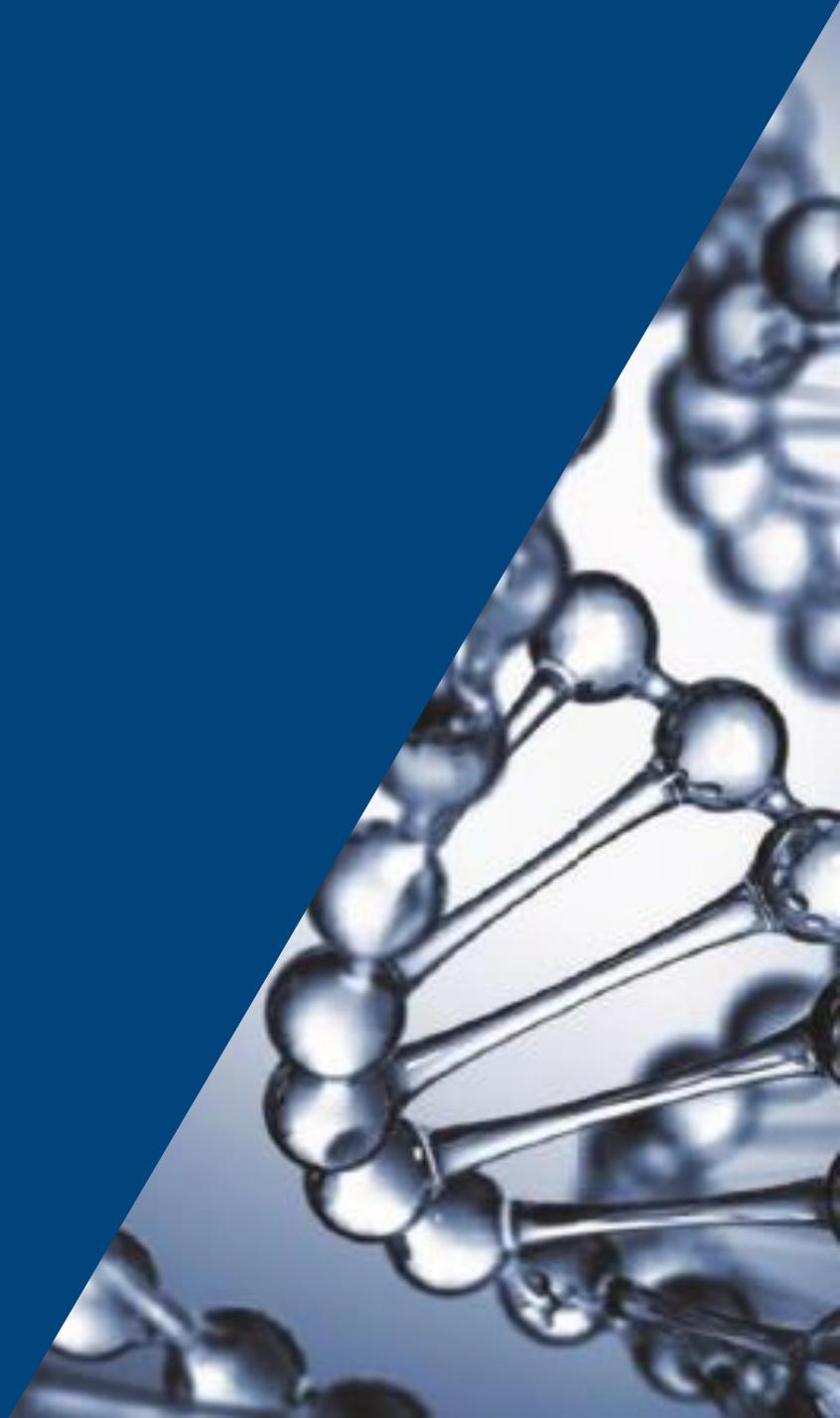
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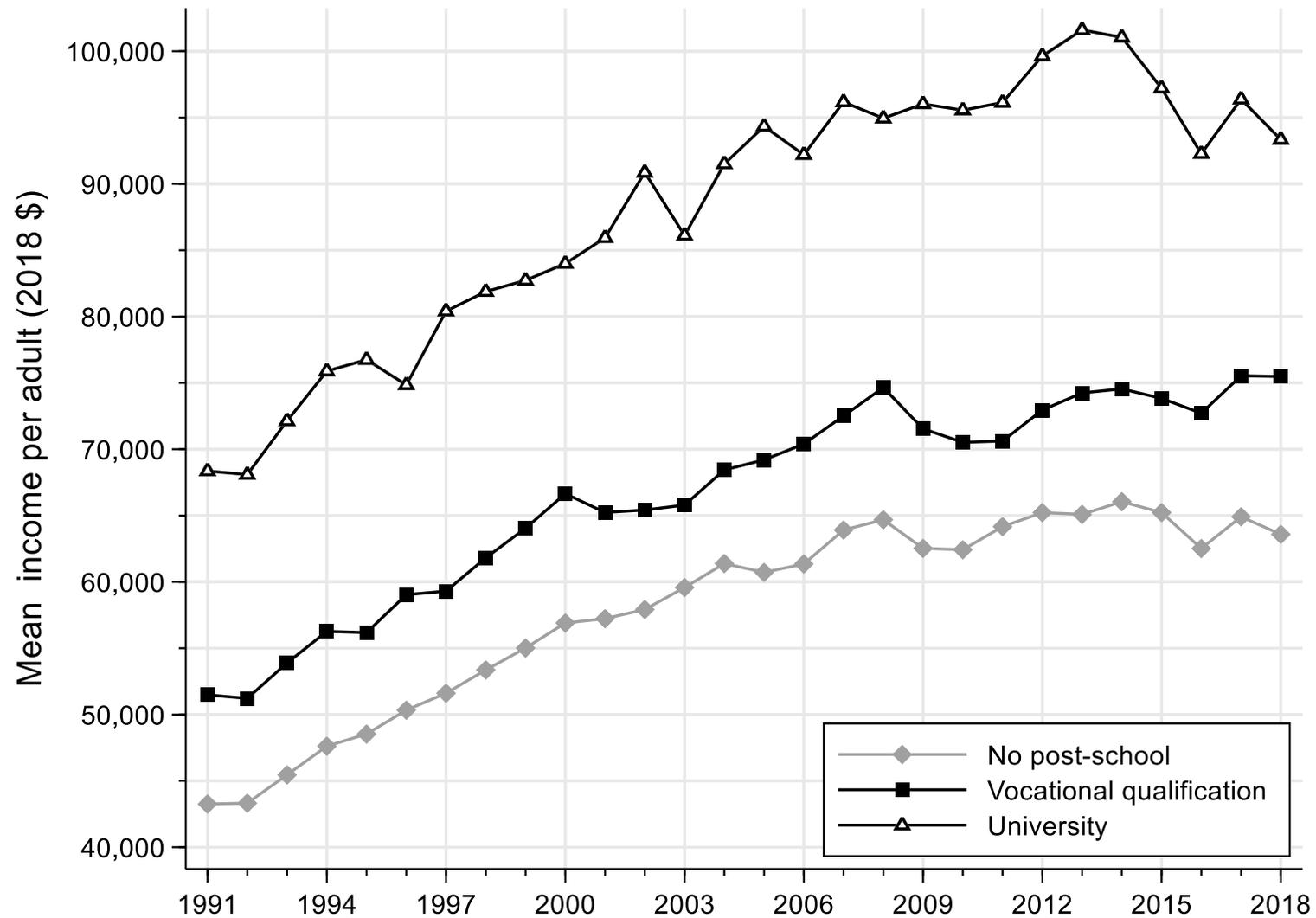
DINA and SIH Gini coefficients



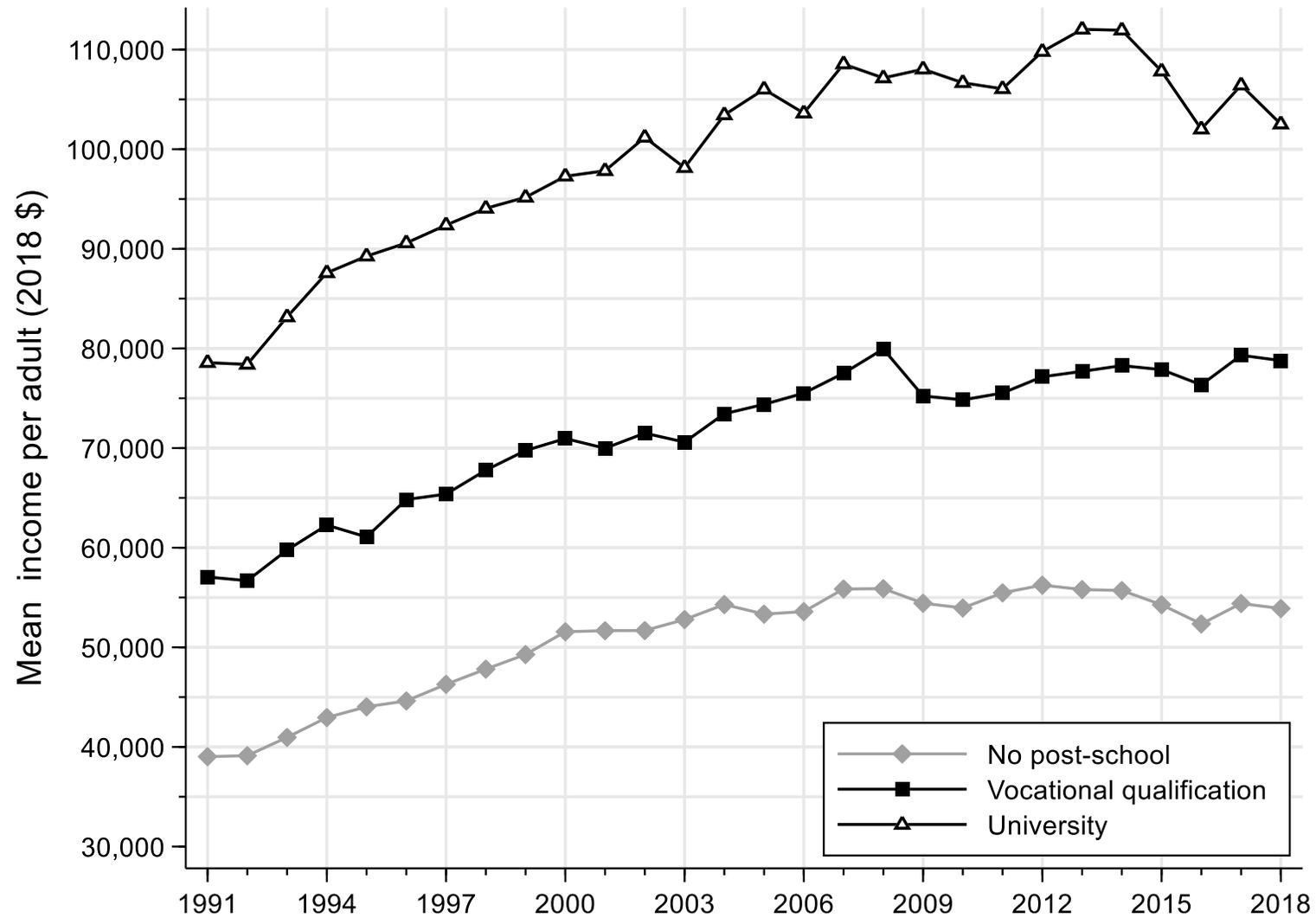
Breakdowns



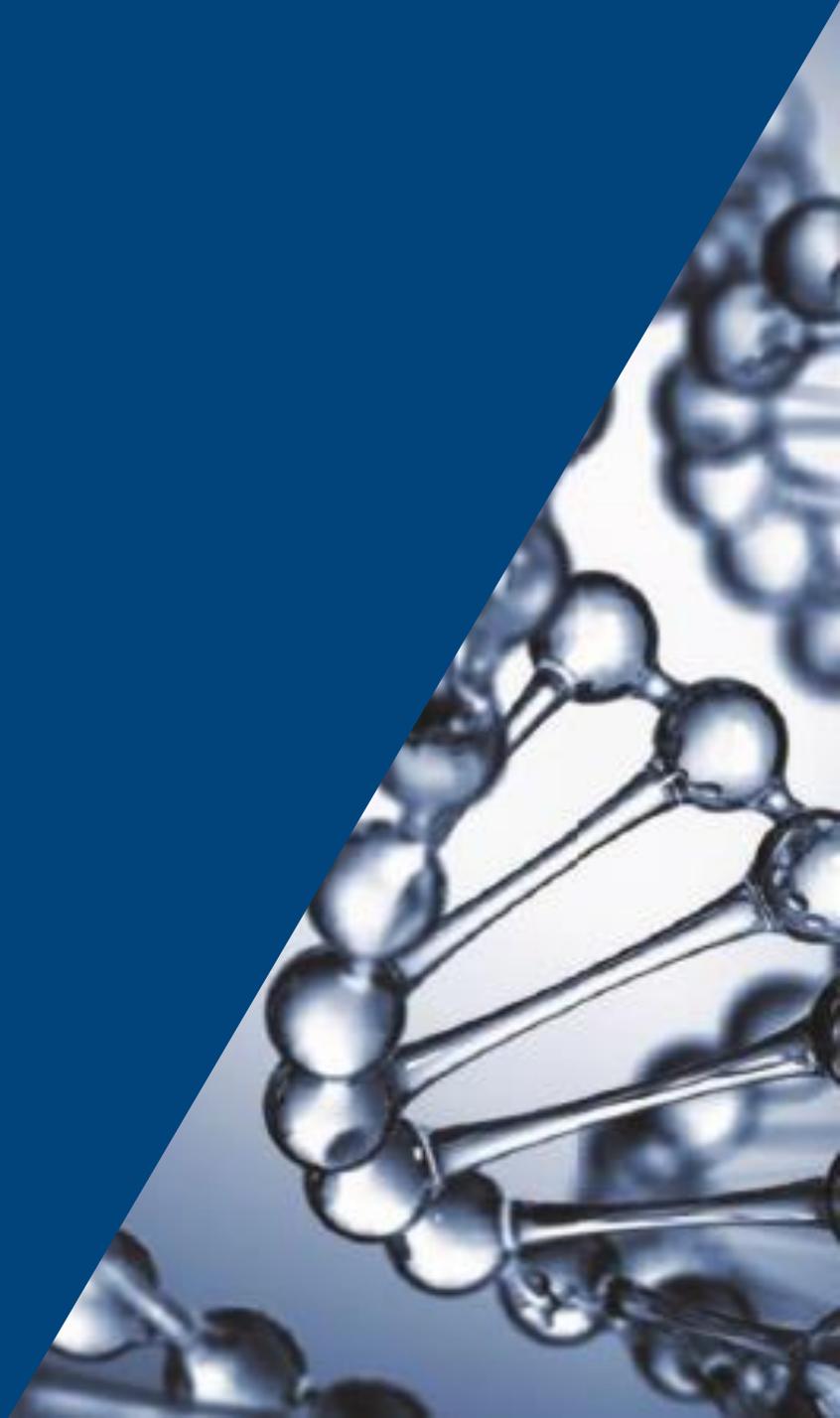
Mean post-tax national income per adult 1991-2018



Mean post-tax national income per adult 1991-2018: individualistic series



Conclusion

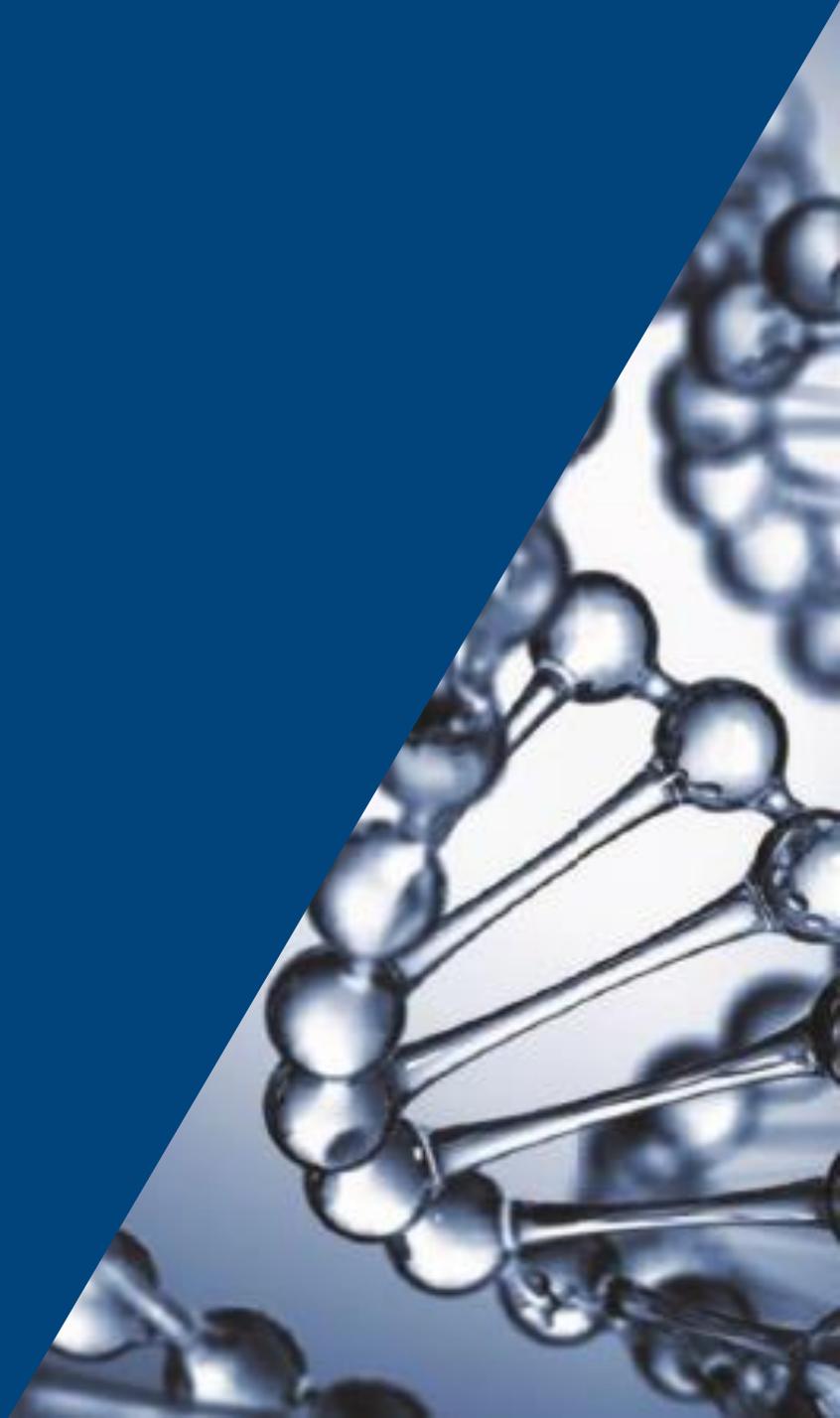


Conclusion

- We have produced the first DINA series for Australia
- Further possible refinements include
 - More sophisticated treatment of indirect taxes via the estimation/imputation of household consumption
 - Extension to earlier years: Unit record income survey data is sparser prior to the 1990s, and indeed non-existent prior to 1975. Similarly, unit record tax data only extends back to 1991
- DINA series are much more comprehensive in their coverage of income
 - Is DINA a better proxy for the distribution of economic well-being?
- Inequality levels and trends based on DINA series can differ dramatically to other available estimates from tax or survey data

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THANK YOU



Pre-tax factor income – Labour income

- Grossing up of labour incomes is required because of
 - potential under-reporting in SIH
 - failure of the SIH to capture
 - (all of) salary sacrificed employment income,
 - fringe benefits and fringe benefits tax
 - ‘employer social contributions’ (i.e., employers’ superannuation contributions and workers’ compensation premiums)
- Labour incomes are grossed up by a constant factor so that total employee income in the SIH equals total employment income in the National Accounts.
- Mixed income is grossed up separately, also by a constant factor.

Pre-tax factor income – Capital income

- Total capital income is obtained here from the National Accounts by adding “total net property income of households and NPISH” and “total net primary income of corporations”.
- We use reported business and investment income and imputed rent with a ‘grossing up’ adjustment done separately for each of superannuation, imputed rent and other capital income.
- Superannuation incomes/yields are imputed based on observed or estimated superannuation balances.
 - Superannuation balances are provided in the SIH in 2003/04, 2005/06, 2009/10, 2011/12, 2013/14, 2015/16 and 2017/2018. We estimate superannuation balances for all other years.

Pre-tax factor income – Capital income

- Net operating surplus of households and non-profit institutions serving households (NOSH) is distributed based on imputed rent.
 - Gross and net imputed rents are directly provided in the SIH from 2005 onwards. For earlier years, we predict gross and net imputed rents using 2005 values.
 - This adjustment generally results in a reduction in net imputed rents reported (or estimated) from the SIH.
- The remaining (i.e., non-pension non-imputed-rent) capital incomes not captured by the SIH are distributed according to reported other capital income (i.e., non-pension non-imputed-rent capital incomes).
 - This non-captured capital income will primarily comprise corporate retained earnings.
 - We also include estimates of foreign income received from tax havens and reinvested earnings on foreign portfolio investment

Pre-tax factor income – Taxes on production

- Taxes on production are allocated to individuals, assuming the same distribution as factor income (Alvaredo et al. 2020)

Pre-tax national income

- Following the US and French DINA, we include the Age Pension as income
- The Age Pension is reported in the SIH.
- We distribute the total cost of Age Pension payments as a flat percentage of income tax liabilities.

Post-tax disposable income

- From pre-tax national income we deduct all taxes and add all government cash transfers.
- Deducting **income taxes** and adding **cash transfers** is straightforward since both are recorded in the SIH and ALife data.
 - Both income taxes and cash transfers need to be scaled up to match national accounts totals.
- **Production taxes** are deducted in proportion to household disposable income (a proxy for consumption)
- **Corporate taxes** are deducted proportionally to capital incomes after excluding imputed rent.

Post-tax national income

- From post-tax disposable income we distributed government – individual and collective consumption – expenditure to individuals.
 - Health and education
 - Government surplus/deficit
 - Average government expenditure per adult is added to disposable income (= lump sum transfer)
- ⇒ Large equalising effect