



Household distributional accounts for measuring economic inequality

ONGOING ACTIVITIES AT EUROSTAT

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Outline

- Household distributional accounts (HDA) and their place in national accounts
- Macro and micro information on households budgets: pros and cons
- Main methodological challenges for building HDA
- Household distributional accounts in official statistics: ongoing activities at Eurostat

What are household distributional accounts?

Household

Economic behaviour of **households** (not of individuals)

Distributional

Distribution of household budget items across different **household groups**

**Micro data:
surveys**

Accounts

Household **budget items** concerning income, final consumption expenditure and savings

**Macro data :
national accounts**



1. Household distributional accounts and their place in National Accounts

National accounts (1)

- National accounts describe in **monetary terms** the economic process that takes place in a territory and in a certain period of time, e.g. one year or quarter.
- Following a framework similar to that of **business accounting**, national accounts describe each phase of the economic process, from production to the determination of a debt or credit position of the country versus all other countries
- Transactions are **grouped** according to their nature (e.g. wages and salaries, property income, or social benefits) but also looking at the type of economic agents who receive or pay them.

National accounts (2)

Economic agents are grouped together into five mutually exclusive sectors (Sector Accounts):

- Non-financial corporations (S11)
- Financial corporations (S12)
- General government (S13)
- Households (S14)
- Non-profit institutions serving households (S15).

The system of sector accounts shows the financial and non-financial transactions of the economy as a whole and of each institutional sector, highlighting their interdependencies in a systematic way.

National accounts (3)

- Compilers of national accounts (usually National Statistical Institutes) follow internationally agreed concepts, definitions, classifications and accounting rules in order to produce a coherent, consistent and integrated set of macroeconomic accounts. The conformity to common rules assures a sound comparability of results.
- The internationally agreed guidelines are described in the [System of National Accounts 2008](#) (SNA 2008, United nations *et al.* 2009) at the global level and the [European System of Accounts 2010](#) (ESA 2010, Eurostat 2013) at European Union level, the latter also being a legally binding Regulation (Regulation (EU) No 549/2013).

Household distributional accounts and their place in national accounts

National accounts

Total economy (S1) and its transactions with the rest of the world (S2) →


Sector Accounts

- Non-financial corporations
- Financial corporations
- General government
- **Households** →
- Non-profit institutions serving households


**Household
Distributional
Accounts**


Macro information: Household Sector Accounts

DATABASE


[-]  Data navigation tree

[-]  Detailed datasets


[+]  General and regional statistics

[+]  Economy and finance

[Database - Eurostat \(europa.eu\)](https://eurostat.europa.eu)

[+]  Population and social conditions

[+]  Industry, trade and services

[+]  Agriculture, forestry and fisheries

[+]  International trade

[+]  Transport

[+]  Environment and energy

[+]  Science, technology, digital society

Macro and micro information on households budgets: pros and cons

2. Macro and micro information on households budgets: pros and cons

National Accounts

Pros:

- Household **income, consumption and wealth** are the three components of household economic well-being. National accounts provide consistent totals for these different components and show the links between them.
- National accounts are designed to be '**exhaustive**', meaning that, when fully implemented, the accounting framework should make it possible to account for any economic transaction that takes place in the economy including underground and illegal economy or in kind transactions.
- National Accounts follow a methodology harmonised at global level (the System of National Accounts) and are thus generally **comparable** worldwide

National Accounts

Cons:

- National Accounts do not provide **any information on the distribution** of economic resources and uses among different kinds of households.

Micro information

- Administrative registers: Tax data, health data, education expenditure statistics, etc..
- Surveys on households income and consumption:
 - European Union Statistics on Income and Living Conditions ([EUSILC](#));
 - Household Budget Surveys ([HBS](#))

Micro information (surveys and adm. data): pros and cons

Pros

- provide measures of economic inequalities across individuals and households

Cons

- they fail to record some economic resources (e.g. social transfers in kind) or they may capture some resources only partially (e.g. income from hidden economy)
- Micro data on income, consumption and wealth are seldom coherent, unless they all come from one single data source.
- In case of adm. data, not always possible linking individuals to their household

Household distributional accounts: bridging macro and micro

- Household distributional accounts **add up the benefits** of the macro and micro approaches.
- they **distribute household accounts totals among different types of households** (e.g. households grouped by disposable income quintile, main source of income, or geographical area of residence), based on information derived from micro data sources.

Income items (1)

Quintiles

Q1 + Q2 + Q3 + Q4 + Q5 = NA adjusted estimates (B)

	Q1	Q2	Q3	Q4	Q5
Operating surplus and mixed income					
Operating surplus					
Owner occupied dwellings					
Leasing of dwellings					
Mixed income					
Own account production					
Underground production					
Mixed income excluding underground and own account production					
Compensation of employees					
Wages and salaries					
Employers' actual social contributions (counterpart in D611)					
Employers' imputed social contributions (counterpart in D612)					
Net property income received / Net property income					
Property income received					
Interest received					
Interest received (not adjusted for FISIM)					
Adjustment for FISIM (positive sign)					
Distributed income of corporations					
Reinvested earnings on foreign direct investment					
Investment income disbursements					
Rent received					
Property income paid					
Interest paid					
Interest paid (not adjusted for FISIM)					
Adjustment for FISIM (negative sign)					
Rent paid					
Balance of primary incomes					

Income items (2)

Quintiles

Q1 + Q2 + Q3 + Q4 + Q5 = NA adjusted estimates (B)

	Q1	Q2	Q3	Q4	Q5
Current taxes on income and wealth					
Net social contributions paid					
Employers' actual social contributions paid (see corresponding item above)					
Employers' imputed social contributions paid (see corresponding item above)					
Households' social contributions (actual and supplements)					
Households' actual social contributions					
Households' social contributions supplements (see corresponding item D442R above)					
Social insurance scheme service charges					
Net social contributions received					
Employers' actual social contributions received					
Employers' imputed social contributions received					
Social benefits other than STiK paid					
Social benefits other than STiK received					
Other current transfers (net)					
Net non-life insurance claims minus premiums					
Non-life insurance premiums (including D441AR (see above))					
Non-life insurance claims					
Net miscellaneous current transfers					
Miscellaneous current transfers received					
Miscellaneous current transfers paid					
of which transfers between resident households (2008 SNA 8.133)					
Disposable income					
STiK					
Education					
Health					
Other					
Adjusted disposable income					

Consumption & Saving

Food and non-alcoholic beverages
Alcoholic beverages, tobacco and narcotics
Clothing and footwear
Housing, water, electricity, gas and other fuels
Furnishings, households equipment and routine maintenance of the house
Health
Transport
Communications
Recreation and culture
Education
Restaurants and hotels
Miscellaneous goods and services
Final national consumption expenditure
STiK
Actual final consumption
Adjusted disposable income
Adjustment for the change in pension entitlements
Gross Saving

Quintiles

Q1 + Q2 + Q3 + Q4 + Q5 = NA adjusted estimates (B)

Q1	Q2	Q3	Q4	Q5
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3. Main methodological challenges for building HDA

Top-down method

- The totals of national accounts are distributed among household groups based on surveys or other micro data sources.
- For each income and consumption macro totals, one corresponding variable must be identified on the micro side.
- No single micro-data source contains all the information needed to distribute the macro totals.

Micro-macro reconciliation

We need to identify the variable in the micro-data sources that best corresponds to each income and consumption total. Main issues:

- Not all macro variables have a corresponding item in the micro data sources (imputations at the micro level)
- In some cases, it is only possible to identify a variable that very roughly approximates the corresponding total macro from a conceptual point of view
- Even in case of a good conceptual correspondence, national accounts totals will never perfectly match with the micro data totals (micro-macro gaps).

Main methodological challenges for building HDA

micro-macro gaps

Belgium -EUR Mn 2019				
	NA	EUSILC	NA-EUSILC	NA-EUSILC coverage rate
wage and salaries	186137.0	179178.0	6959.0	0.96
property income (received)	29014	6901	22113.0	0.24
source: Eurostat experimental statistics				



Micro-macro gap

Main methodological challenges for building HDA

The first major methodological challenge: how to allocate micro-macro gaps

- Various methods depending on the considered item: proportional allocation, allocation based on a proxy variable or on external data.
- The choice of one method instead of another can significantly affect inequality indicators.

Micro-micro integration

- Distributional accounts result from the use of micro-data from different data sources. Indeed, no single source contains the information necessary for the distribution of all national accounts items.
- Independent data sources often provide inconsistent estimates for the same phenomenon or inconsistent estimates on interrelated phenomena such as income and consumption expenditure. This inconsistency can be transmitted to the distributional accounts, leading, for example, to implausible propensity of consumption.

Main methodological challenges for building HDA

Incoherent distributions of income and consumption expenditure from independent data sources

Table 1
Average consumption propensities by geographical area – Italy, 2004

Data source	North-West	North-East	Centre	South	Italy
Shiw	72.93%	71.54%	75.52%	81.08%	75.09%
Hbs-Shiw	100.37%	87.76%	82.06%	107.11%	94.79%
Hbs-ItSilc	86.31%	84.36%	75.92%	75.94%	80.82%
NAs	–	–	–	–	87.20%

Source: Our computations based on data from [21–23]. Income and consumption expenditure estimates are grossed up using the surveys sampling weights.

[From Coli Tartamella \(2017\)](#)

Main methodological challenges for building HDA

Methodological alternatives

Different methods:

- Integrated survey -> *ex ante* combination of different surveys
- Record linking -> combining different data sources through common IDs
- Modular approach -> 'one-shot' questions serving as hook variables
- Statistical matching -> model-based approach, assuming similar target values for households with similar characteristics

accuracy



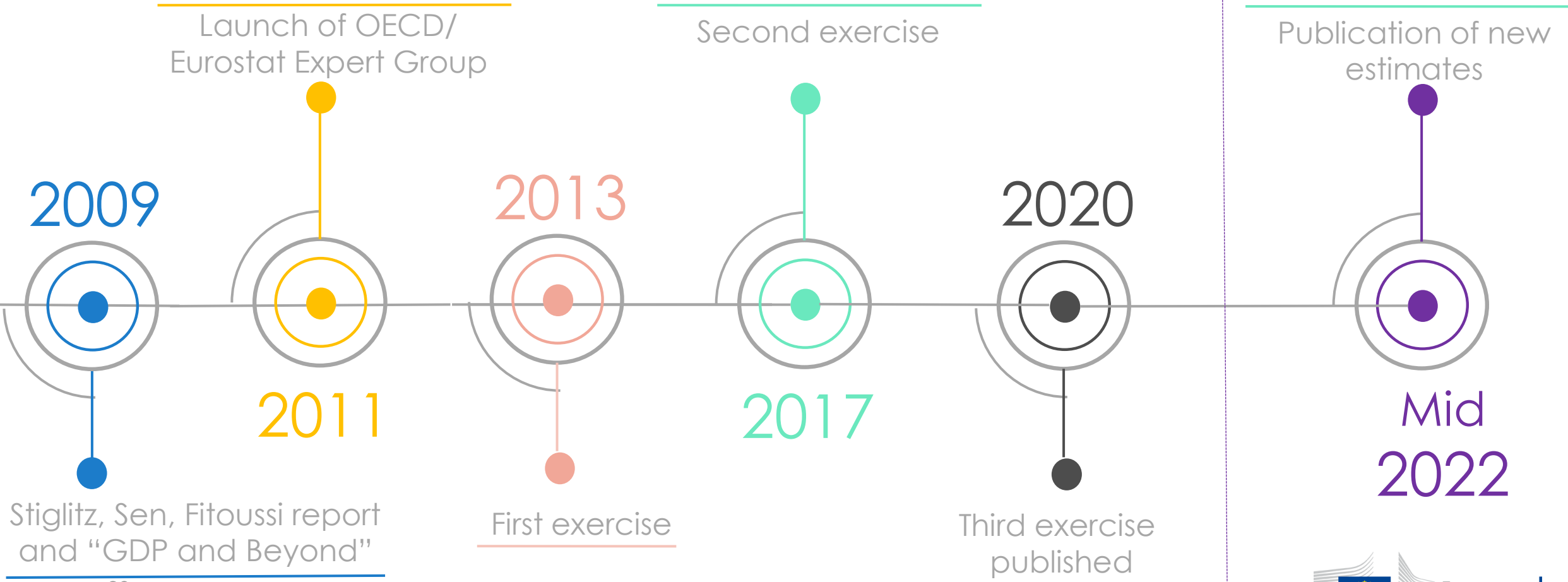
4. Household distributional accounts in official statistics: ongoing activities at Eurostat

Eurostat main activities on distributional accounts

Joint work: Eurostat C2 Sector accounts team, Eurostat F1 Income consumption and wealth team

- Past activities
 - Expert Group on Disparities in a National Accounts Framework (EG DNA)
- Current activities
 - Dissemination of experimental statistics
 - Task force on household distributional accounts (TF HDA)
 - Grants

The EG DNA (I)

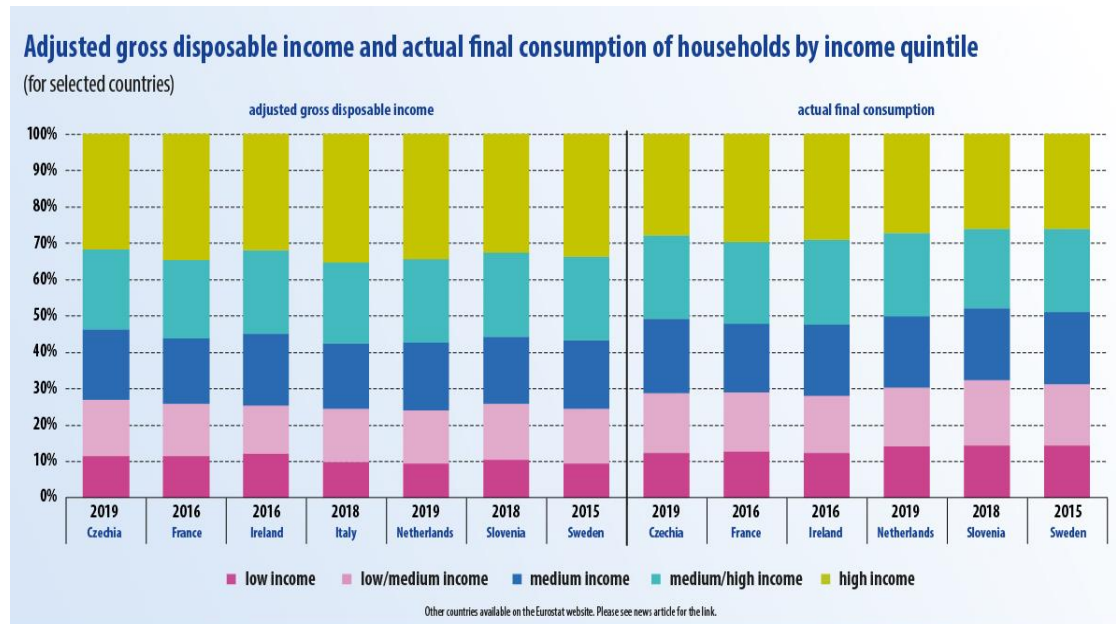


Objectives achieved by the EG DNA (third exercise from 2017 to 2020)

- Publication of experimental results (countries' estimates together with the outcome of Eurostat's centralized exercise) –Eurostat and OECD online databases
- Development of template for collecting data
- Development of guidance
- Publication of a Final Report in May 2022.

Experimental results (new estimates)

[Income and consumption: social surveys and national accounts - Experimental statistics - Eurostat \(europa.eu\)](#)



ec.europa.eu/eurostat

Access the statistics

- [Distributional national accounts - national data and metadata](#)
- [Distributional national accounts - centralised data and metadata](#)

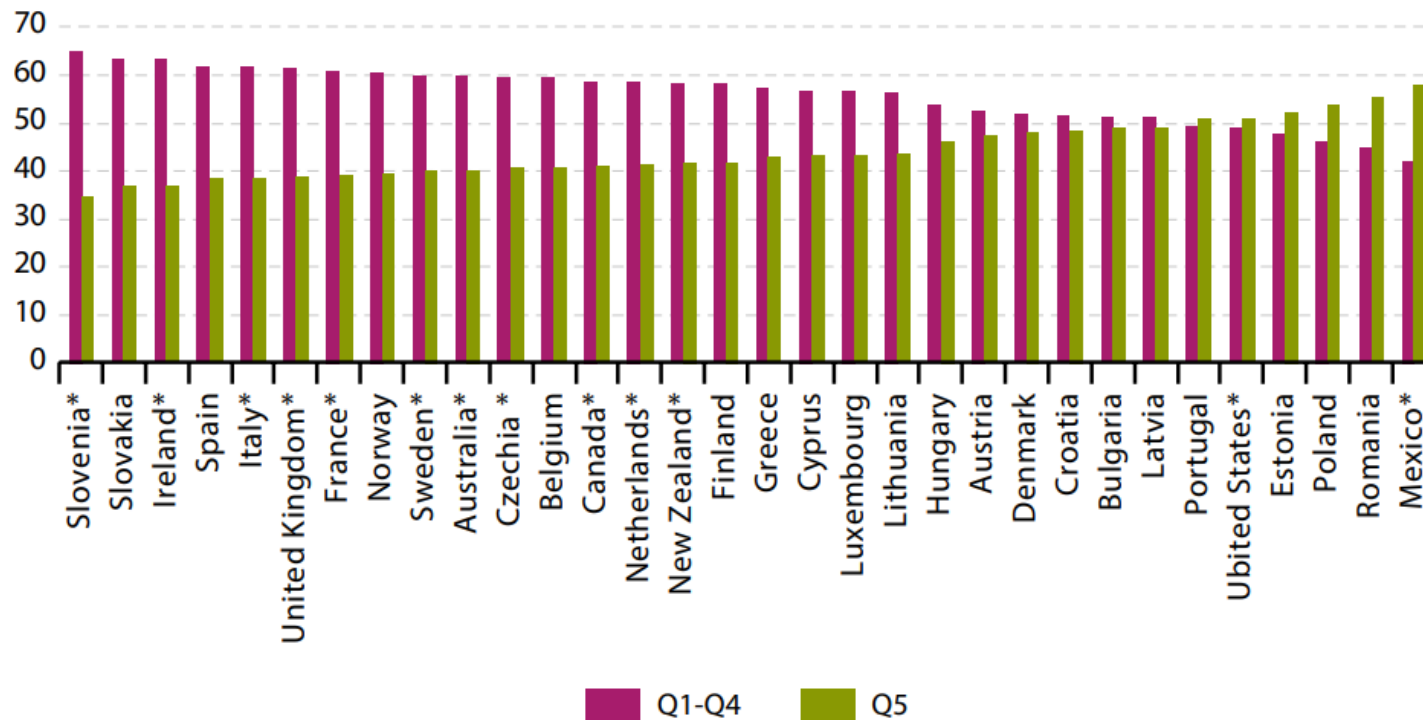
Source dataset: [National estimates, Eurostat experimental statistics](#)

Household distributional accounts in official statistics: ongoing activities at Eurostat

Analysis of results: some example from the Final Report

Figure 4.2.1.1: Shares of gross disposable income held by households belonging to the first four quintiles (Q1–Q4), compared with the share held by the fifth quintile (Q5). Year around 2015. Countries ranked by percentage according to the increasing share of disposable income held by the fifth quintile.

(%)

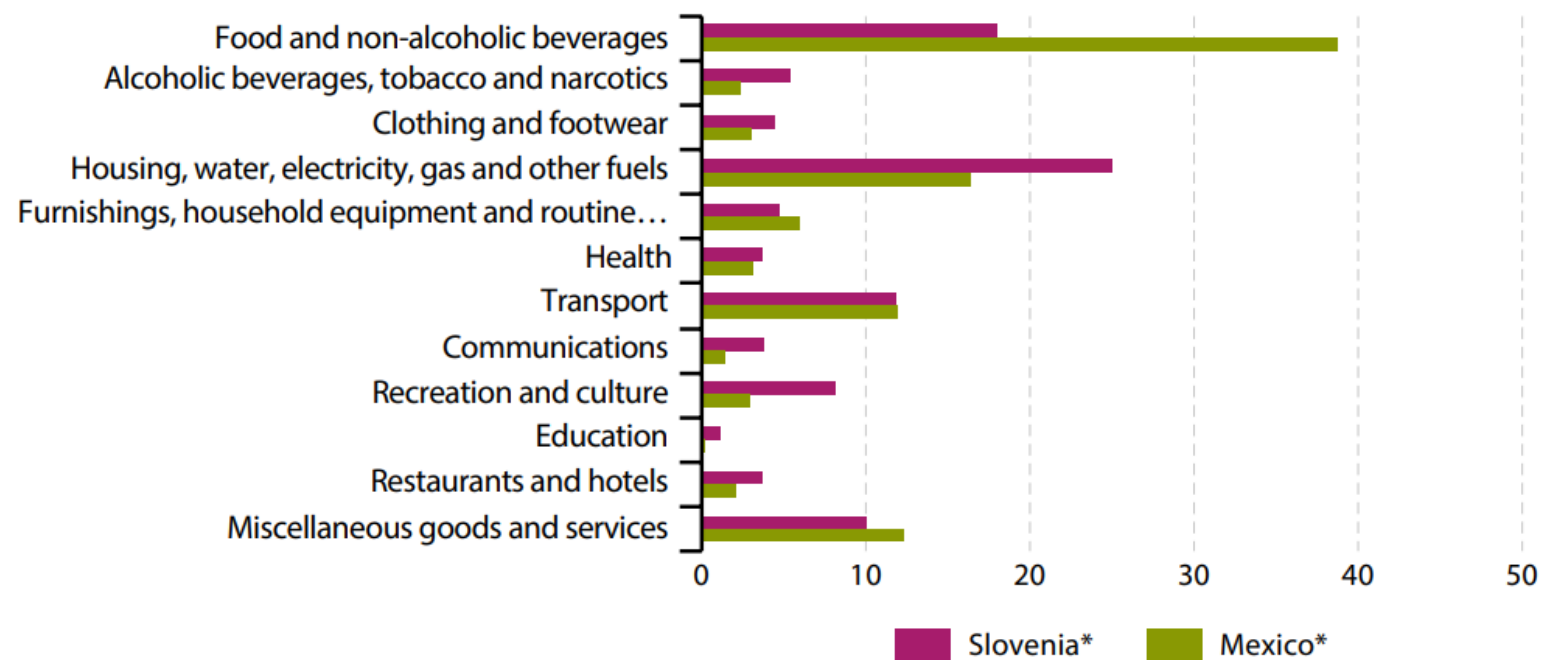


Note: Countries are ranked according to the increasing share of disposable income held by the fifth quintile. Asterisks indicate the countries that carried out a national exercise.

Analysis of results: some example from the Final Report

Fig. 4.2.3.3: Shares of consumption expenditure by kind of consumption for the poorest households, in two countries with a lower (Slovenia) and higher (Mexico) level of income distribution inequality. Year 2015.

(%)



Note: Asterisks indicate the countries that have carried out a national exercise.

Household distributional accounts in official statistics: ongoing activities at Eurostat

TF HDA: the mandate

- The TF HDA provides a forum to share experience and knowledge that helps countries to estimate their own distributional accounts or improve the quality of results achieved so far
- It also aims at establishing a process for publishing HDA experimental statistics at the European level on a regular basis
- Finally, the TF HDA could help improving the quality of experimental statistics produced through the centralized exercise for those countries that are not currently in the position to produce their own results.

TF HDA: working arrangements

- **Coordination:** Eurostat (unit C2 and F1)
- **Composition:** 16 Member States (13 active and three passive), Two IOs and several internal user interest
- **Timing of activities:** from 2022 to 2025, 1-3 meetings per year, either in Luxembourg or virtually:
- **Organization of work:**
 - Operational approach: participants will be invited to discuss specific topics and possibly contribute actively with their experience (e.g. sharing scripts).
 - Good collaboration of national accounts and social statistics departments is required to achieve high quality results.

TF HDA: Topics suggested by countries

Which concrete topics would you like to be discussed at meetings of the TF HDA within the next 3 years (in order of priority)? [questionnaire submitted after the kick-off meeting]

General

- Population: what to do about the population not covered or under-covered by micro data (institutional households, migrant households, students)?
- Different methods for dividing the micro-macro gaps - when somebody is using something else as in centralized calculations, what are those methods and what are those based on?
- Sensitivity, quality indicators, comparison of results with other sources, interpretation of results
- Increasing the granularity of results
- Saving rates and joint distribution of income and consumption in the DNA framework
- Data collection template

TF HDA: Topics suggested by countries

Income

- gap allocation of income items with large data gaps (mixed income, property income, current transfers)
- Assumptions made on unobserved economy and missing top incomes
- Parametric or semi-parametric modelling tools for unobserved or poorly measured distributions
- grouping households by income quintile/decile - how much do the decisions on division method affect the results?
- distributing StIK and studying public redistribution and before/after transfers income
- building quarterly time series

Consumption

- How to bridge HBS missing years - interpolation of time series?

Household distributional accounts in official statistics: ongoing activities at Eurostat

Thank you

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