

Geneva, 2023, June 7-9

UNECE CPI Expert Group meeting

COMPILATION OF ITALIAN HICP BY DIFFERENT GROUPS OF HOUSEHOLDS

Ilaria Arigoni, Istat (Italy) (arigoni@istat.it)

Alessandro Brunetti, Istat (Italy) (albrunet@istat.it)

Valeria de Martino, Istat (Italy) (valedema@istat.it)

Federico Polidoro, Istat (Italy) (fpolidoro@worldbank.org)

Outline

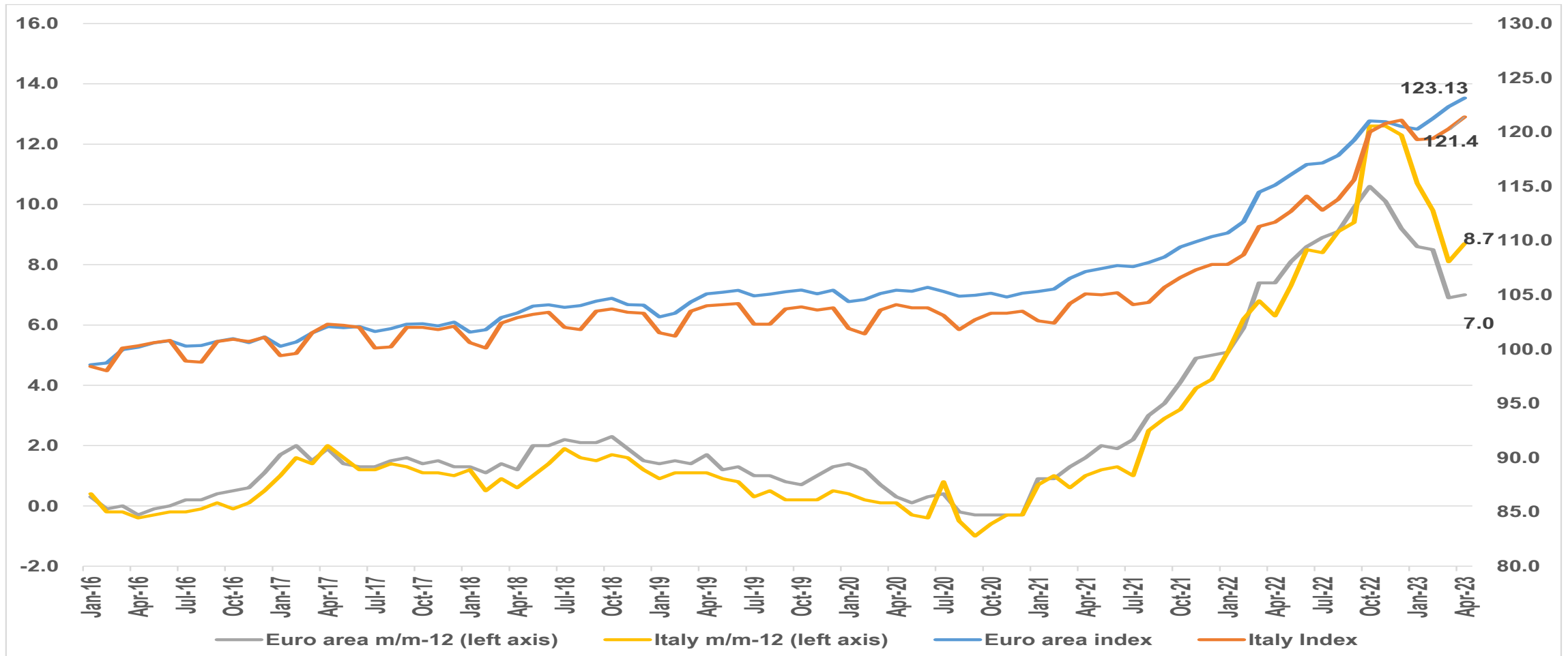
- Inflation in Italy and in the Euro area in 2022-2023: an overview
- Current Istat methodology to compile HICP by five groups of households
- Changing from expenditure to income the variable to identify the groups of households: main outcomes
- The impact of inflation on the income-based groups of households
- Characteristics of the households in the extreme groups and comparison between their distributions in the five groups by expenditure and by income
- Is it enough focusing on the weights to measure the actual impact of inflation on the poorest people?
- Some concluding remarks and perspectives

Inflation in Italy and in the Euro area in 2022-23: an overview

- 2022, as well the final part of 2021, have been characterized, in Italy, in the European Union (EU) and in the world, by a sharp increase of the rates of change of consumer price indices that are slowly decreasing in the first part of 2023
- Italian inflation measured by HICP has raised from +1.0% in July 2021 (+2.2% in the Euro Area) to +12.5% in November 2022 (+10.1% in the Euro area), slowing down respectively to +7.0% and +8.7% in April 2023.
- Given the impact of energy prices on the sharp raise and on the recent slowdown of inflation, the overall HICP excluding energy has gone on speeding up (arriving in March 2023 at +7.9% in the EA and at +6.9% in Italy) and starting declining only in April 2023 (+7.4% the EA; +6.7% in Italy)
- Yearly rates of change of food prices are still very high (in April 2023 +13.5% in the EA, +11.0% in Italy)

Inflation in Italy and in the Euro area in 2022-23: an overview

Figure 1. HICP Indices and annual rates of change. Italy and Euro area. 2016 – 2023. Percentage values



Current Istat methodology to compile HICP by five groups of households

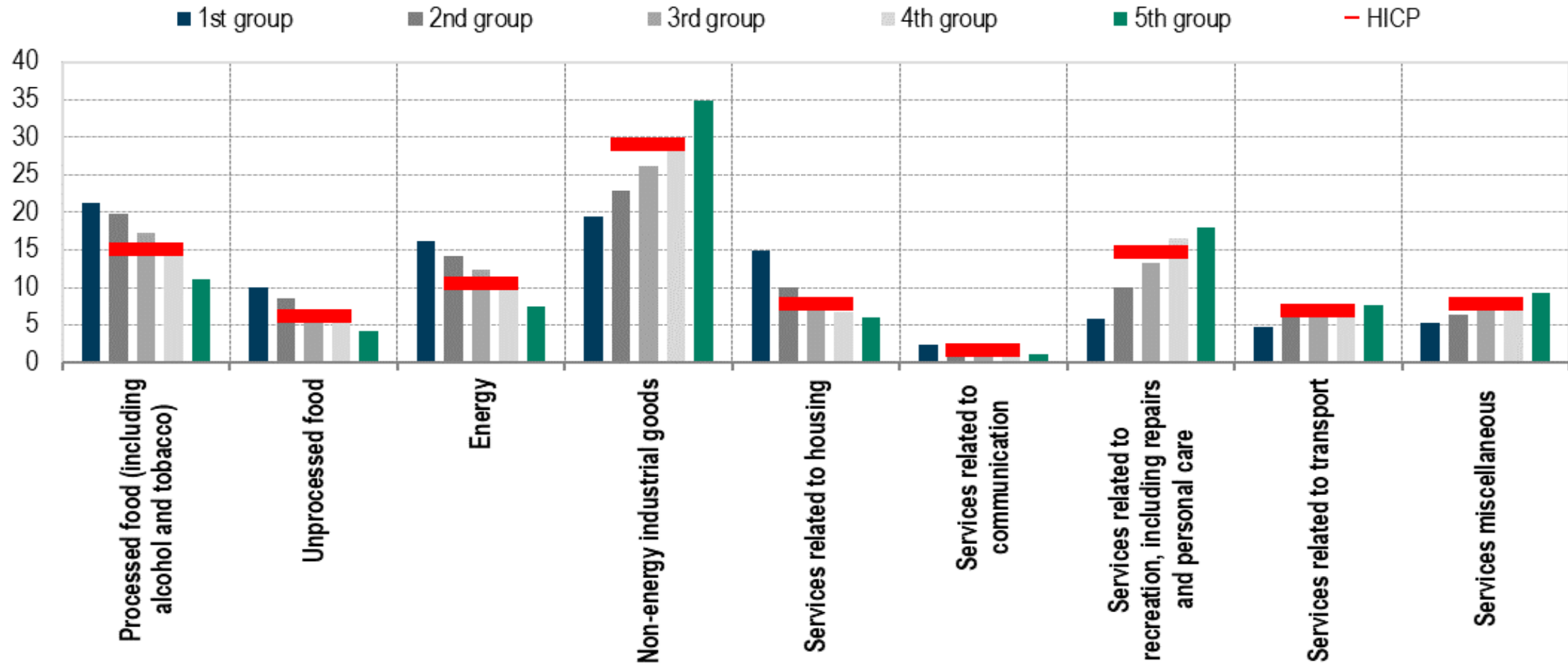
- Since 2005, Istat has been compiling and disseminating a measure of the impact of the inflation on five different groups of households of equal dimension ordered by their spending power (from the lowest of the first group to the highest of the fifth) used as a proxy of their income conditions.
- Indices of consumer prices are compiled considering the different structure of consumption expenditure of each group of households (summarized in the system of weights).
- HICPs by population subgroups are “satellite” indices of HICP: they share the set of basic information (basket of products and price elementary data) and the methodology of Italian HICP, but they are different each other for the system of weights used for their calculation.

Current Istat methodology to compile HICP by five groups of households

- Weights for the five subgroups of households based on HBS data
- To estimate the weights, consumption expenditures are equivalized by using an appropriate equivalence scale (Carbonaro scale), that considers the effects of economies of scale and makes them comparable to that of a two-member household, and, as such, among different-size households
- Households ordered by equivalent consumption expenditure, are organized by specific cut-point values and divided into five groups of equal size (equivalent-expenditure fifths)
- In a situation of perfect equality, a share of 20% of the total expenditure sustained by all the households would be placed in each fifth: actually, in 2021, in terms of equivalent expenditure, that of the last fifth was about 5 times that of the first fifth (inequality measure on expenditure side).

Current Istat methodology to compile HICP by five groups of households

Figure 2. Expenditure weights by 5 households groups and main special aggregates in 2023 (HBS year 2022)

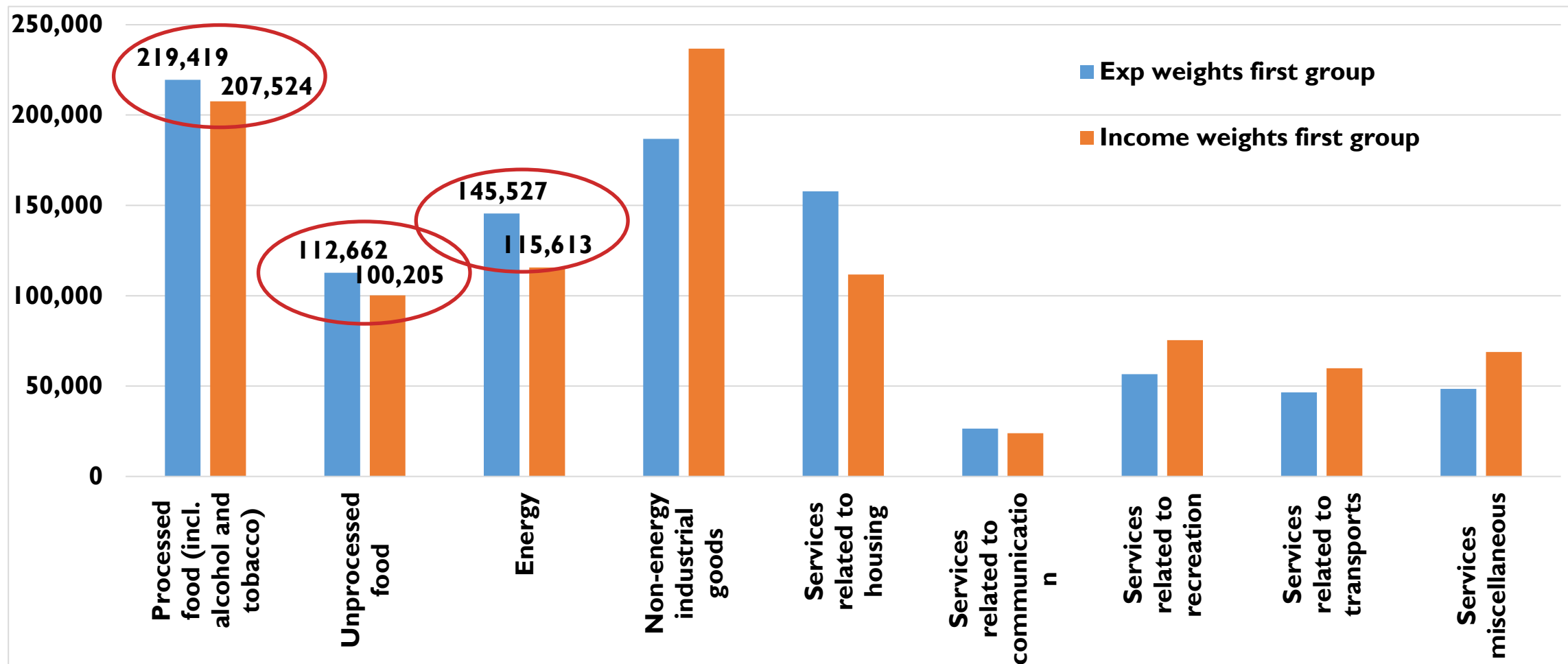


From expenditure to income the variable to identify the groups of households: main outcomes

- The methodology adopted using households' expenditure data has been transferred to households' income data derived from HBS
- In this case to detect the households' groups, households' income data are equivalized by using OECD-modified equivalence scale
- Households ordered by equivalent income, are organized by specific cut-point values and divided into five groups of equal size (equivalent-income fifths) from the poorest one (the first) to the wealthiest one (the fifth)
- Thus, the weights are estimated using the expenditure data of each income group of households
- The inter quintile ratio between the fifth and the first income group is equal to 3.9, whereas the fifth group spends 2.07 times what the first group spends (in 2021)

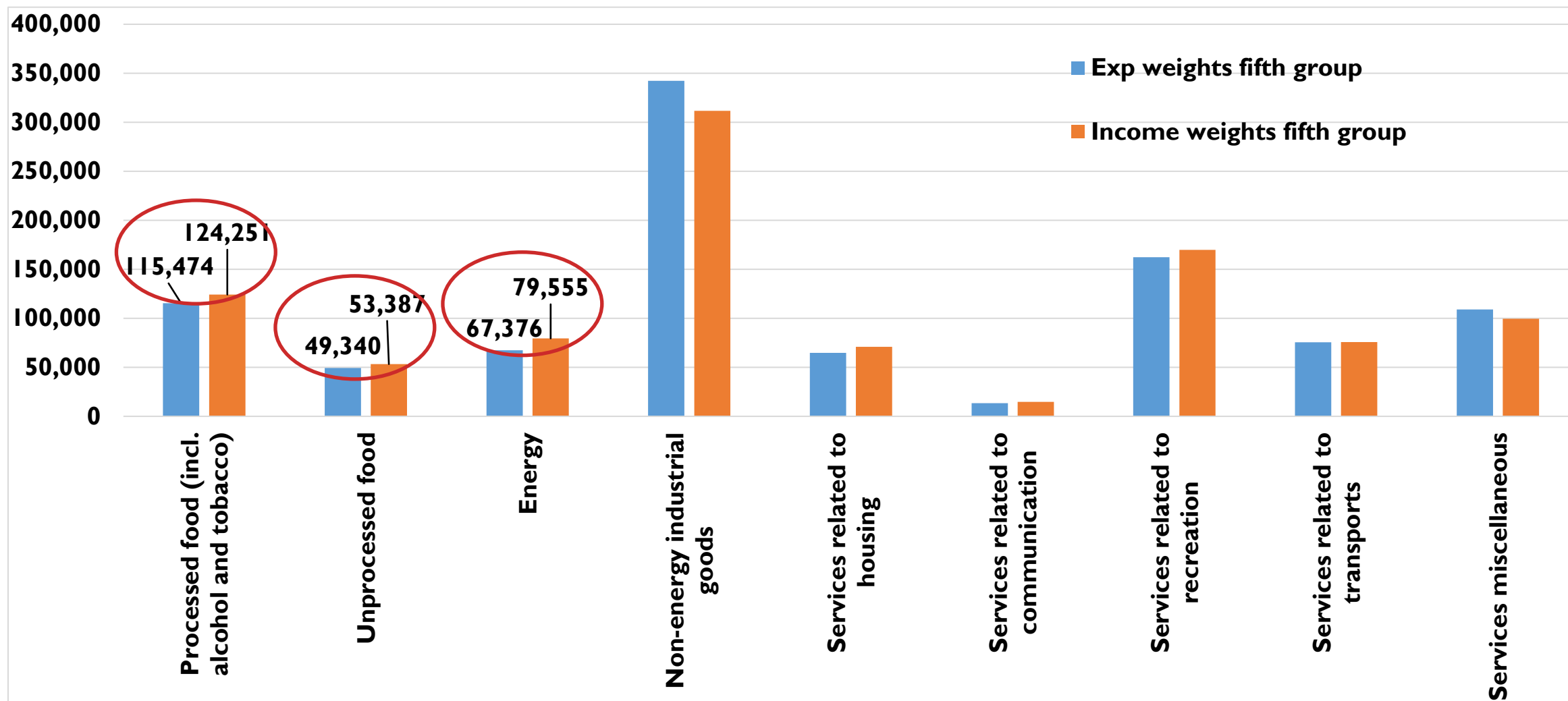
From expenditure to income the variable to identify the groups of households: main outcomes

Figure 3. Expenditure and income weights. First group of households. Main special aggregates (2022, HBS 2021)



From expenditure to income the variable to identify the groups of households: main outcomes

Figure 4. Expenditure and income weights. Fifth group of households. Main special aggregates (2022, HBS 2021)

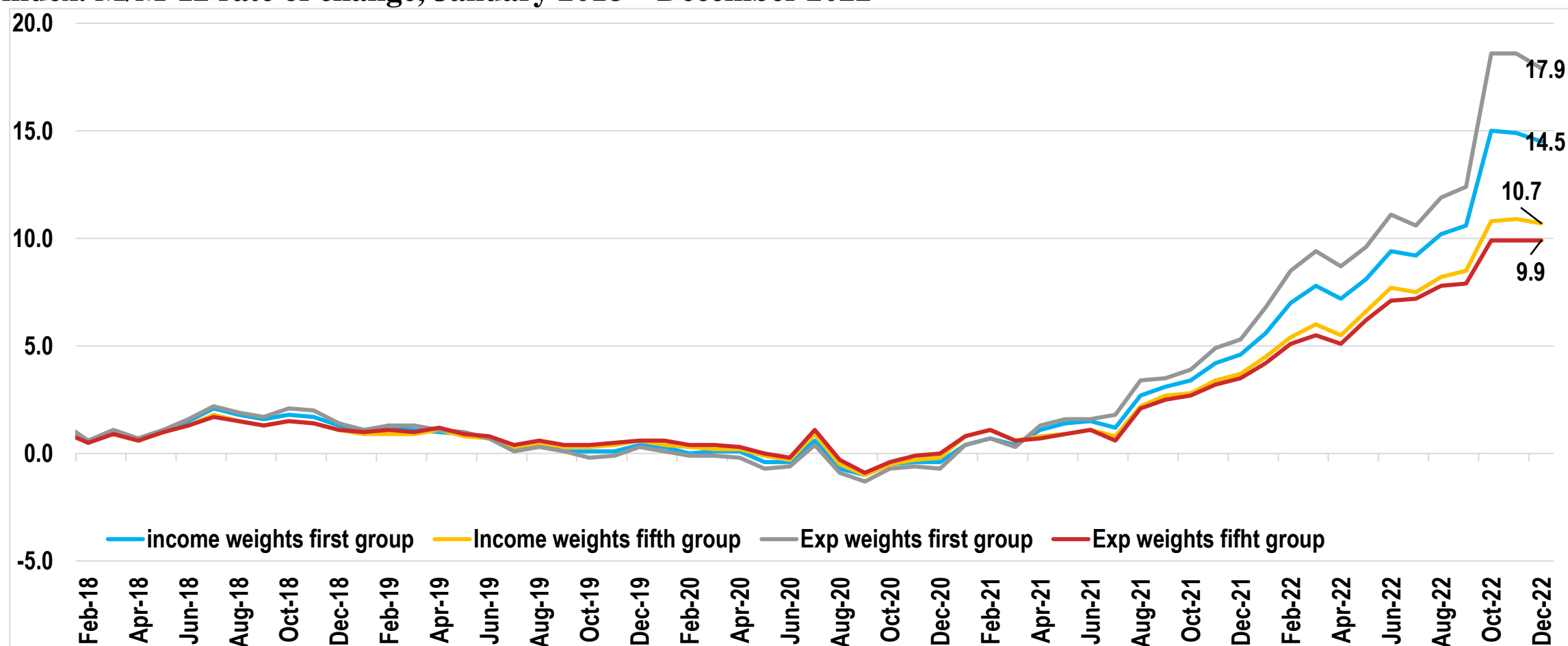


From expenditure to income the variable to identify the groups of households: main outcomes

- The structure of weights is similar but not the same between those referred to the groups detected by expenditure data and those referred to the groups detected by income data
- Specifically:
 - ✓ For the first group (low income/low expenditure) the weights of the aggregates affected by **higher increase of consumer prices in 2022**, **decrease** in relative terms (by 1.19 percentage points for unprocessed food, by almost 3 p.p. for Energy)
 - ✓ For the fifth group (high income/high expenditure), vice versa the weights of the aggregates affected by **higher increase of consumer prices in 2022**, **increase** in relative terms (by 0.88 percentage points for unprocessed food, by almost 1.22 p.p. for Energy)

The impact of inflation on the income-based groups of households

Figure 5. Inflation impact on the first and the fifth (by expenditure and income) groups of households. All-item index. M/M-12 rate of change, January 2018 – December 2022



The impact of inflation on the poorest group of households in Italy

- The differences highlighted in the weights between the extreme groups considered either in terms of equivalent expenditure or in terms of equivalent income, do not produce gap in terms on impact of inflation between the first and the fifth group in the years when inflation is relatively low (2018 – 2020)
- As soon as the price increase becomes heterogeneous across the different product aggregates, with energy prices sharply growing at rate strongly higher than that of other aggregates, followed by food products, the inflation gap between the first and the fifth group (considered both in terms of expenditure and income) starts enlarging (end 2020)
- Given the differences in the structure of weights of the 2 extreme groups, the gap between the two groups detected by expenditure data becomes gradually wider than that between the two groups detected by income data (in December 2022 it is equal to 8 p.p. in the first case and to 3.8 p.p. in the second case)

Characteristics of the households in the extreme groups and comparison between their distributions in the five groups by expenditure and by income

- In 2021 in the first fifth of households' expenditure group (but not of income):
 - ✓ about 72% of the households range from 2 to 4 members
 - ✓ in 28.8% the breadth of households is equal to 2, are mainly couples without children in which the reference person is elderly (14.6%) and retired from work (95.0%)
 - ✓ Households of 3 or 4 members are mainly couples with two children
- In 2021 in the first fifth of households' income group (but not of expenditure):
 - ✓ there are mainly one-component households (37.1%), followed by those households of a size equal to 2 (22.9%)
 - ✓ A fifth of the households (54.7% of all single-component) are elderly alone, retired from work (49.8%) or inactive but in other condition (different from retired) (46.3%)
 - ✓ With respect to what is observed in households belonging to the first fifth of expenditure but not income, in the first fifth of households' income group, the over-represented are mainly single people (1.8 times) and single-parent families (1.3 times)

Characteristics of the households in the extreme groups and comparison between their distributions in the five groups by expenditure and by income

Table 1. Cross distribution of households by expenditure/income fifths. Absolute value and percentage points. 2021

Exp fifths	Income fifths					Total
	1	2	3	4	5	
	2,692,049	1,375,267	699,709	297,137	137,507	5,201,670
	10.35	5.29	2.69	1.14	0.53	20
	51.75	26.44	13.45	5.71	2.64	
1	51.75	26.44	13.45	5.71	2.64	
	1,219,493	1,518,011	1,261,158	785,691	415,794	5,200,147
	4.69	5.84	4.85	3.02	1.6	19.99
	23.45	29.19	24.25	15.11	8	
2	23.44	29.19	24.24	15.1	7.99	
	710,222	1,149,206	1,363,005	1,182,498	798,416	5,203,348
	2.73	4.42	5.24	4.55	3.07	20.01
	13.65	22.09	26.19	22.73	15.34	
3	13.65	22.1	26.2	22.73	15.35	
	417,855	796,851	1,127,863	1,523,926	1,334,976	5,201,472
	1.61	3.06	4.34	5.86	5.13	20
	8.03	15.32	21.68	29.3	25.67	
4	8.03	15.32	21.68	29.3	25.67	
	162,527	361,463	750,225	1,412,514	2,514,584	5,201,313
	0.62	1.39	2.88	5.43	9.67	20
	3.12	6.95	14.42	27.16	48.35	
5	3.12	6.95	14.42	27.15	48.35	
Total	5,202,147	5,200,798	5,201,960	5,201,766	5,201,277	26,010,000
	20	20	20	20	20	100

Characteristics of the households in the extreme groups and comparison between their distributions in the five groups by expenditure and by income

- In 2021:
 - ✓ 21.8% of the first fifth of households by expenditure is allocated in the last three fifths of households by income
 - ✓ 24.8% of the first fifth of households by income is allocated in the last three fifths of households by expenditure
 - ✓ 24.5% of the fifth fifth of households by expenditure is allocated in the first three fifths of households by income
 - ✓ 26.0% of the fifth fifth of households by income is allocated in the first three fifths of households by expenditure

Characteristics of the households in the extreme groups and comparison between their distributions in the five groups by expenditure and by income

- The heterogeneity of the allocation between the two groups of households at the basis of the differences in the structure of weights
- In the first fifth of households by income there are households belonging to groups of households by expenditure from the second (23.44%) to the fifth (3.12%)
- In the fifth group of households by income there are households belonging to groups of households by expenditure from the second (26.44%) to the fifth (2.64%) group
- It means that the breakdown of expenditures in the first group of households by income is different from that of the first group of households by expenditure, bringing behavior of consumption typical of households that spend wider amount and reducing the relative weight of food and energy products and vice versa for the fifth group of households by income
- This brings closer in 2022 the lines of inflation that affect the two extreme groups by income (specifically lowering that related to the poorest) with respect those that affect the two extreme groups by expenditure

Focusing only on the weights to measure the actual impact of inflation on the poorest?

- Till now, in Italy, the analysis to estimate the differentiated impacts of inflation on groups of households broken down by their economic condition has focused on the structure of weights
- In 2022 the government supports to poor households (detected in the basis of their income or other indicators of their economic conditions) related to energy products (in particular, electricity and gas) have been wide and in the form of reduction of prices
- This was considered in the compilation of the energy product consumer price indices that are the results of weighted mean (with weights given by the number of households that have benefited of the government support) of different inflation profile
- The aggregate consumer price indices of energy products are considered as such to estimate the impact of overall inflation on the poorest and on the richest groups of households
- Should we start considering different profiles of inflation in addition to different structure of weights?
- Moreover, how should we consider the impact of government support to households on the weights of different groups, given the traditional temporal lag in the weights' estimation?

Some concluding remarks and perspectives

- The capacity of the extreme groups of households by expenditure to be a proxy of the poorest and of the wealthiest households is mitigated by these results
- The outcomes of the estimation of the impact of inflation on different groups of households are interesting and encourage further analysis. Specifically:
 - ✓ Of the socio-demographic and socio-economic characteristics of the households' groups by income to be further analyzed
 - ✓ Of the relationship between income and expenditure in the different groups
 - ✓ Considering different profile of inflation for the 2 extreme groups to complement the approach based exclusively on the weights
 - ✓ Refining further the work on the weights given the effects on the structure of expenditure of the government support to poorest households on energy products
- Starting the dissemination of an experimental statistics to open the debate (in 2024?)
- The new frame regulation on the social statistics that will harmonize HBS in the EU under a common legal umbrella since 2026 will enhance the possibility to use HBS data to compare across the European countries the impact of inflation on the different groups of households

Thank you

Ilaria Arigoni, Istat (Italy) (arigoni@istat.it)

Alessandro Brunetti, Istat (Italy) (albrunet@istat.it)

Valeria de Martino, Istat (Italy) (valedema@istat.it)

Federico Polidoro, Istat (Italy) (fpolidoro@worldbank.org)