



EUROPEAN CENTRAL BANK

EUROSYSTEM

Cashing in on wealth

Links between wealth and income
inequality from the lens of
Distributional Wealth Accounts

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- 3 Extension of Distributional Wealth Accounts methodology to income items
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1. Introduction

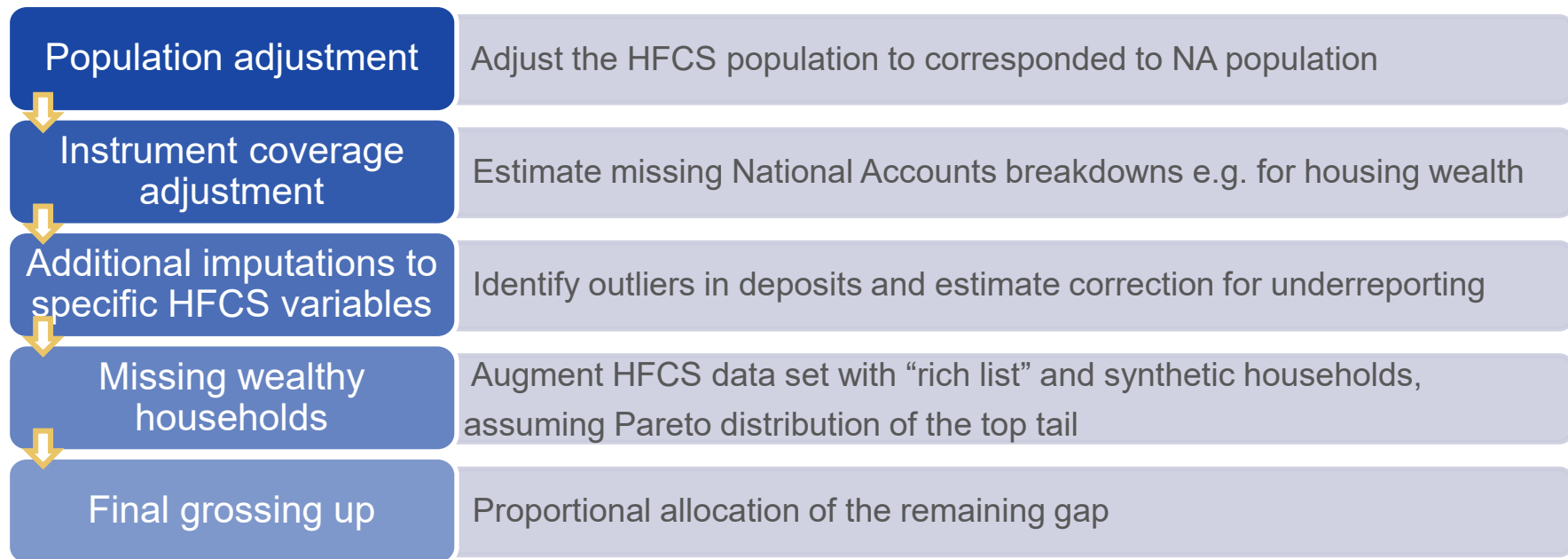
This project aims to produce **joint distributional income and wealth accounts**, starting from the work done on experimental **Distributional Wealth Accounts** (DWA) dataset which is under development of European System of Central Banks.

- **Data sources:** Household Finance and Consumption Survey (HFCS) and National Accounts (NA)
- **Methodology:** Consistent compilation steps as for DWA
- **Coverage:** Distributions of **disposable income and its components** consistent with National Accounts and DWA

1. Introduction

Distributional Wealth Accounts

Overview of the estimation method used for DWA compilation:



2. Typology between HFCS and NA

- **All components of disposable income** are linked between HFCS and NA
- For some income items there exists a **direct linkage** between the two sources
- For income items **without a direct linkage** one the following approaches is used:
 - a) imputations based on other available HFCS variables
 - b) distributional information from the corresponding balance sheet item is used as a proxy
 - c) distributional information from a related flow is used as a proxy

2. Typology between HFCS and NA

National Accounts	HFCS
Generation of income account	
Operating surplus	Imputed based on value and size of the household main residence
Mixed income	Self-employment income, Rental income from real estate property
Allocation of primary income account	
Wages and salaries (resource)	Employee income
Interest (without FISIM); Dividends and Withdrawals from income of quasi-corporations (resource)	Income from financial investments, Income from private business other than self-employment
Interest (use)	The distribution of outstanding amount of mortgages and private loans is a proxy.
Investment income attributable to insurance policy holders (resource)	The distribution of outstanding amount of life insurance is a proxy.
Investment income payable on pension entitlements (resource)	The distribution of outstanding amount of voluntary pension insurance is a proxy.
Investment income attributable to collective investment (resource)	The distribution of outstanding amount of mutual funds is a proxy.
Rent (use/resource)	The distribution of self-employment income is a proxy.

Blue items don't have a direct linkage.

2. Typology between HFCS and NA

National Accounts	HFCS
Secondary distribution of income account	
Taxes on income and wealth (use)	Imputed based on employee income and self-employment income.
Households' actual social contributions (use)	Imputed based on employee income and self-employment income.
Social benefits other than social transfers in kind (resource)	Income from occupational and private pensions, Income from public pensions, Income from unemployment benefits, Income from regular social transfers
Non-life insurance premiums (use)	The distribution of household main residence is a proxy for the net non-life insurance premiums/claims.
Non-life insurance claims (resource)	
Miscellaneous current transfers (resource)	Income from private transfers
Miscellaneous current transfers (use)	Gives alimony and charity payments

Blue items don't have a direct linkage.

2. Typology between HFCS and NA

Imputations based on other available HFCS variables

Taxes on income and wealth and households' actual social contributions

- Assumption: wealth taxes represent only a small part of total taxes paid
- HFCS variables: wages and self employment income
- Additional data: tax wedges from external sources
 - Tax and contribution rates per gross income decile at country level from EUROMOD (2021)

$$T_i = \tau_{D_{inc}(i)} \times \left(\text{wage income}_i + \frac{2}{3} \text{self-employment income}_i \right)$$

$$C_i = \tau_{D_{inc}(i)}^C \times \left(\text{wage income}_i + \frac{2}{3} \text{self-employment income}_i \right)$$

- Assumption: only 2/3 of gross income from self-employment considered for tax purposes (as in Slacalek et al., 2020)

2. Typology between HFCS and NA

Imputations based on other available HFCS variables

Operating surplus

- **HFCS variables:** value and size of household main residence
- **Additional data:** values for maintenance costs and property tax rate (follows List, RoIW 2023)

$$\textit{imputed rent}_i = \textit{HMR value}_i \times (r - \tau^P) - \textit{HMR size}_i \times m$$

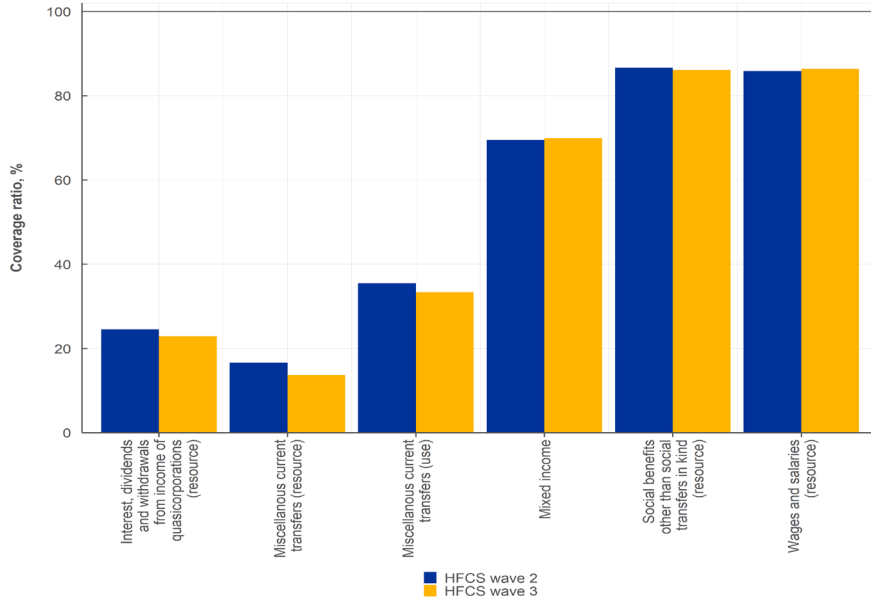
Where r is an exogenous interest rate (set at 3%), τ^P is the property tax rate, and m is a maintenance costs parameter.

2. Typology between HFCS and NA

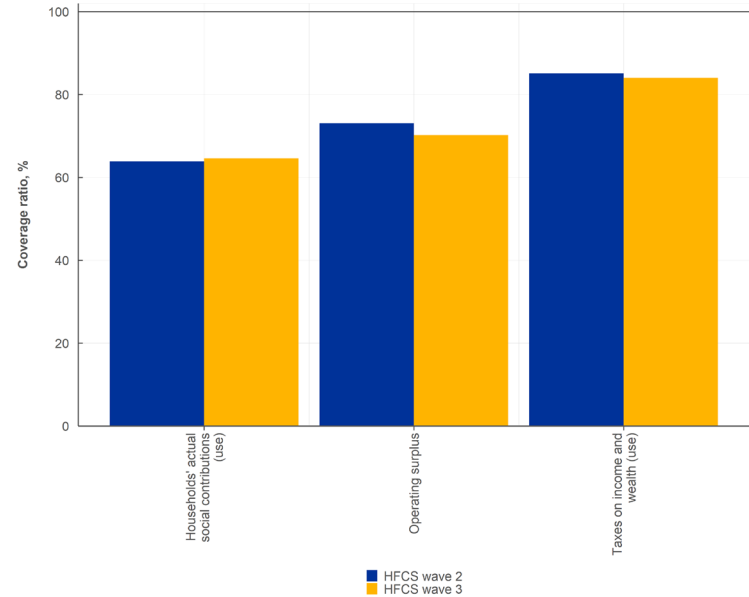
Coverage ratios

Coverage ratio =
total HFCS (imputed) value / NA counterpart

Variables with direct linkage



Variables with imputed values



3. Extension of DWA methodology to income items

Steps performed for income items

Population adjustment



Missing wealthy households

- Augment HFCS data set with “rich list” and synthetic households, assuming Pareto distribution of the top tail of the wealth distribution



- Impute income variables for the added households

Final proportional allocation

3. Extension of DWA methodology to income items

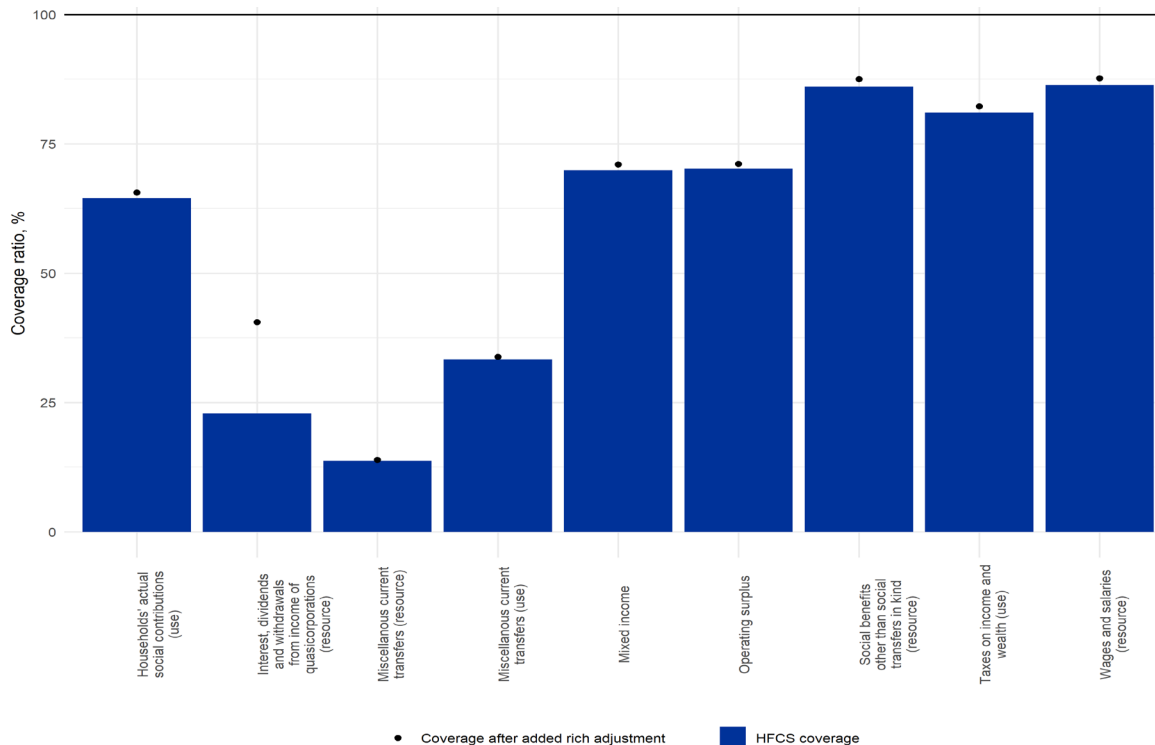
Imputations of income variables for “add rich” households

Approaches are used to impute income values to added wealth rich:

- a) **Most income items:** allocate the mean value of the top net wealth decile from the HFCS.
Applied to: operating surplus income, mixed income, wages and salaries, social benefits and other current transfers
- b) **Income from financial investments:** imputations based on the aggregate return rates and multiplying by financial asset holdings for each synthetic household.
- c) **Taxes and social contributions:** imputed values for different income components (same procedure as for HFCS observations).
- d) **Variables distributed as proxies:** final values, i.e. after DWA adjustments, are taken. As such, they are complemented with the “added rich”.
Applied to: interest paid, investment income attributable to insurance policy holders and to collective investment, investment income payable on pension entitlements, social contributions, and non-life insurance premiums and claims.

3. Extension of DWA methodology to income items

Coverage ratios after added rich adjustments



4. Results

Concepts

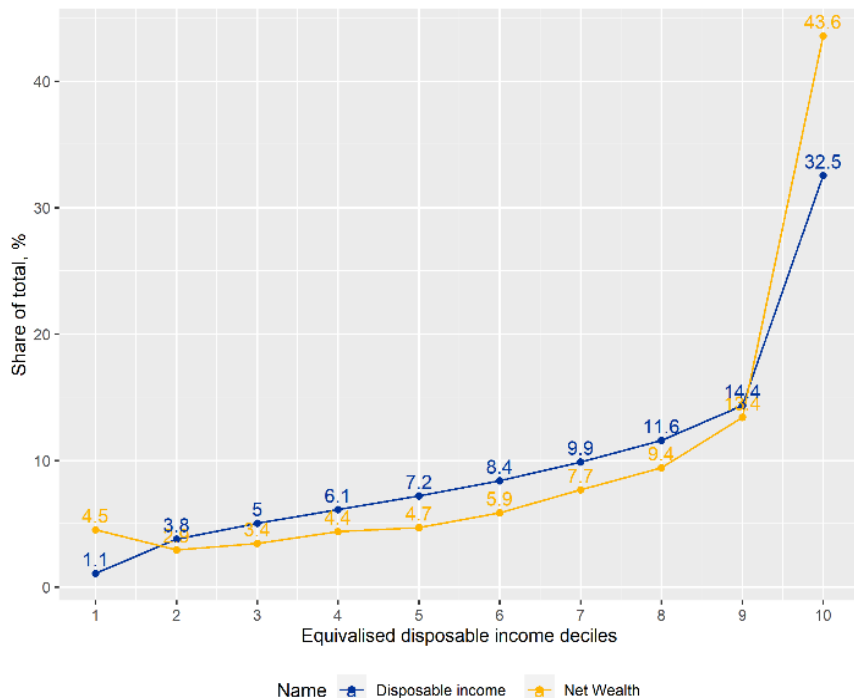
- **Total disposable income** - total income of a household, after taxes, social contributions and other deductions, which is available for consumption, and in line with the National Accounts concept.
- **Total equivalised disposable income** – total disposable income, divided by the number of household members converted into equivalised adults by using the modified OECD equivalence scale.

The OECD modified equivalence scale allocates a weight of 1 to the first adult, 0.5 to the second and each subsequent person aged 14 and over; and 0.3 to each child aged under 14.

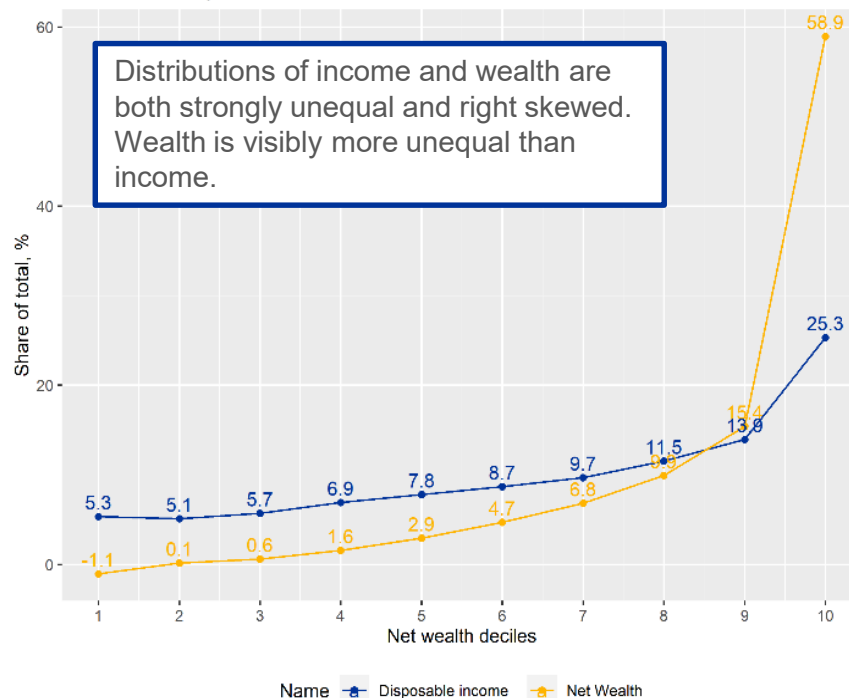
4. Results

Distributions of disposable income and net wealth

By equivalised disposable income deciles



By net wealth deciles



4. Results

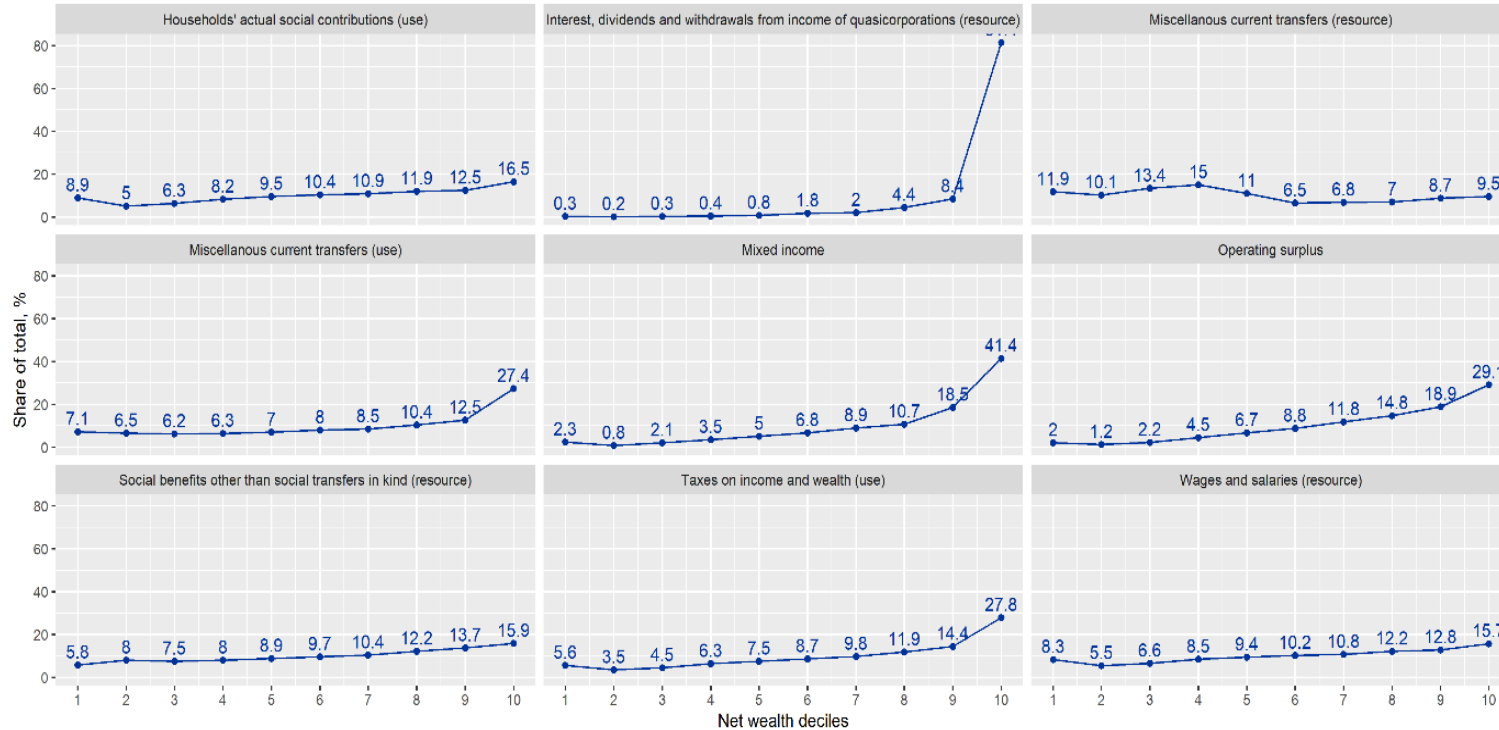
Cross-tabulation of the joint distribution of population

		Net wealth decile										Total
		1	2	3	4	5	6	7	8	9	10	
Equivalised disposable income decile	1	2.5%	1.8%	1.4%	1.0%	0.7%	0.6%	0.5%	0.4%	0.5%	0.5%	10%
	2	1.7%	1.7%	1.8%	1.2%	1.1%	0.8%	0.7%	0.5%	0.3%	0.3%	10%
	3	1.2%	2.0%	1.4%	1.2%	1.3%	0.9%	0.7%	0.6%	0.4%	0.3%	10%
	4	1.2%	1.3%	1.4%	1.4%	1.1%	1.0%	0.8%	0.8%	0.5%	0.3%	10%
	5	1.1%	1.0%	1.2%	1.3%	1.2%	1.3%	0.9%	0.9%	0.7%	0.4%	10%
	6	0.8%	0.9%	1.0%	1.2%	1.3%	1.3%	1.2%	1.1%	0.7%	0.5%	10%
	7	0.7%	0.6%	0.6%	1.0%	1.1%	1.3%	1.4%	1.5%	1.1%	0.7%	10%
	8	0.5%	0.4%	0.5%	0.7%	1.1%	1.3%	1.8%	1.4%	1.5%	0.9%	10%
	9	0.2%	0.3%	0.4%	0.7%	0.8%	0.9%	1.3%	1.8%	2.0%	1.7%	10%
	10	0.1%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	1.2%	2.2%	4.4%	10%
Total	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	100%	

0.5% of households belong to the richest wealth decile and at the same time to the poorest income decile.

4. Results

Distributions of directly matched or imputed income variables conditional on net wealth deciles

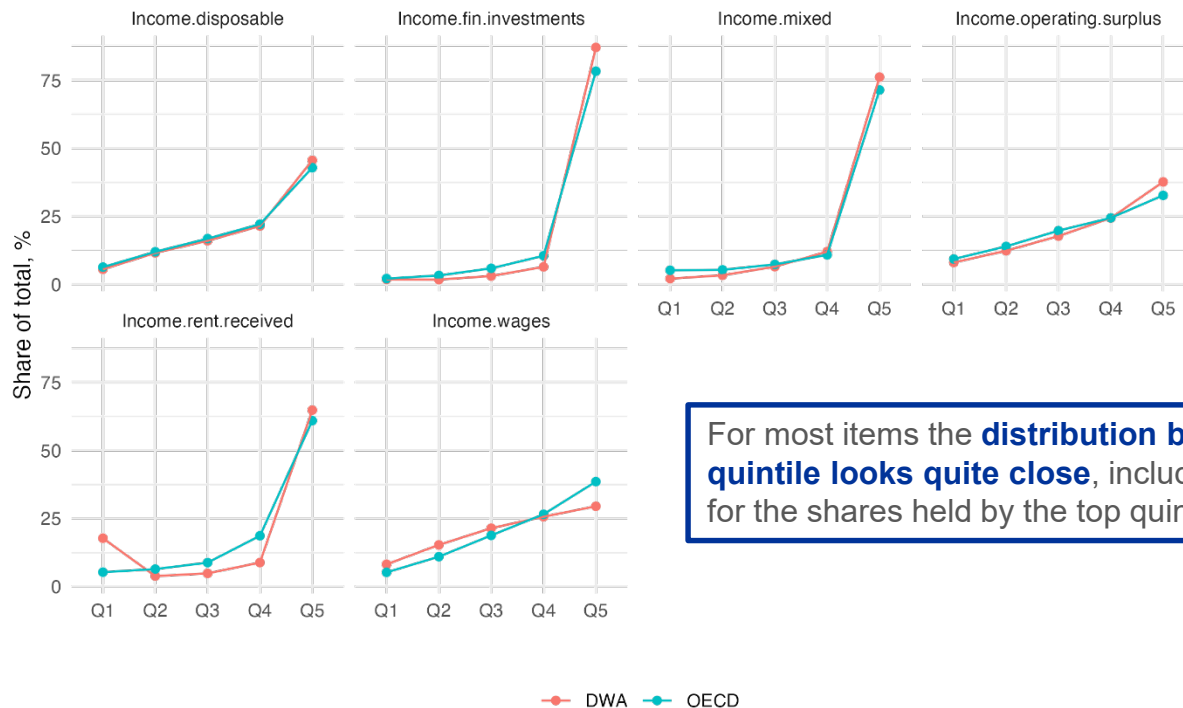


The distribution of financial investments i.e. interest, dividends and withdrawals from income of quasi-corporations is clearly much more unequal compared to the other categories.

4. Results

Comparison with published national data*

Distribution of different income components in DWA and national data, average of available countries**.



For most items the **distribution by quintile looks quite close**, including for the shares held by the top quintile.

*National data were extracted from OECD website.

**AT, BE, EE, FI, FR, DE, GR, IE, IT, LV, LU, NL, PT, SI, ES.

5. Conclusions

- Preliminary data on the **joint distributional wealth and income accounts** shed new light on economic inequalities in the euro area
- Possibility to compile **additional inequality indicators** (e.g. debt-to-income ratio)
- Results look promising also when **comparing with the published national data**
- This project is still **work in progress** and further refinements are being considered
- The data are in **high demand from the ECB users**

Questions and
comments are very
welcome.

Thank you.