Distributional national accounts for household income and consumption

**Keywords:** Income, Consumption, Micro-macro conceptual link, Distributional national accounts

# Introduction

The European Commission has stressed the need to bring social indicators on a par with the EU reinforced macroeconomic governance. A key part of the strategy is the availability of harmonised statistics at EU level covering the distributional aspects of households’ Income, Consumption and Wealth (ICW). Such statistics will help assessing the social impacts of economic policies and the economic impacts of social policies.

As policy makers show a particular interest into the reconciliation of micro data from social surveys with macroeconomic data available through the System of National Accounts, Eurostat is running a project that aims at compiling distributional national accounts for the household sector. In a first step, we compared the different income and consumption expenditure concepts and data collection practices of micro and macro data sources, trying to achieve best possible correspondance. Second, the data gap was quantified for all income [1] and consumption expenditure [2] items and possible explanations for the gaps were sought. In a third step, we are now using different methods for allocating the micro-macro gap for all EU countries in a centralised exercise. We then assess the impact of the different methods used through a sensitivity analysis using several indicators. A number of countries chose to participate by reporting own results in a standardised template suggested by the OECD-Eurostat Expert Group on Disparities in a National Accounts framework (EG DNA).

The current paper presents the approach applied in the Eurostat centralised exercise.

# Methods

The Eurostat centralised exercise aims at compiling experimental distributional statistics for household income and consumption, by aligning aggregated micro data with macroeconomic totals. It is based on sector accounts data as well as survey data for income (EU Statistics on Income and Living Conditions - EU-SILC) and consumption expenditure (Household Budget Survey - HBS) available at Eurostat for the reference year 2015.

First, we aggregate some of the individual survey variables to achieve proper conceptual correspondence with the national accounts (NA) items. As such, the micro-macro conceptual link for consumption is nearly based on the twelve main COICOP categories. For disposable income, however, significant conceptual differences between household surveys and national accounts remain for some items, even after best possible aggregation [3].

Second, the national accounts figures are adjusted by a country-specific factor to exclude the part of the household population that is not covered in the social surveys, such as institutional households. Then, we cluster the households into household groups by income quintile, on the basis of equivalized total disposable income, and quantify the gap between national accounts and micro data totals for each income and consumption item.

For closing the gap, we identify the following methods:

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| Method | Description | Assumption |
| (i) Simple proportional scaling | The entire gap is distributed proportionally to each household group, the micro data are uprated using the coefficient to reach the macro total. | The distribution found in the sample survey is close to the real distribution of the household population. |
| (ii) Pareto tail modelling (complemented by proportional scaling) | The top 10% of households by income component are adjusted to follow a Pareto distribution. It follows steps 1-4 of the approach by Törmälehto, V-M (2019) [4]. The remaining gap by item is subsequently allocated to all households by simple proportional scaling to match the corresponding NA totals. | The sample survey strongly underestimates the economic resources of households at the very top of the distribution. |
| (iii) Allocation of ascending/descending shares by quintile | This includes ‘to-the-top’ allocation: gap shares 0%, 10%, 20%, 30%, 40% to Q1, Q2, Q3, Q4, Q5 accordingly; and ‘to-the-bottom’ allocation: gap shares 40%, 30%, 20%, 10%, 0% to Q1, Q2, Q3, Q4, Q5 accordingly. The meso-level gaps are subsequently distributed across the underlying households. | A linear under-/over-estimation of economic resources towards the top of the household distribution in the sample survey. |
| (iv) Combined approach  | The Pareto-based results for ‘property income (received)’, ‘mixed income’ and ‘wealth taxes’ are combined with the proportionally scaled results for the other items into a disposable income aggregate | The sample survey strongly underestimates property income, mixed income and wealth taxes of households at the very top of the distribution, whereas other income items are correctly estimated.  |

All of these methods are tentatively applied to income, while only methods (i) and (iii) are deemed suitable for consumption. In order to measure the impact of the different methods, a sensitivity analysis by means of the Gini coefficient and the Q5/Q1 ratio is applied for each item and for total income/consumption.

# Results

As the nature of gap is unknown, the choice of the gap allocation method hides a considerable margin of uncertainty. As we had assumed, (i) the simple proportional method preserves the original distribution from the survey data at the detailed level. When aggregated up to total disposable income, the inequality across households generally increases depending on the household income composition and the size of the micro-macro gap by item. As we had likewise expected, (ii) the Pareto tail modelling drastically increases the inequality by targeting only a small portion of the population. Applied to all income components, it is a fairly extreme scenario. However, it proves appropriate for transactions that are concentrated in the top income population. The two sub-approaches of (iii) allocation of ascending/descending shares by quintile are less marginal and produce contrasting results in terms of inequality. Despite the rather hypothetical approach, the applied assumptions could still be relevant for some country-specific cases of underestimating higher/lower income households. Finally, (iv) the combined method seems to be an adequate approach for capturing the likely distributional pattern of households income.

# Conclusions

At present, differing concepts and data collection practices at micro and macro level mean that the analysis of these different sources do not necessarily lead to the same conclusions as regards people’s prosperity. Despite the different level of conceptual comparability and the lack of additional sources (e.g. administrative data, national compilers’ knowledge of quality gaps, etc.) that are at best available nationally, the social survey data at Eurostat are considered to provide a suitable basis for an experimental distribution of national accounts estimates for income and consumption.

The results strongly depend on the assumptions on which the gap allocation is built through the different methods. It is thus deemed of utmost importance, that the assumptions reflect real scenarios prevailing in the countries. Therefore, Eurostat continues its dialogue on the proposed results and methodology with EU countries.

# References

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