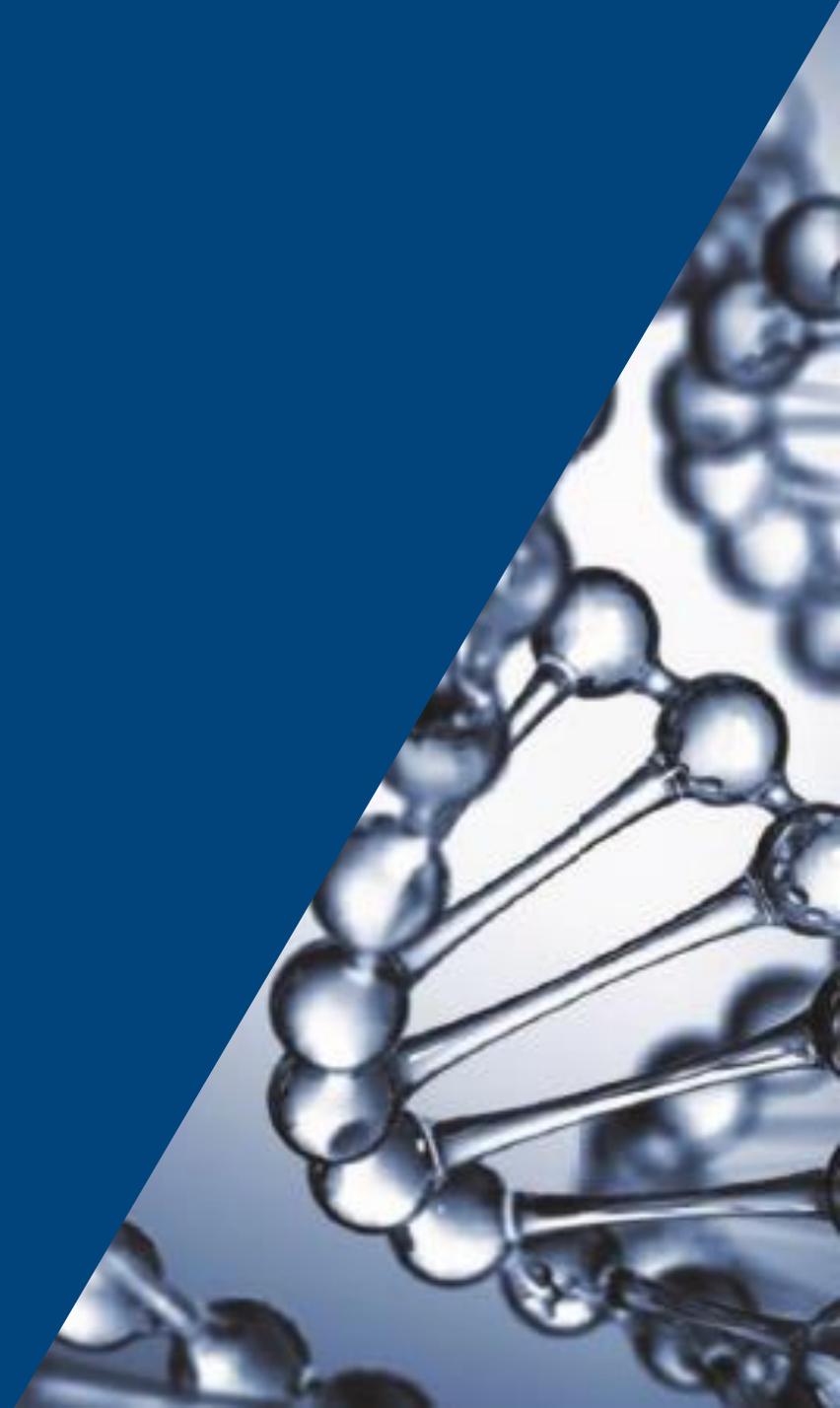


# Distributional National Accounts for Australia, 1991-2018

Nicolas Herault

Joint work with Matthew Fisher-Post and Roger Wilkins

Second World Inequality Conference, Paris,  
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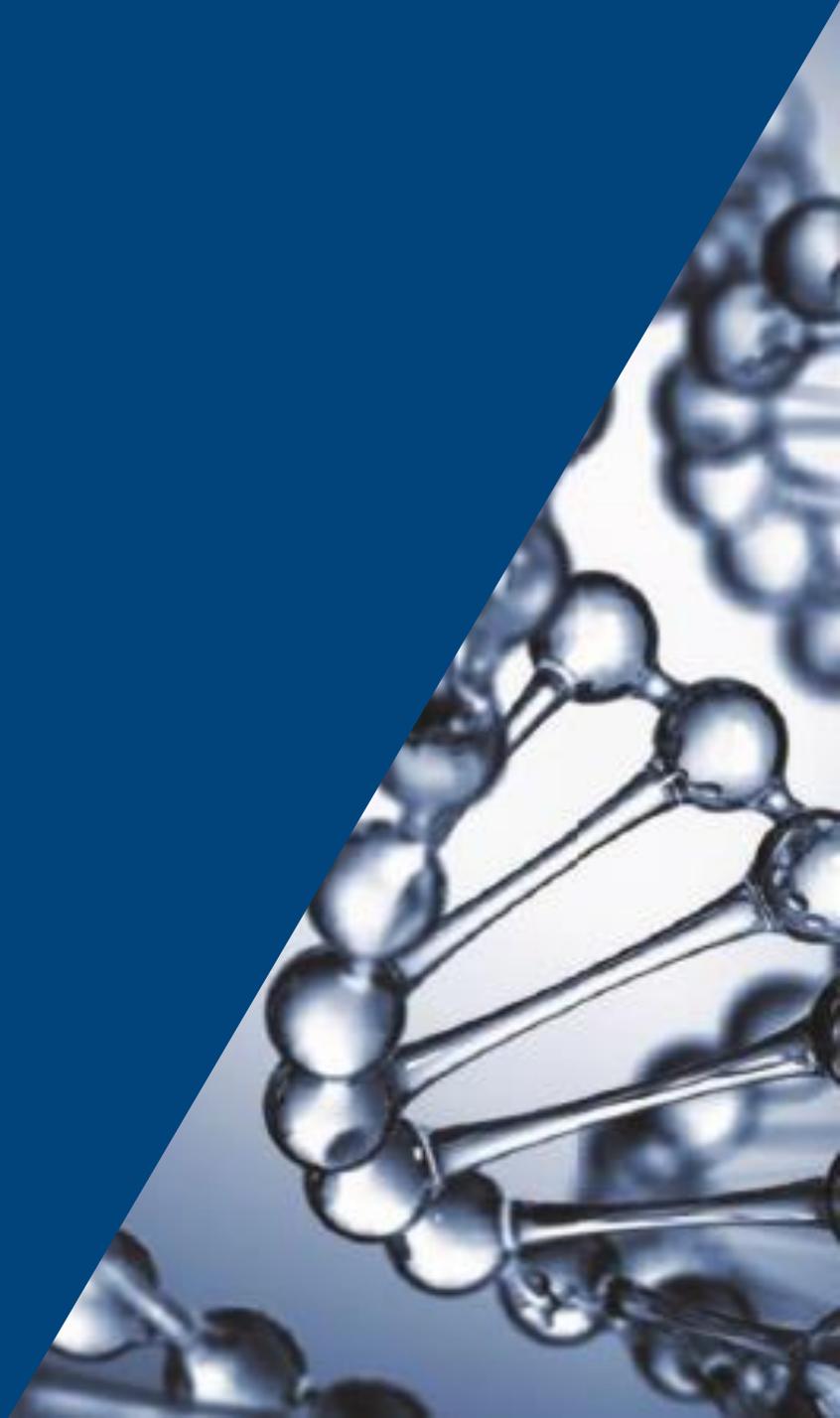
# Context and motivation

- 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

# Data & Methods



# Data

- National accounts: WID, OECD, 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 2017 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)

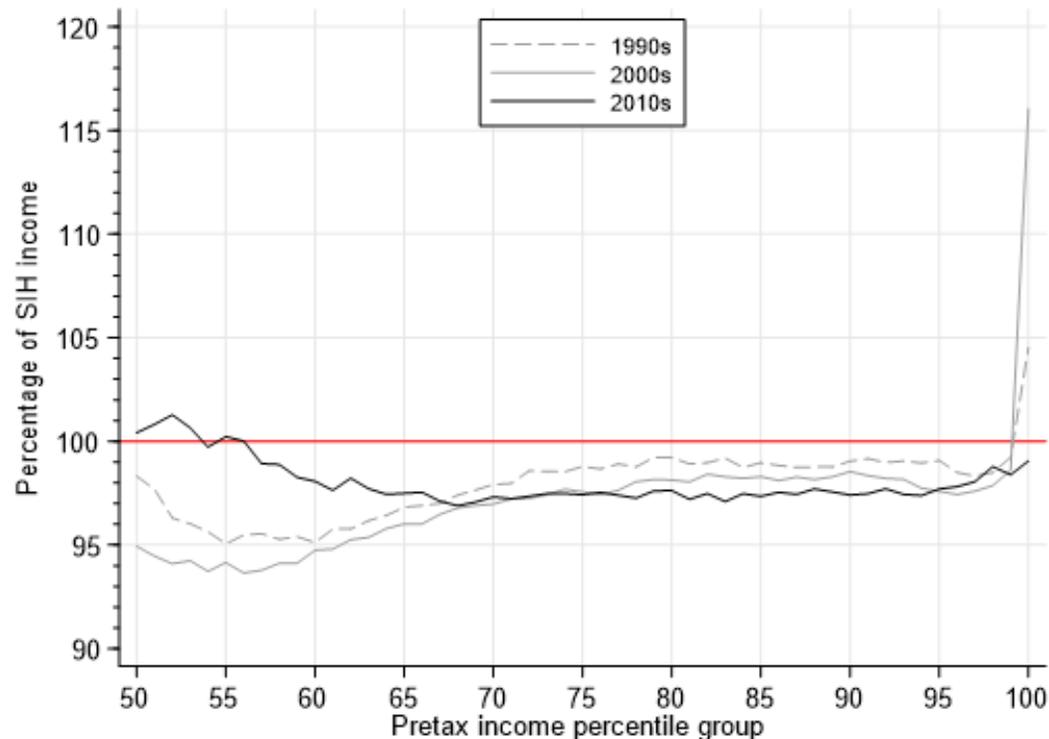
## 2. ABS Survey of Income and Housing (SIH)

- 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

# 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.
- Total employee incomes have to be increased by between 6% and 26% to ensure consistency with National Accounts.
- The required increase is much larger and more volatile over years for mixed-income, ranging from 24% to 211% depending on the year.

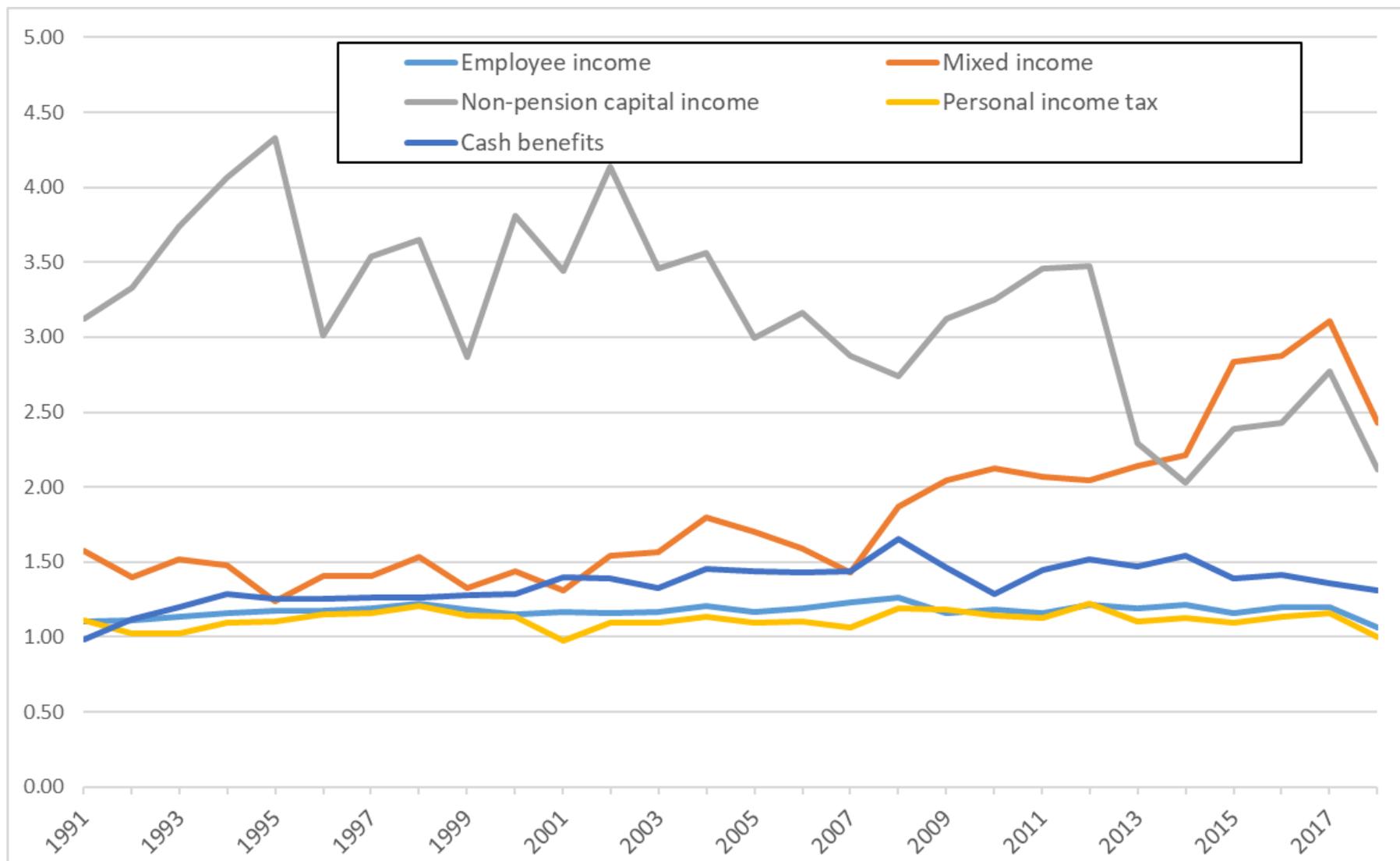
# Pre-tax factor income – Capital income

- 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 (private retirement pension funds) 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.
- 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.
  - Captured capital income has to be multiplied by a factor of between 2 and 4.3 to match national accounts totals.

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



# 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.

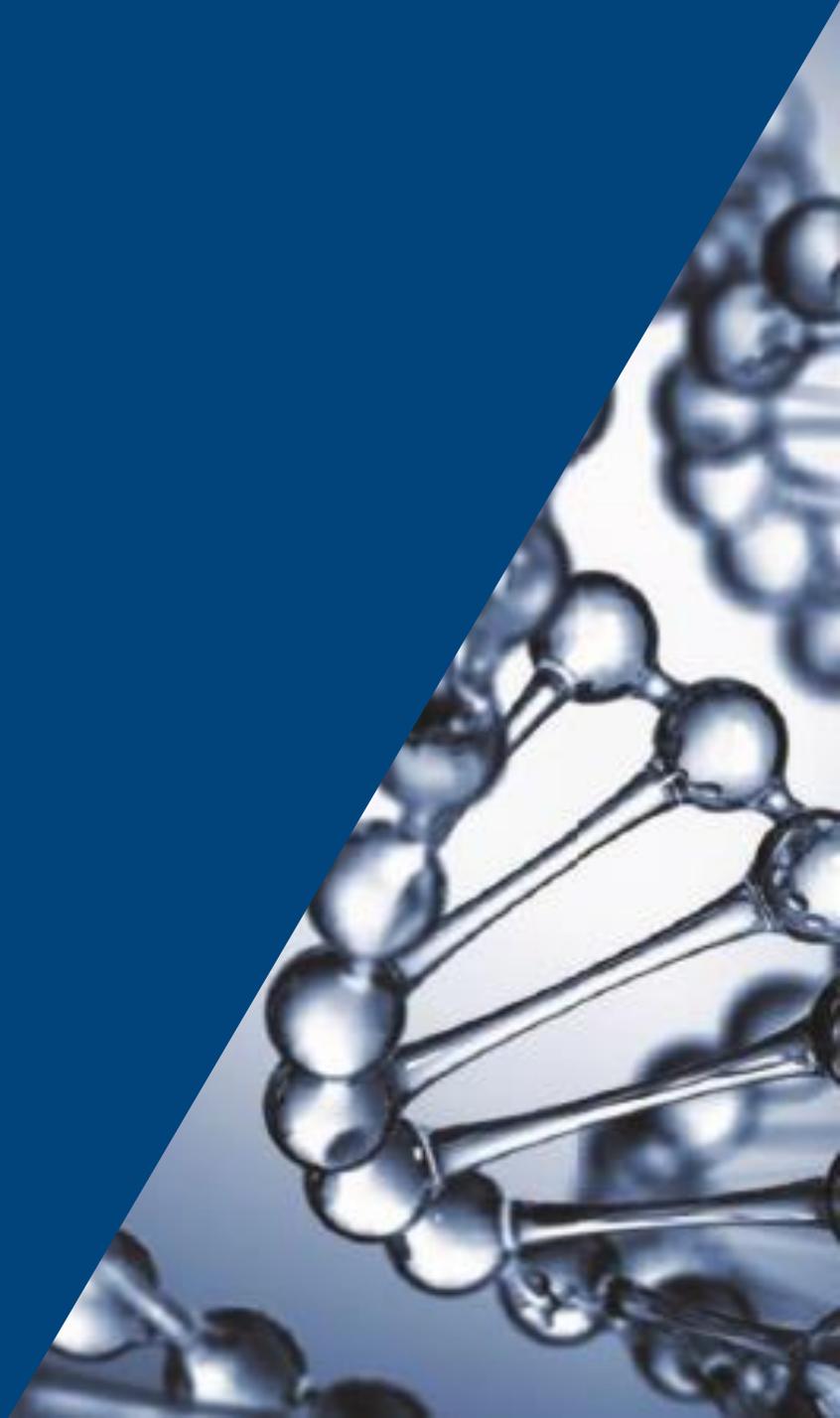
# Post-tax disposable income

- 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.

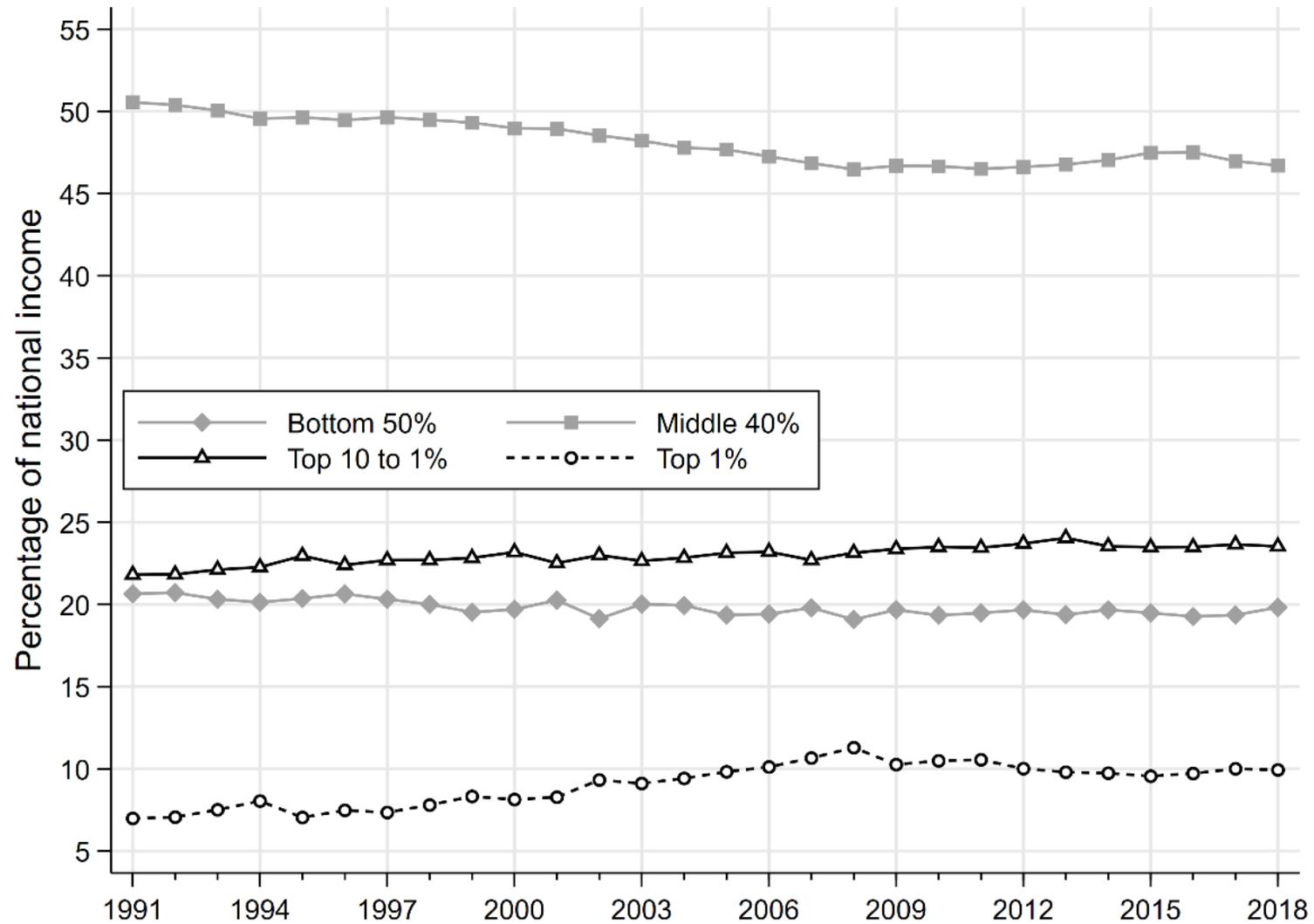
# Post-tax national income

- 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

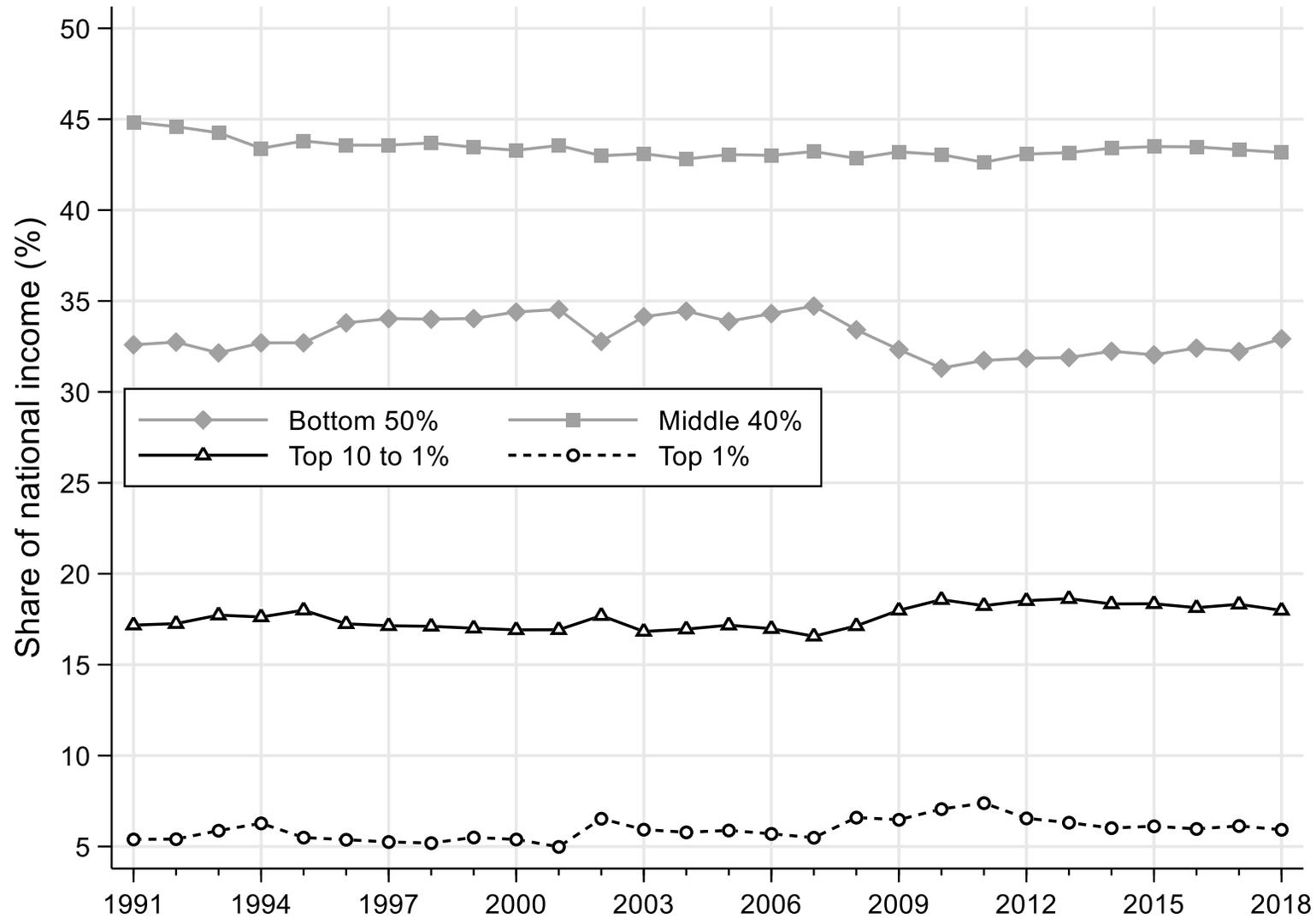
# Results



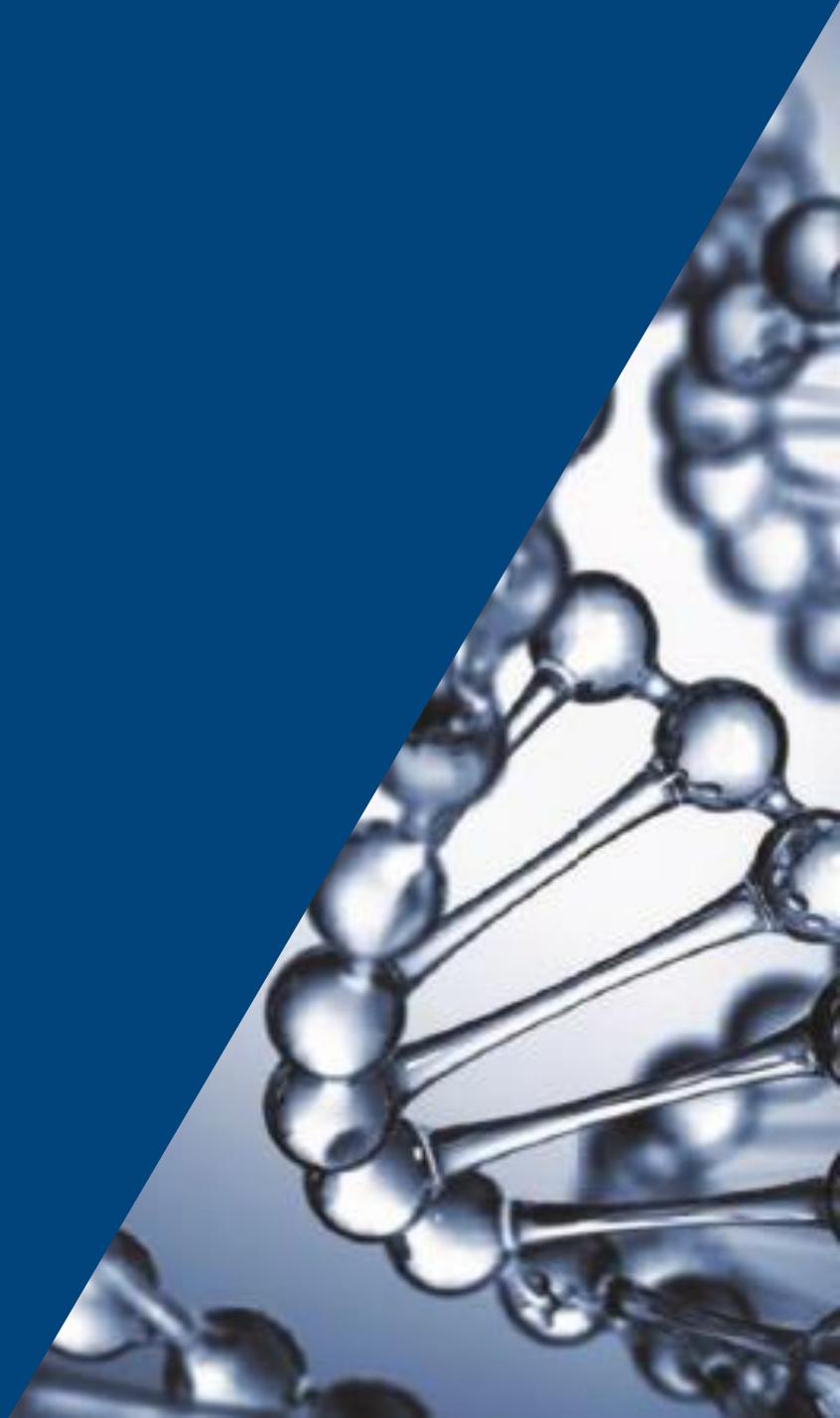
# Pre-tax national income shares 1991-2018



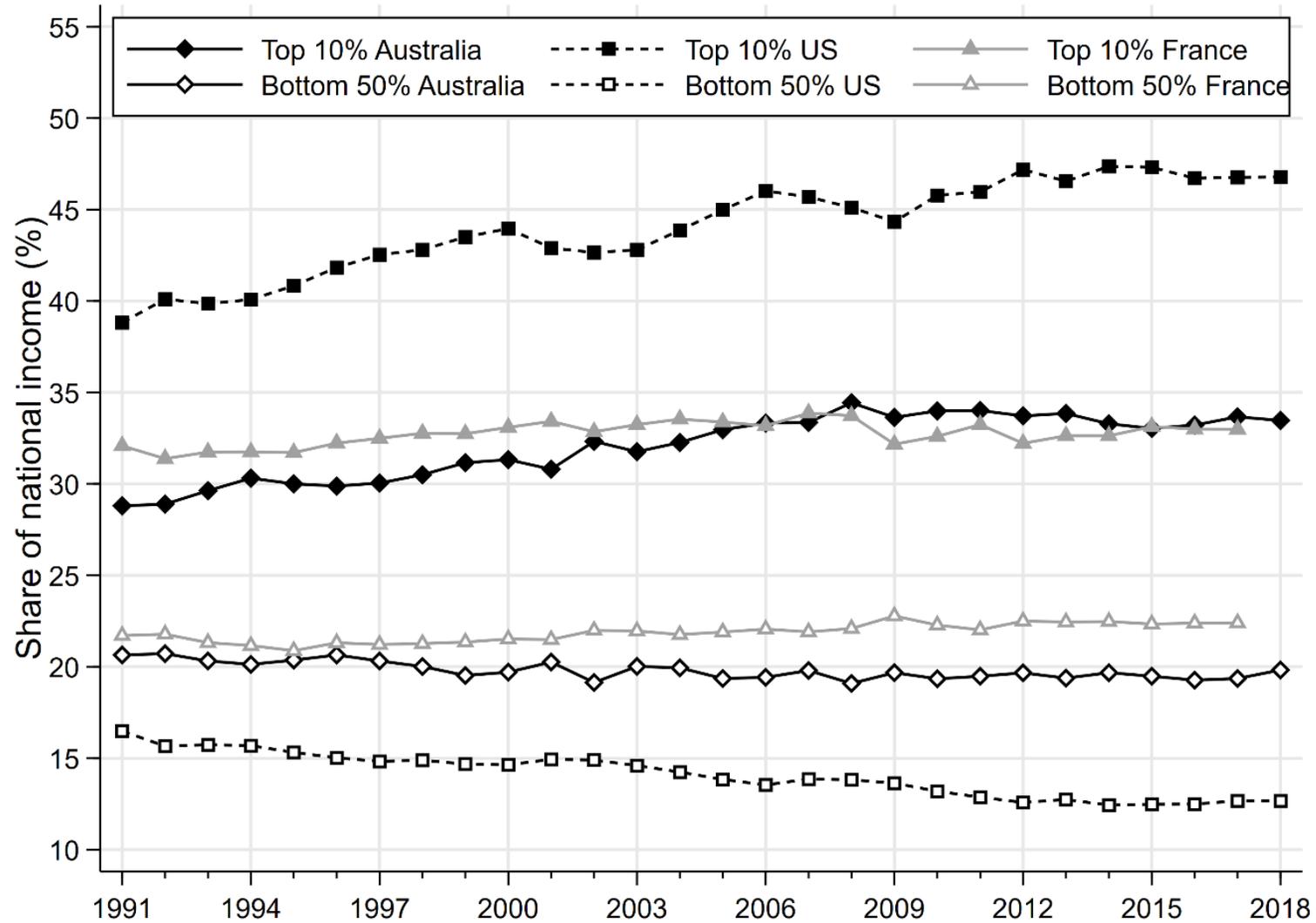
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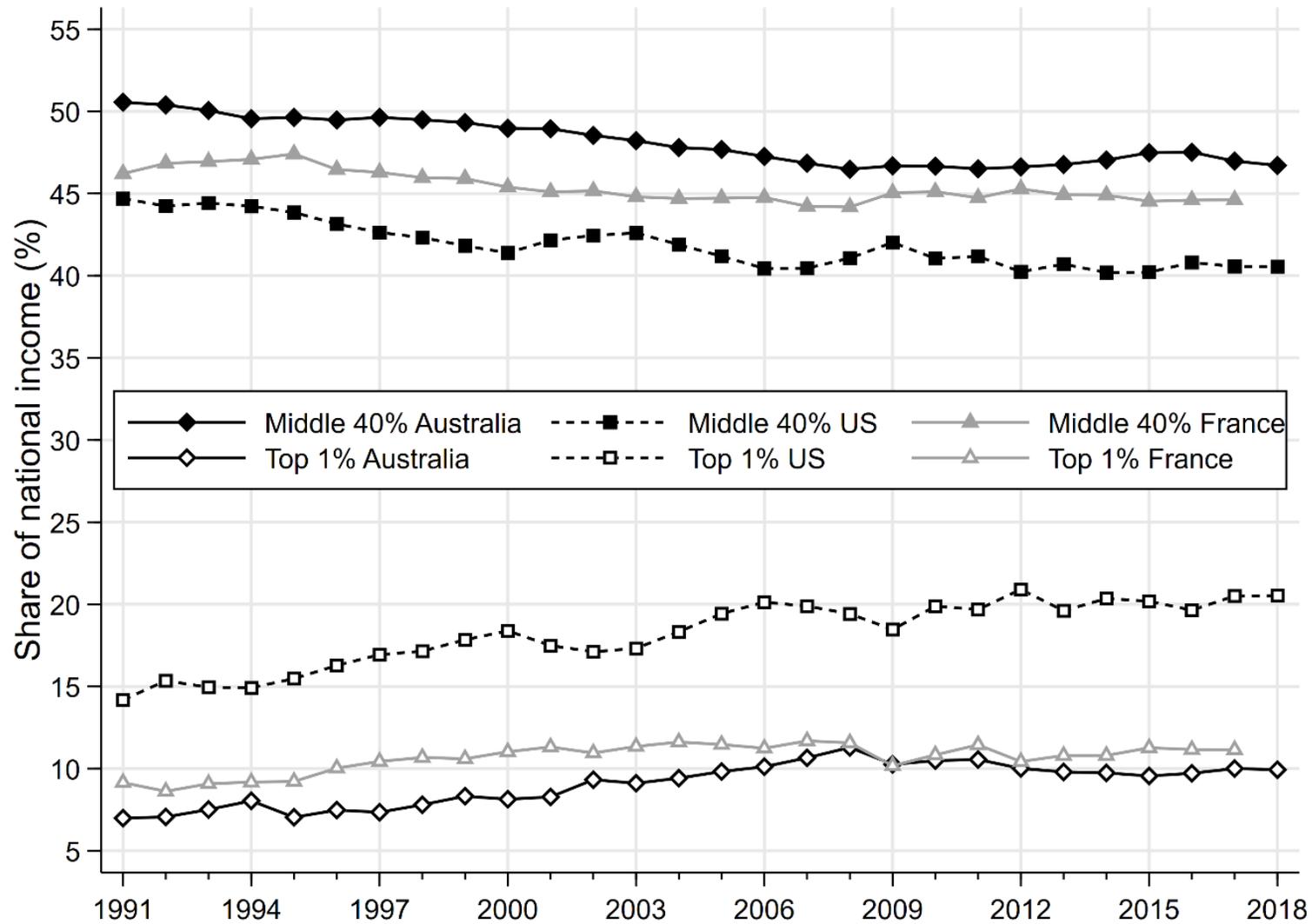
# International comparisons: Australia, US and France



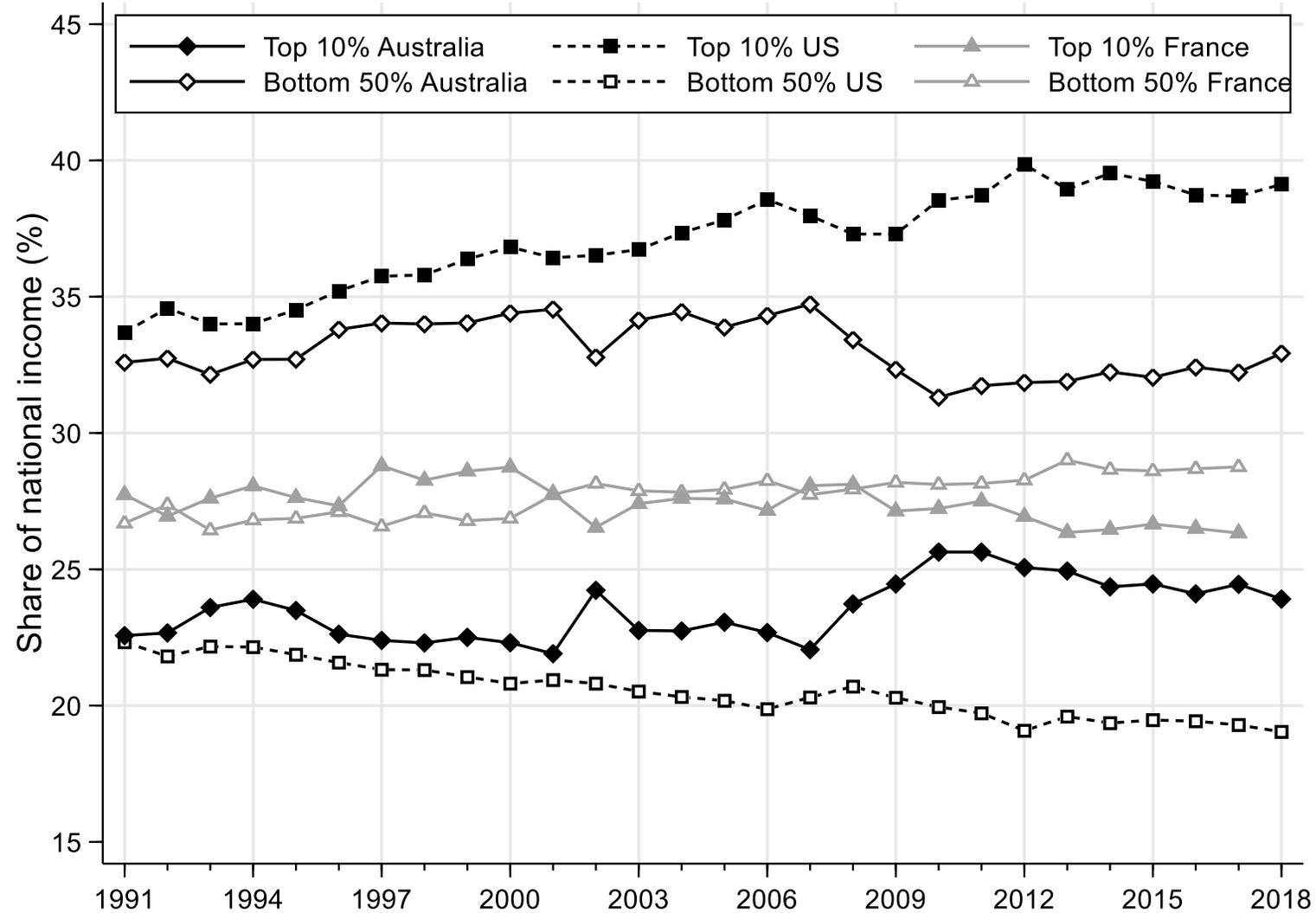
# Top 10% and bottom 50% pretax income shares



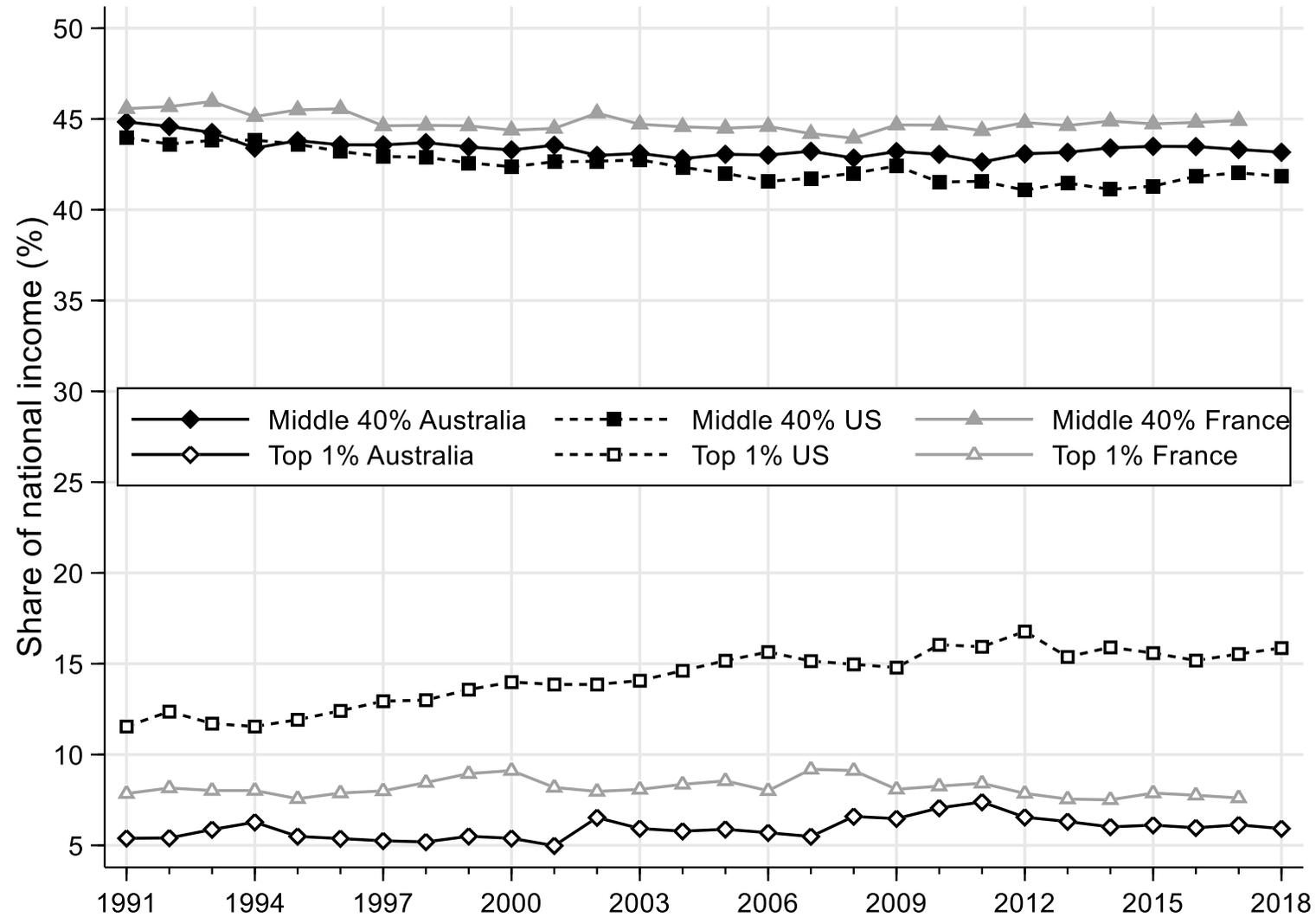
# Top 1% and middle 40% pretax income shares



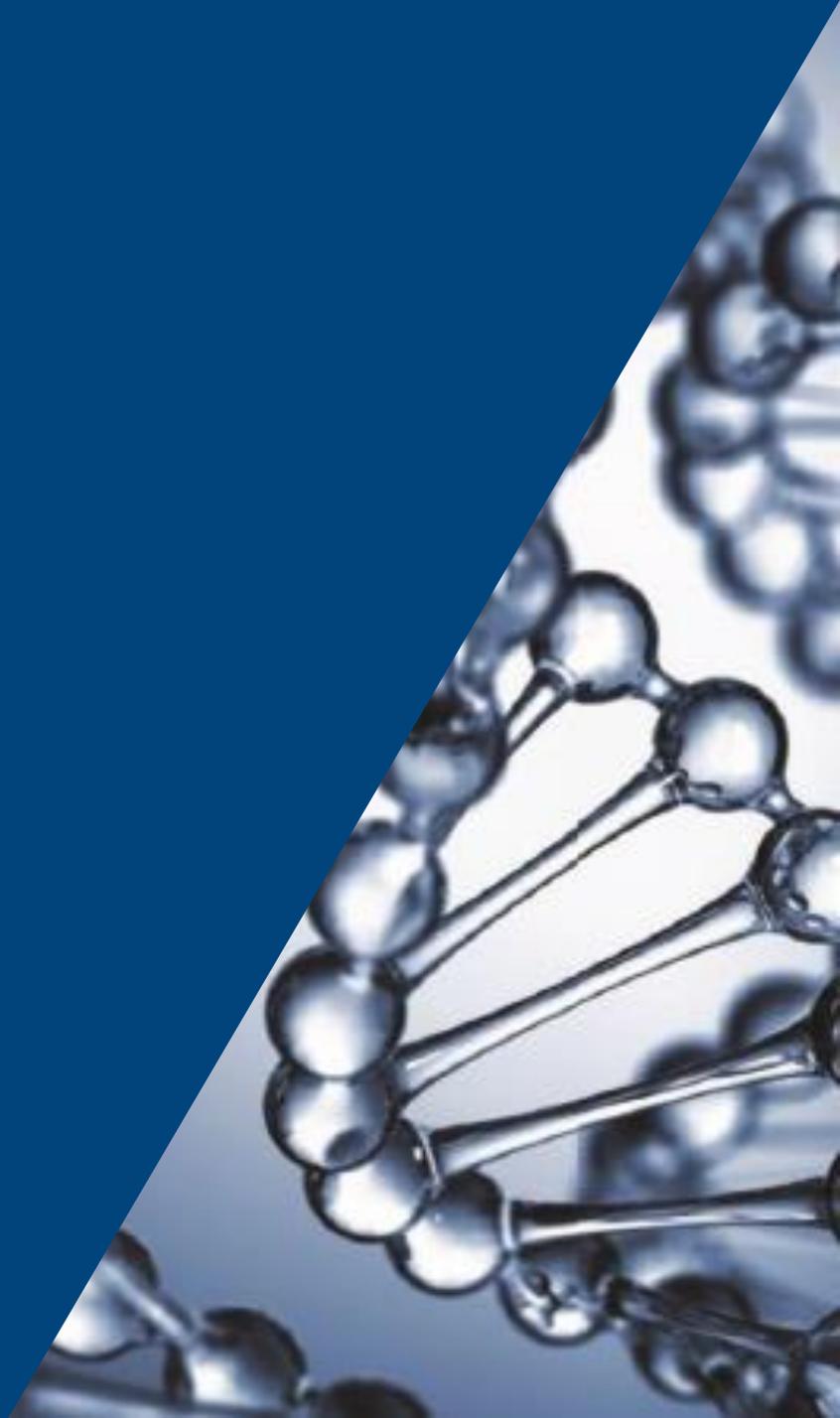
# Top 10% and bottom 50% post-tax income shares



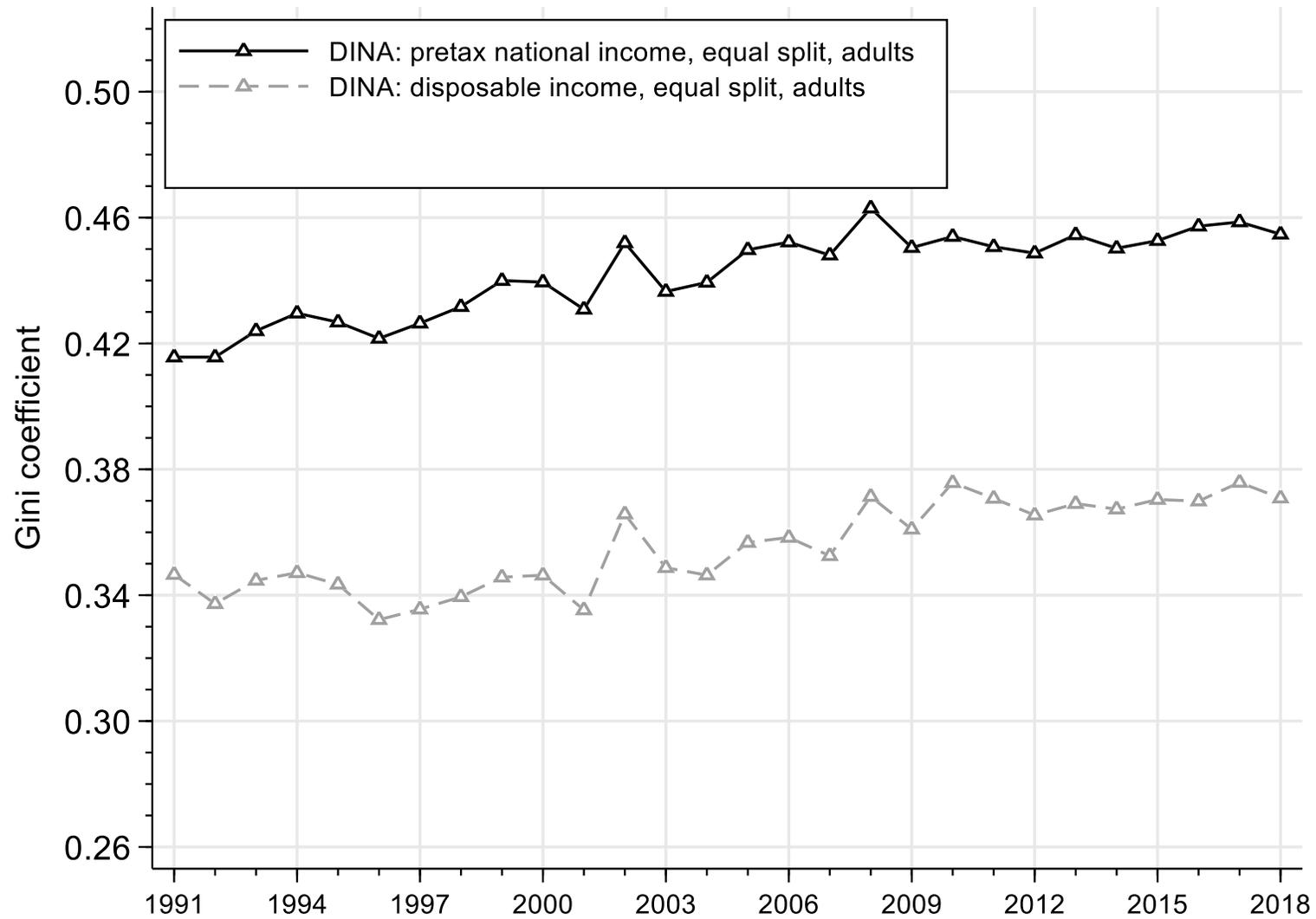
# Top 1% and middle 40% post-tax income shares



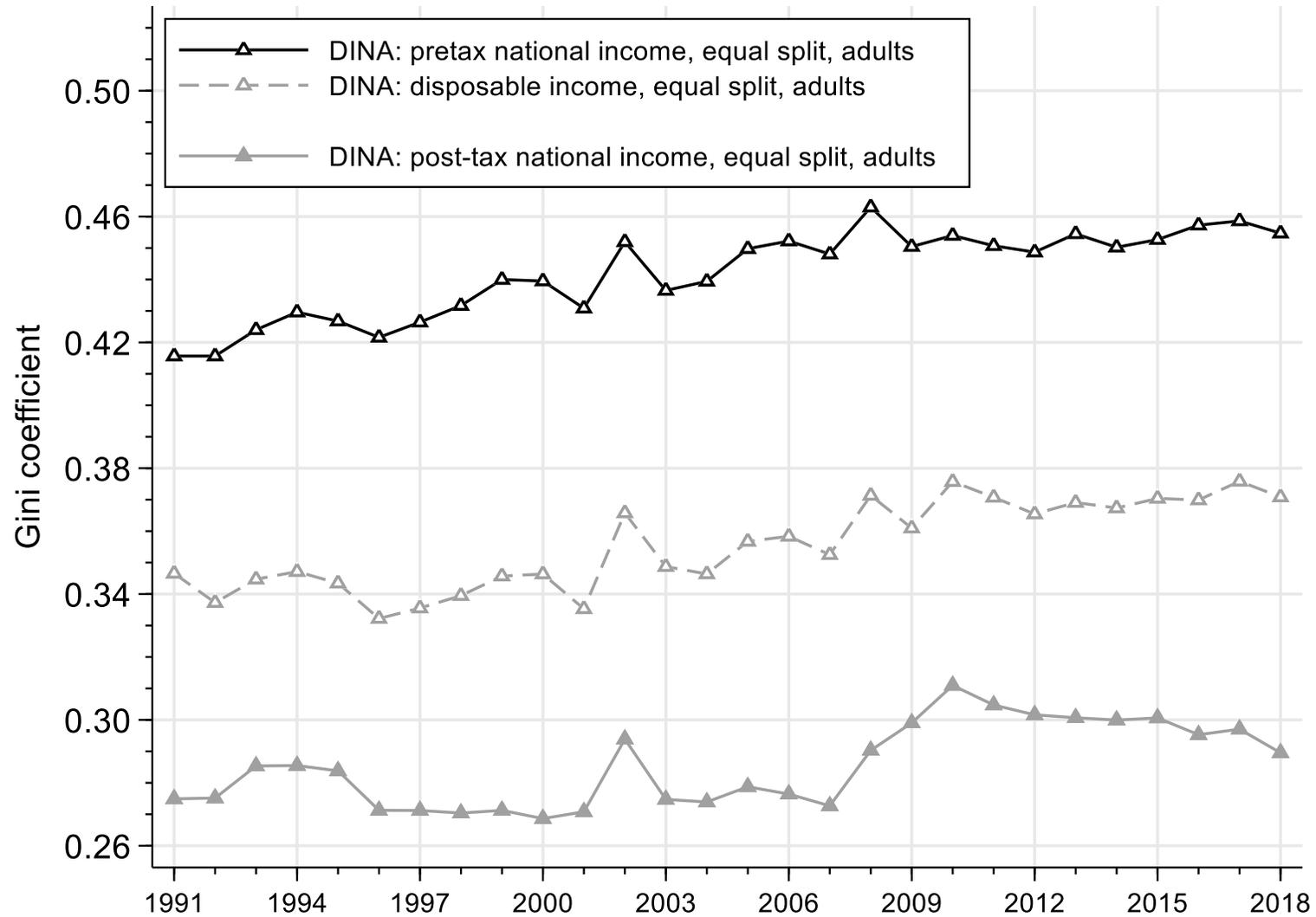
# Comparisons with household survey estimates of inequality



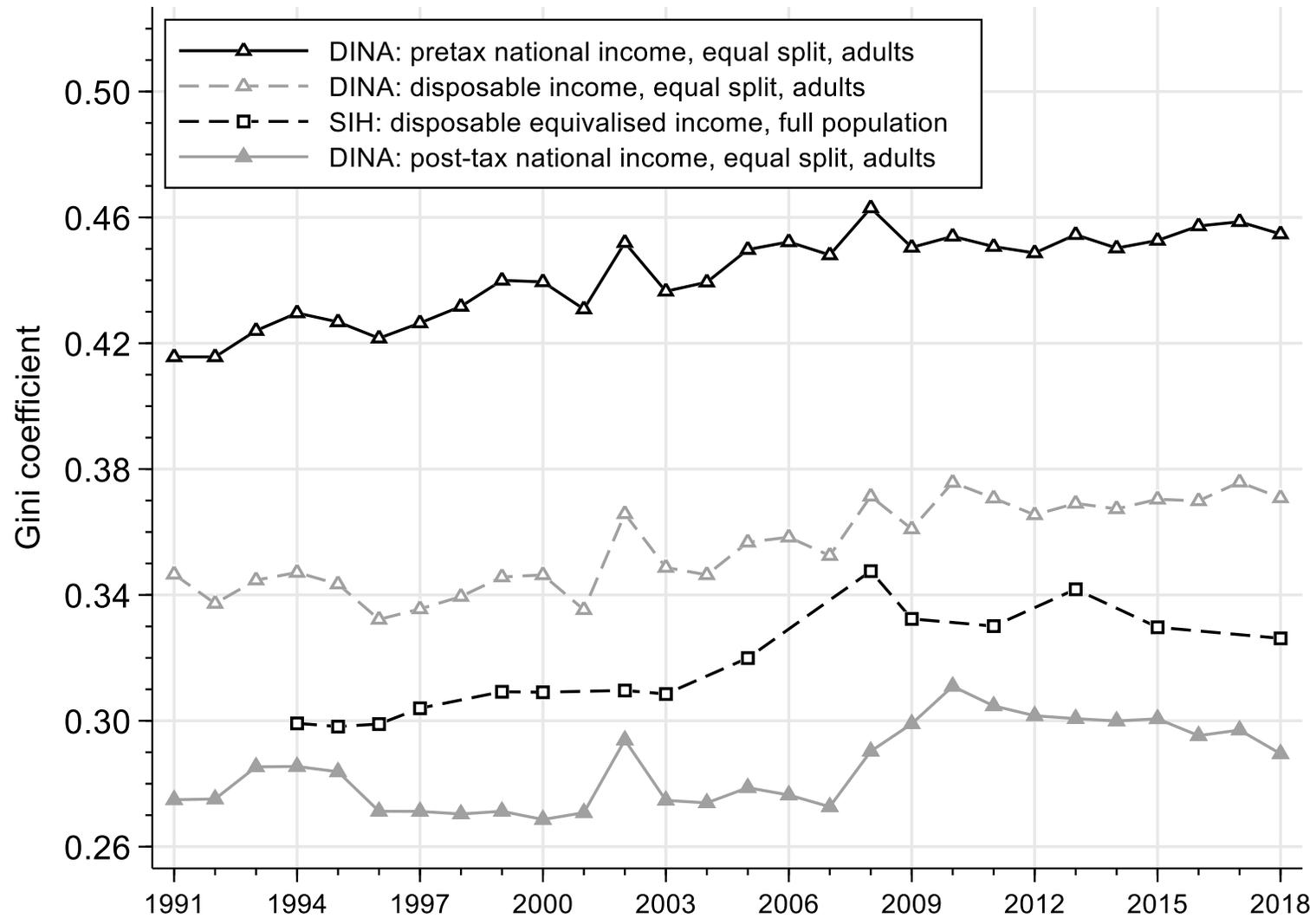
# DINA and SIH Gini coefficients



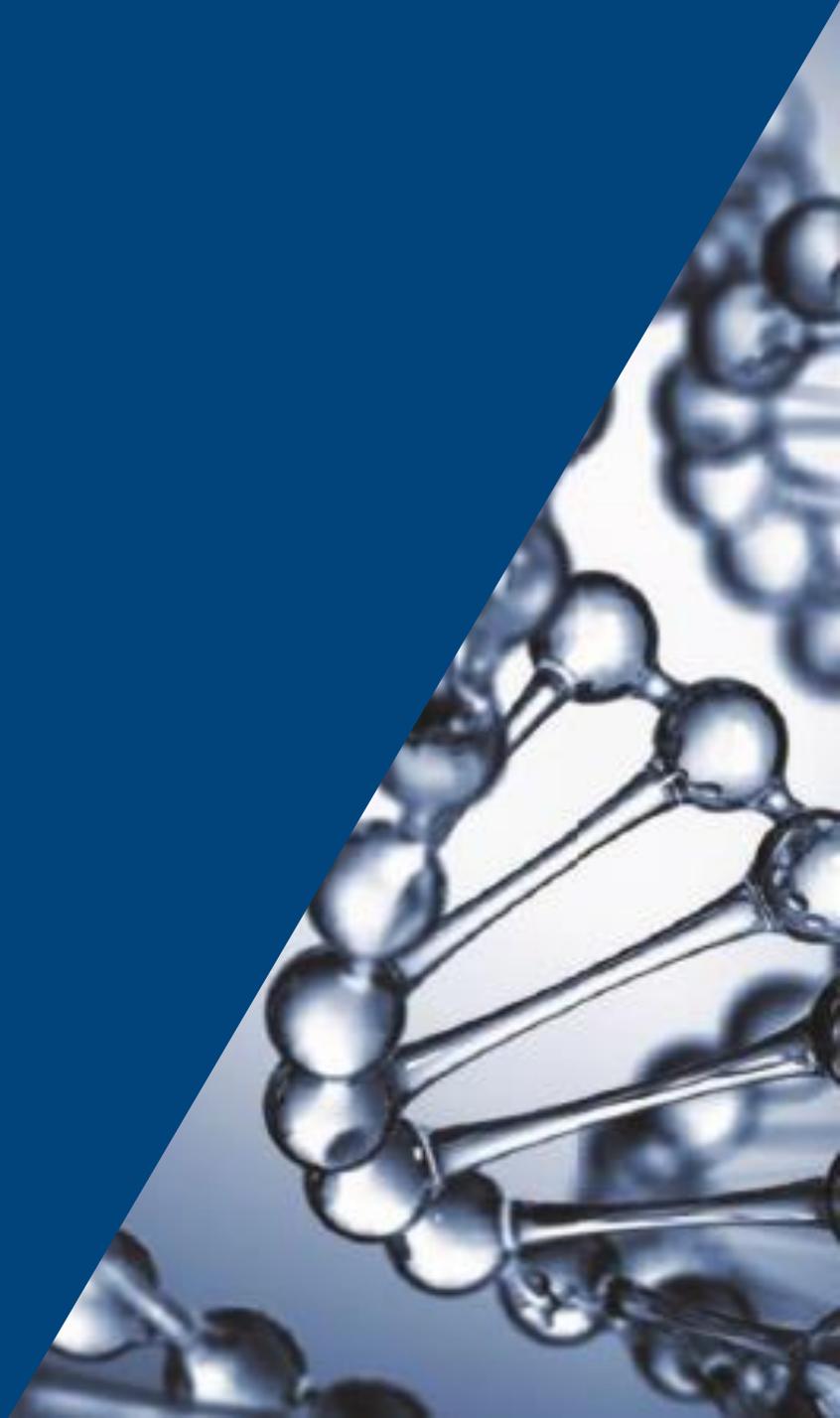
# DINA and SIH Gini coefficients



# DINA and SIH Gini coefficients



# Conclusion



# Conclusion

- We have produced the first DINA series for Australia
- Further possible refinements include
  - Use of consistent macro series (instead of the combination of WID and ABS data series)
  - More sophisticated treatment of indirect taxes via the estimation/imputation of household consumption
  - Extension to earlier years: Unit record income survey data is more sparse prior to the 1990s, and indeed non-existent prior to 1975. Similarly, unit record tax data only extends back to 1991

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