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Household final consumption expenditure distributional accounts: harmonising macro and micro data

Distributional measures

Macro-economic measures of the economy such as the National Accounts provide information on the size and structure of the economy but they do not provide information on the distribution of income, consumption and wealth.

The “Stiglitz-Sen-Fitoussi Commission”, stressed the importance of a greater focus on the household perspective in order to provide better measures of people’s well being: distributional results on income, consumption and saving aligned to National account macroeconomic aggregates are crucial in this regard.

Micro data sources provide distributional information among households but, due to differences in concepts and definitions (and statistical practices as well), may provide results that diverge from National Accounts aggregates, and therefore distributional measures created using micro data sources alone may not be consistent with the figures in the National Accounts.

In order to compile household distributional accounts the first main challenge is combining and harmonizing macro and micro data.

Presentation aim

The aim of this presentation is to:

- highlight the differences between micro and macro aggregates in terms of definitions and concepts.
- read National Accounts jointly with distribution indicators from micro data sources
- integrate micro information into the System of National Accounts framework by Coicop categories
- analyse alternative sources to distribute some specific items

Eurostat centralised exercise

- Eurostat developed a centralised exercise, based on data available for the EU in EU-SILC and HBS, for countries not yet ready to publish national estimates. This involved testing different methods for allocating the micro-macro gap and a sensitivity analysis on their impact on the results.
- The Eurostat centralised exercise aims at compiling experimental distributional results for household income and consumption, aligned with the National Accounts totals.
- Year 2015 was the one covered by Eurostat in the centralised exercise for all EU countries (to ensure having at least one reference year in common for cross-country comparison).
- In the centralised exercise consumption distributional estimates for Italy could not be made due to missing income variables in HBS.

General framework (1/2)

Both the Survey and the National Accounts are based on the harmonized international classification of expenditure, Classification of Individual Consumption by Purpose - Coicop.

Two different regulations underlying

- Since January 1st 2021, the IT HBS is based on **Regulation (EU) 2019/1700**, also known as IESS - Integrated European Social Statistics, establishing a common framework for European statistics relating to persons and households, based on data at individual level collected from samples.
IT HBS provides yearly estimates
- National Accounts are based on "**European system of accounts ESA 2010**"

General framework (2/2)

- **The harmonisation between micro and macro data was conducted for the 41 Coicop groups (3-digit)** in order to obtain the best detailed adjustment and use as much as possible the distribution of household consumption from micro data source.
- The results are presented for the 12 main Coicop items.
- **The exercise focuses on 2019 as reference year** because of the availability of the Tourism Satellite Account and thus the possibility of using this data to adjust some consumption categories.

Differences between HBS and NA

Differences in the reference population

HBS population differs from the NA population.

The HBS population is the **resident** population with the exclusion of persons permanently living in institutions.

The reference population in NA is the **present** population on the national territory at a given date, including households and persons living in institutions.

Differences in definitions and concepts

Differences in concepts and definitions between HBS and NA can be grouped into the following two types:

- 1) treatment of items considered in both domains;
- 2) types of expenditure covered by the survey but not by the NA, or vice-versa.

Differences in the reference population

NA consumer population, 2019 (thousands)

	2019
Resident population (annual average)	59,729
Citizen temporarily resident abroad	-393
Non-resident foreigners present for at least one year	540
Foreign tourists	605
NA consumer population	60,480

Comparison between HBS and NA population, 2019

Reference population	2019
HBS (a)	59,211
NA (b)	60,480
Ratio (b/a)	1.021

NA HFCE follows a **domestic concept** (expenditures of non-resident households on the territory are included; expenditures of resident households abroad are excluded) whereas **HBS** follows a **national concept** (expenditures of non-resident households on the territory are excluded; expenditures of resident households abroad are included).

HBS ratio to NA-HFCE

Comparison between HBS and NA estimates, 2019 (population adjustment)

Coicop (2-digit)	Coverage Rate		
	Raw data	Adjusted data	
		P ₁ *	P ₂ **
01-Food and non-alcoholic beverages	93.0	94.9	95.2
02-Alcoholic beverages, tobacco and narcotics	31.2	31.9	31.7
03-Clothing and footwear	54.3	55.5	55.7
04-Rents, fuels and maintenance of the dwelling	110.4	112.8	111.8
05-Goods and services for the dwelling	52.9	54.0	54.2
06-Health	95.5	97.6	97.9
07-Transport	65.3	66.7	64.3
08-Communication	78.6	80.3	80.5
09-Goods and services for recreation and culture	51.9	53.0	53.2
10-Education	50.2	51.3	51.4
11-Restaurants and hotels	35.5	36.3	38.4
12-Miscellaneous goods and services	50.8	51.9	52.0
Total	72.3	73.8	73.8

* Proportional adjustment by the ratio between the two reference populations

** Proportional adjustment by the ratio between the two reference populations and tourism satellite account

Differences in definitions and concepts

Division	Group	NA	HBS
CP01	Food and non-alcoholic beverages CP011 Food	Own final consumption of agricultural products: estimated on the basis of statistics on agricultural production	Own final consumption of agricultural products: quantities are detected by the HBS
CP02	Alcoholic beverages, tobacco and narcotics CP022 Tobacco CP023 Narcotics	Smuggling of cigarettes included Included in NA	Smuggling of cigarettes not detected by the HBS Not detected by the HBS
CP03	Clothing and footwear		
CP04	Rents, fuels and maintenance of the dwelling CP042 Imputed rentals for housing CP043 Maintenance and repair of the dwelling	Estimated by applying market rents to the housing stock Major maintenance of the dwelling excluded from NA	Imputed rents estimated by the households are detected by HBS Major maintenance of the dwelling included in the HBS
CP05	Goods and services for the dwelling		
CP06	Health		
CP07	Transport CP071 Purchase of vehicles	Second-hand cars excludes exchanges of cars between households	Second-hand cars includes exchanges of cars between households
CP08	Communication		
CP09	Goods and services for recreation and culture CP094 Recreational and cultural services	Gambling included in NA net of winnings	Gambling included in HBS gross of winnings
CP10	Education		
CP11	Restaurants and hotels CP111 Catering services CP112 Accommodation services CP122 Prostitution	Income in kind included in NA Income in kind included in NA Included in NA	Income in kind not detected by the HBS Income in kind not detected by the HBS Not detected by the HBS
CP12	Miscellaneous goods and services CP125 Insurance CP126 Financial services n.e.c.	Supplementary insurance premiums included in NA Only insurance services FISIM Included in HFCE	Supplementary insurance premiums not detected by the HBS Expenditures on insurance are recorded gross of any reimbursements FISIM Not detected by the HBS

Definitions and concepts - adjustment

Comparison between HBS and NA estimates, 2019 (conceptual adjustment)

Coicop (2-digit)	Coverage Rate		
	Raw data	Adjusted data	
		P ₂ *	P ₃ **
01-Food and non-alcoholic beverages	93.0	94.9	96.5
02-Alcoholic beverages, tobacco and narcotics	31.2	31.9	51.7
03-Clothing and footwear	54.3	55.5	55.7
04-Rents, fuels and maintenance of the dwelling	110.4	112.8	111.8
05-Goods and services for the dwelling	52.9	54.0	54.2
06-Health	95.5	97.6	97.9
07-Transport	65.3	66.7	64.4
08-Communication	78.6	80.3	80.5
09-Goods and services for recreation and culture	51.9	53.0	71.3
10-Education	50.2	51.3	51.4
11-Restaurants and hotels	35.5	36.3	40.5
12-Miscellaneous goods and services	50.8	51.9	50.6
Total	72.3	73.8	77.7

* Population adjustment

** Conceptual adjustment

Sources for each division in NA-HFCE.

National Accounts totals are the product of a balancing framework in which data from different sources are combined.

Division		Sources	
CP01	Food and non-alcoholic beverages	HBS	
CP02	Alcoholic beverages, tobacco and narcotics	CFM/HBS/Admins	Different sources to estimate NA-HFCE
CP03	Clothing and footwear	CFM	
CP04	Rents, fuels and maintenance of the dwelling	HBS/Admins	Five main groups: <ul style="list-style-type: none"> - Commodity flow method (CFM) - Household Budget Survey (HBS) - Multipurpose Survey (MS) - Other Istat Surveys (OIS) - Administrative and other sources (Admins)
CP05	Goods and services for the dwelling	HBS/CFM/Admins	
CP06	Health	HBS/Admins	
CP07	Transport	HBS/Admins	
CP08	Communication	HBS/CFM/Admins	
CP09	Goods and services for recreation and culture	CFM/Admins	
CP10	Education	HBS/MS/Admins	
CP11	Restaurants and hotels	HBS/MS/OIS	
CP12	Miscellaneous goods and services	CFM/HBS/Admins	

Gap allocation methods

Eurostat centralised exercise methods for micro-macro gap allocation:

- **Method M1** - *Proportional allocation*;
- **Method M2** - *Pareto tail modelling (complemented by proportional scaling)*;
- **Methods M3.1 and M3.2** – *Allocation of ascending/descending gap shares by quintile*:
 - method M3.1 a ‘to-the-top’ allocation: gap shares 0 %, 10 %, 20 %, 30 %, 40 % to Q1, Q2, Q3, Q4, Q5
 - method M3.2 a ‘to-the-bottom’ allocation: gap shares 40 %, 30 %, 20 %, 10 %, and 0 % to Q1, Q2, Q3, Q4, Q5;
- **Method M4** - *Combined approach*.

Only M1 and M3 methods are deemed suitable for consumption by Eurostat

Assessment of “linkage” in Coicop divisions between NA and HBS

Linkage assessment provides indications of the method to be used for the gap allocation

Division		HBS/NA (adjusted for population and conceptual differences)	Conceptual link	HBS use
CP01	Food and non-alcoholic beverages	96.5	high	high
CP02	Alcoholic beverages, tobacco and narcotics	51.7	low	medium
CP03	Clothing and footwear	55.7	high	low
CP04	Rents, fuels and maintenance of the dwelling	111.8	medium	medium
CP05	Goods and services for the dwelling	54.2	high	medium
CP06	Health	97.9	high	high
CP07	Transport	64.4	medium	medium
CP08	Communication	80.5	high	high
CP09	Goods and services for recreation and culture	71.3	medium	medium
CP10	Education	51.4	high	low
CP11	Restaurants and hotels	40.5	medium	low
CP12	Miscellaneous goods and services	50.6	low	low

Final remarks and way forward

Reconciliation of micro and macro data is a key issue to define distributional accounts.

The empirical approach required the investigation of all available sources to define and better understand the micro-macro gap and then try to allocate it as properly as possible.

All available information from Tourism Satellite Account is used.

Some items, such as illegal activities, imputed rents, gambling and FISIM can be related to specific household groups and a dedicated analysis is required.

Other sources should be investigated, in order to improve the micro-macro alignment.

The incoming step: analysing the estimated household consumption expenditure by quintiles - according to the HBS equivalised variable related to monetary net income - and by socio-demographic characteristics.

grazie

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