Concepts for household income - comparison between micro and macro approach

Statistics Explained

Data extracted in March 2018.
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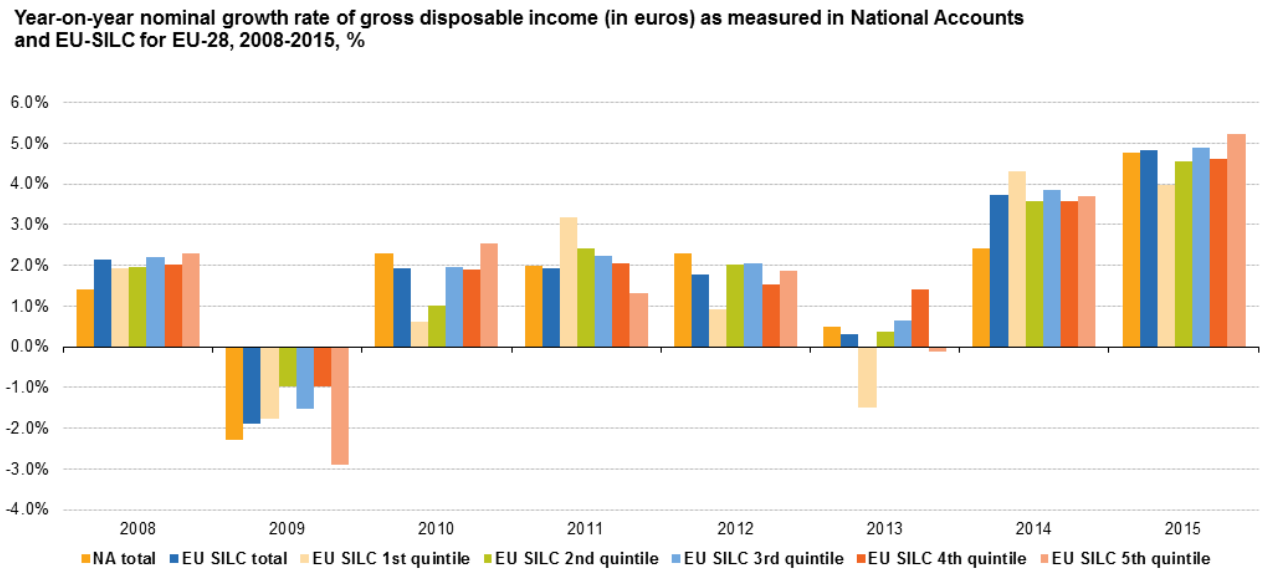
EXPERIMENTAL



Note: National Accounts data corresponds to households and non-profit institutions serving households secto
Source: Eurostat (online data code: nasa_10_nf_tr)

Figure 1: Year-on-year nominal growth rate of gross disposable income (in euros) as measured in National Accounts and EU-SILC for EU-28, 2008-2015, % Source: Eurostat (nasa_10_nf_tr)

Income, consumption and wealth (ICW) determine the financial situation and the material well-being of households and individuals. ICW aggregates (NA - macro data), which describe the situation of households as an institutional unit in the macroeconomic context, are used in macroeconomic policy analysis while distributions of ICW based on micro data are used to measure inequality in context of social policies. This article discusses some of the comparability issues surrounding Gross Disposable Income (GDI) of households. GDI is defined as total household income which households can use to cover their consumption and/or savings after payment of taxes and social security contributions. National Accounts (NA) and European Union Statistics on Income and Living Conditions (EU-SILC) are two separate statistical sources of data available to users and policy-makers. However, differences in concepts and data collection practices mean that the messages from these two sources may not always result in the same conclusions as regards the people's prosperity. The reason for comparing micro and macro statistics on households is the need to understand the two data sources and build robust links between them. Figure 1 shows an integrated analysis of household GDI (across the income distribution) as measured in NA and EU-SILC

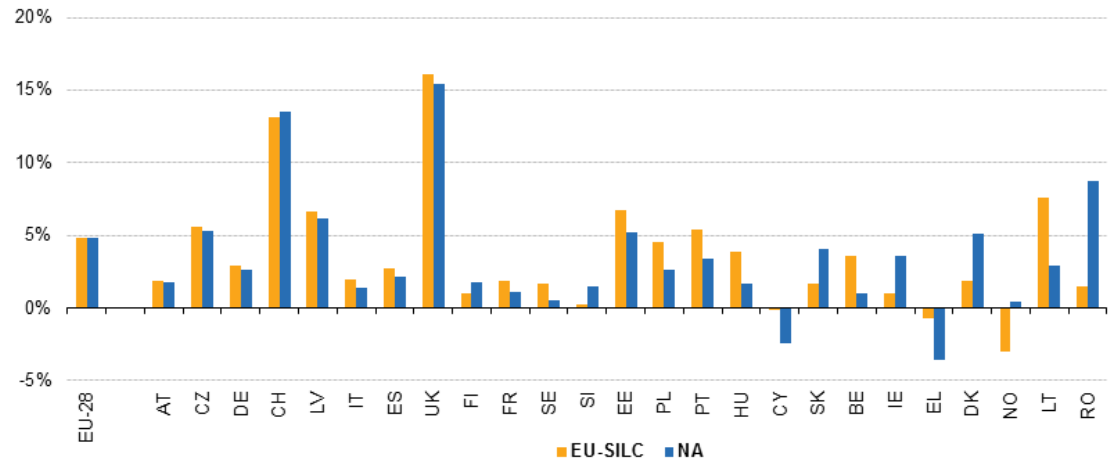
respectively. While aggregated information provides nominal growth rates for all households, the EU-SILC data give additional information on the distribution of growth among the income quintiles. They show, for example, that in 2009 the wealthiest section of the population experienced the sharpest fall in income and, in the following year, the fastest recovery.

General overview

Although both data sources indicate similar growth patterns for the EU-28, Figure 2 shows that the nominal growth rates in euros for individual EU and EFTA countries vary for both data sources.

GDI and its components are compared for the two sources by showing the data gaps, the coverage rates (calculated as EU-SILC and NA ratio), and their stability over time (measured by standard deviation). The results reflect generic and specific differences between the methodologies used for EU-SILC and NA, and differences in implementation across the EU and EFTA countries. The NA data supplied further on in this article are adjusted for differences in the populations of the two sources. The NA data used in this article correspond to households sector (S14), except for EU-28, the United Kingdom and Switzerland. For those NA data correspond to households and non-profit institutions serving households sectors (S14_S15). The information provided is from countries with detailed data available at Eurostat.

Year-on-year nominal growth rate of gross disposable income (in euros) as measured in National Accounts and EU-SILC, 2014-2015, %



Notes:
-EU-SILC data for Luxembourg, Bulgaria, and Netherlands have a brake in series for 2015, therefore those countries are not included
-The NA data used in this figure correspond to households sector (S14), except for EU-28, UK and CH.
For those NA data correspond to households and non-profit institutions serving households sectors

Source: Eurostat (online data code: nasa_10_nf_tr)

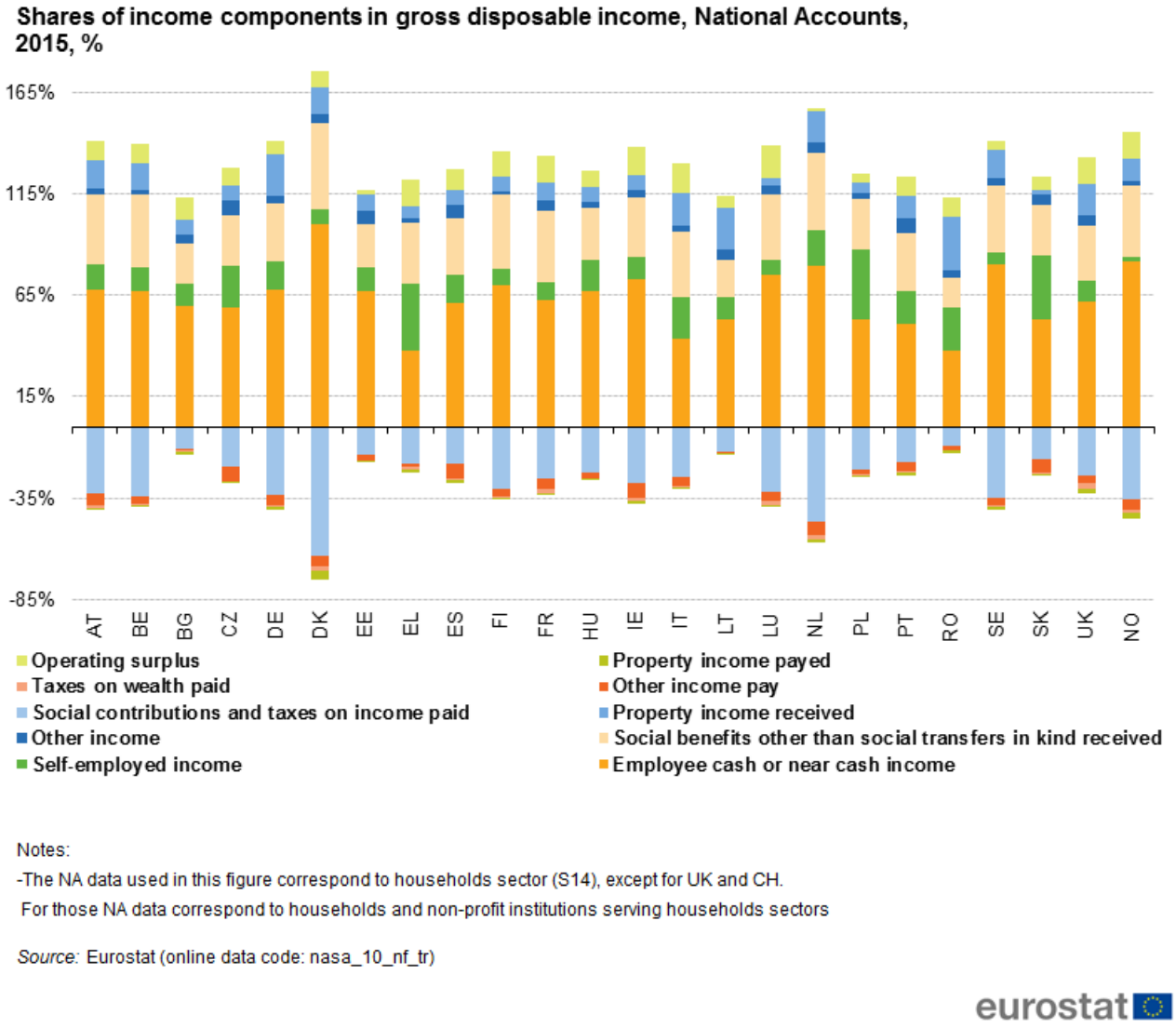
eurostat

Figure 2: Year-on-year nominal growth rate of gross disposable income (in euros) as measured in National Accounts and EU-SILC, 2014-2015, % Source: Eurostat (nasa_10_nf_tr)

Relevance and coverage rates of gross disposable income components

Figure 3 shows the shares of the income components of GDI as measured in the NA in 2015. The employee cash or near-cash income (excluding the employer's imputed social contributions) is the most relevant source of

household income in all countries, averaging 64% of income. Social benefits (other than social transfers in kind) average 29%, while social contributions and taxes (excluding the employer's imputed social contributions) average -26%. Self-employed income accounts for 15% of the total on average, while the share of property income averages 11%. However, the shares of these items in total income vary widely across countries. The largest shares of self-employed income are in Poland (35%), Greece (33%), and Slovakia (32%), while income from property is proportionately highest in Romania (26%), Lithuania and Germany (both 21%). On average, operating surplus accounts for 9% of GDI. The share of operating surplus in GDI varies from 1% to 16% across the EU and EFTA countries. The lowest average shares of
the income components are for taxes on wealth paid (- 1%), property income paid (-1%) and other income paid (-4%).



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Source: Eurostat (online data code: nasa_10_nf_tr)

eurostat

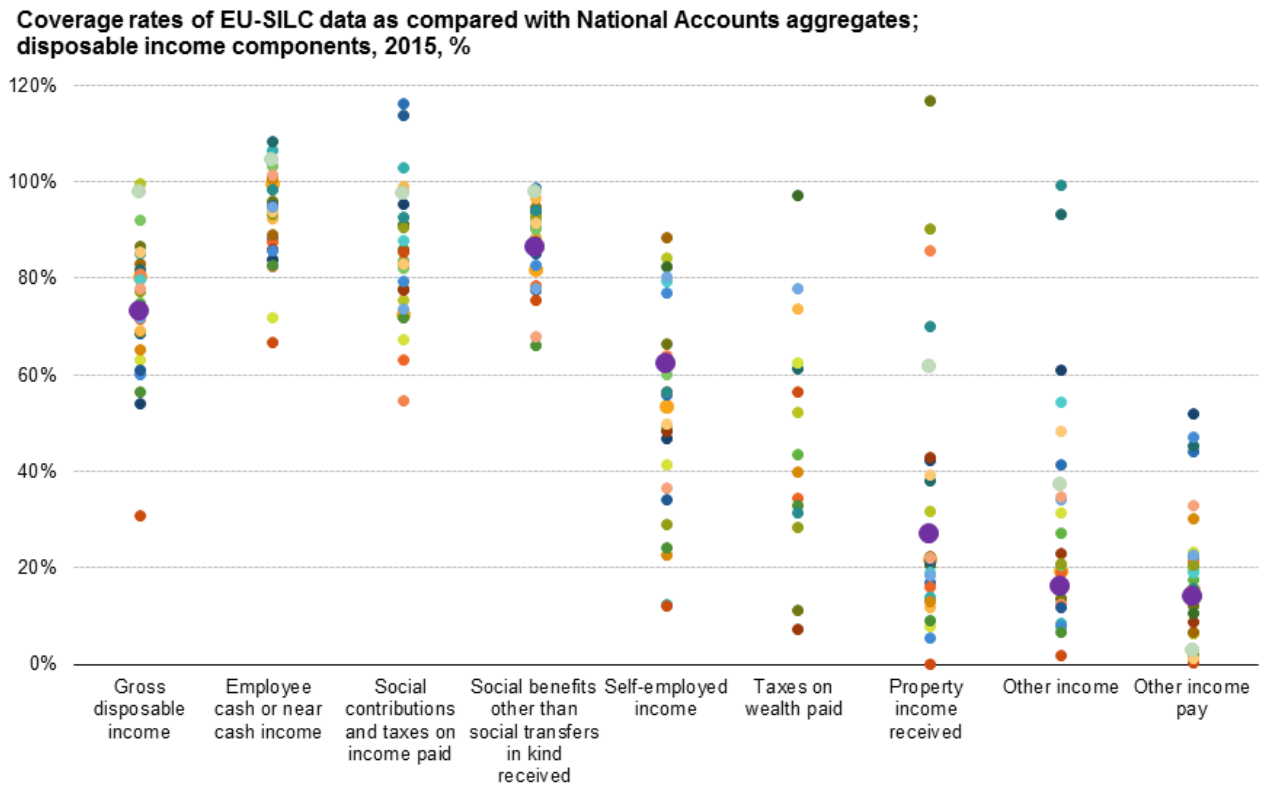
Figure 3: Shares of income components in gross disposable income, National Accounts, 2015, % Source: Eurostat (nasa_10_nf_tr)

In 2015, the coverage rate of GDI for the EU-28 was 73%, ranging from 31% in Romania to 100% in Denmark (Figure 4). Operating surplus and property income paid are not included in the EU-SILC's definition of disposable income, so no coverage rates are provided. Coverage rates above 100% are observed mostly for employee cash or near-cash income (excluding the employer's imputed social contributions). However, the phenomenon also applies to other income components. This could be affected by differences in the way self-employed and employed workers are measured for the two sources.

For employee cash or near-cash income (excluding the employer's imputed social contributions) the average coverage rate for the countries that have data available is 92%. For social benefits other than social transfers in kind

received, it is 87%, and for social contributions and taxes on income paid (excluding the employer's imputed social contributions), it is also 89%. The definitions of these income components used in NA and EU-SILC match to a large extent, and this is also reflected in the data, with relatively high coverage rates and limited dispersion across the countries concerned. In addition, for these income components the countries concerned increasingly benefit from the use of administrative registers in EU-SILC.

For self-employed income, the average coverage rate (excluding Norway) is 53%. Coverage rates vary across the EU-28 countries from 12% in Romania to 89% in Ireland. In Norway the coverage rate is above 200%, while the share of property income in GDI is low (2%). The average coverage rate for property income is 32%. There are countries with poor coverage of this income component: in Romania, the coverage rate is 0%, in Lithuania, it is 6%, and in Hungary it comes to 8%. In France, on the other hand, the coverage rate is over 100%. Apart from the conceptual differences between the definitions of property income, property income is affected by data measurement issues in the EU-SILC. For instance, the income from property of the richest section of the population is almost certainly an underestimate.



Notes:
-The NA data are adjusted for differences in the populations of the two sources (NA and EU-SILC).
-The NA data used in this figure correspond to households sector (S14), except for UK and CH.
For those NA data correspond to households and non-profit institutions serving households sectors
-Each dot represents a country; the main focus in Figure 4 is a spread of coverage rates for each income component.

Figure 4: Coverage rates of EU-SILC data as compared with National Accounts aggregates; disposable income components, 2015, %

There is a correspondence between the coverage rates of GDI (Figure 4) and the data gap between the sources (Figure 5). For example, in 2015 the coverage rate for GDI for Austria was 80%, while the data gap between the sources was 20%. Figure 5 shows the contribution of each income component to the GDI data gap that depends on both: its relevance to GDI (Figure 3) and the corresponding coverage rate. The largest contributors to the data gaps on average were: operating surplus (9 percentage points), property income (8 pp) and self-employed income (8 pp). It should be noted that even if there was no aggregated GDI data gap, there could be data gaps for income components that offset each other. Denmark and Norway provide such examples.

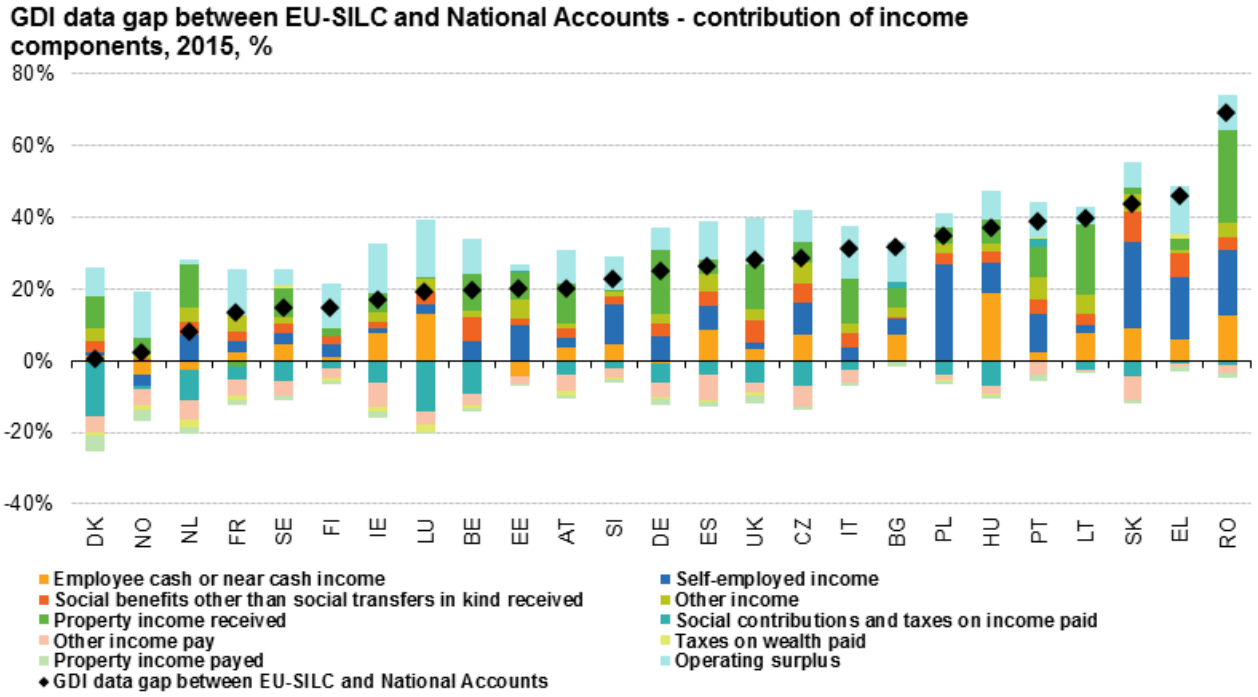


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Figure 5: GDI data gap between EU-SILC and National Accounts - contribution of income components, 2015, %

Stability of coverage rates over time

The stability of coverage rates over time is measured as the standard deviation (SD) for 2008-2015 (the availability of country data for these years is taken into account in the calculations). Low values (close to 0) mean that coverage rates are stable over time, while high values of SD indicate volatility. The unit of SD is percentage point (pp). If the coverage rate is stable, it would imply similar growth rates in both sources, even if the data gap is relatively significant. The specific cases are outlined in the analysis, where coverage rates have been increasing, at least during the last few years of observations.

Figure 6 shows the GDI coverage rates for 2015, combined with their stability over time. The average SD for the countries that have data is 1.9 pp, for EU-28 the average coverage rate is 0.3 pp The most stable coverage rates are for Switzerland, Finland, Poland, and Germany. Romania and Bulgaria show the most volatile coverage rates over time. Though coverage rates are volatile for Lithuania, Latvia and Estonia, they are gradually increasing. Data do not show any direct link between the level of coverage rates and their stability.

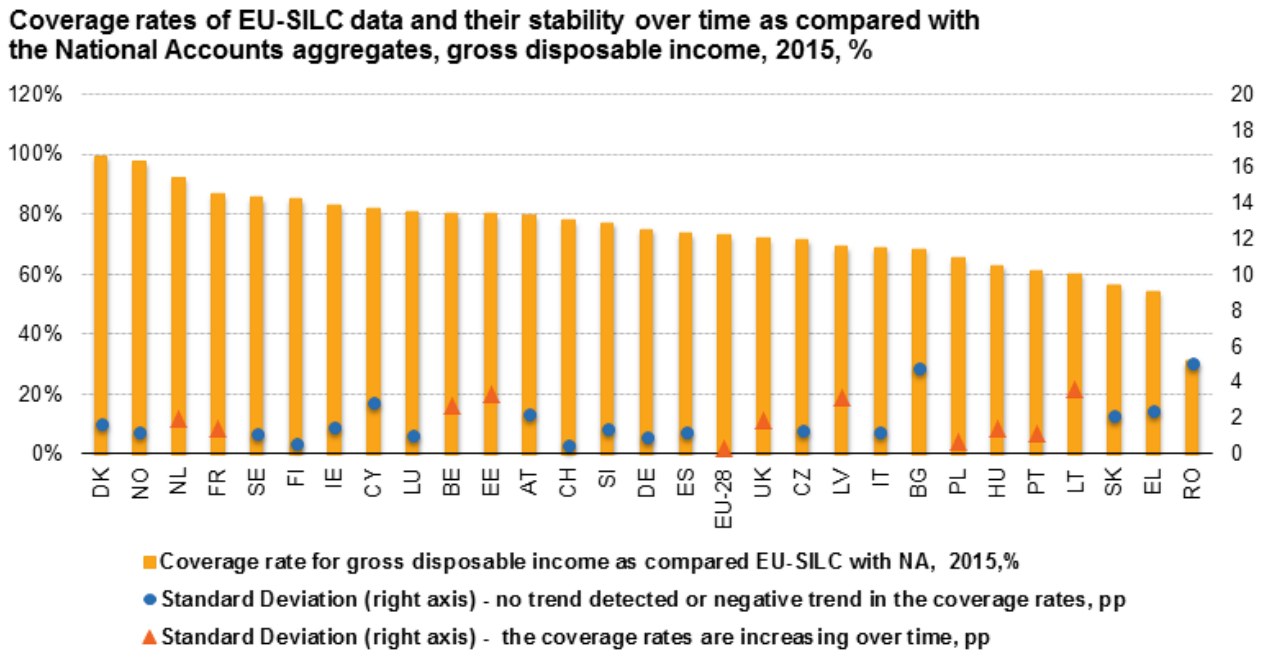

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Figure 6: Coverage rates of EU-SILC data and their stability over time as compared with the National Accounts aggregates, gross disposable income, 2015, %

Overall, the coverage rates for employee cash or near-cash income (excluding the employer's imputed social contributions) are relatively high and stable (Figure 7). The average SD for the countries that have data available is 2.6 pp. Coverage rates are most stable for Finland, Sweden, Germany, and Czechia. The least stable coverage rates are for Bulgaria, and Greece. The coverage rate for Estonia is increasing over time, although it has been above 100% since 2011.

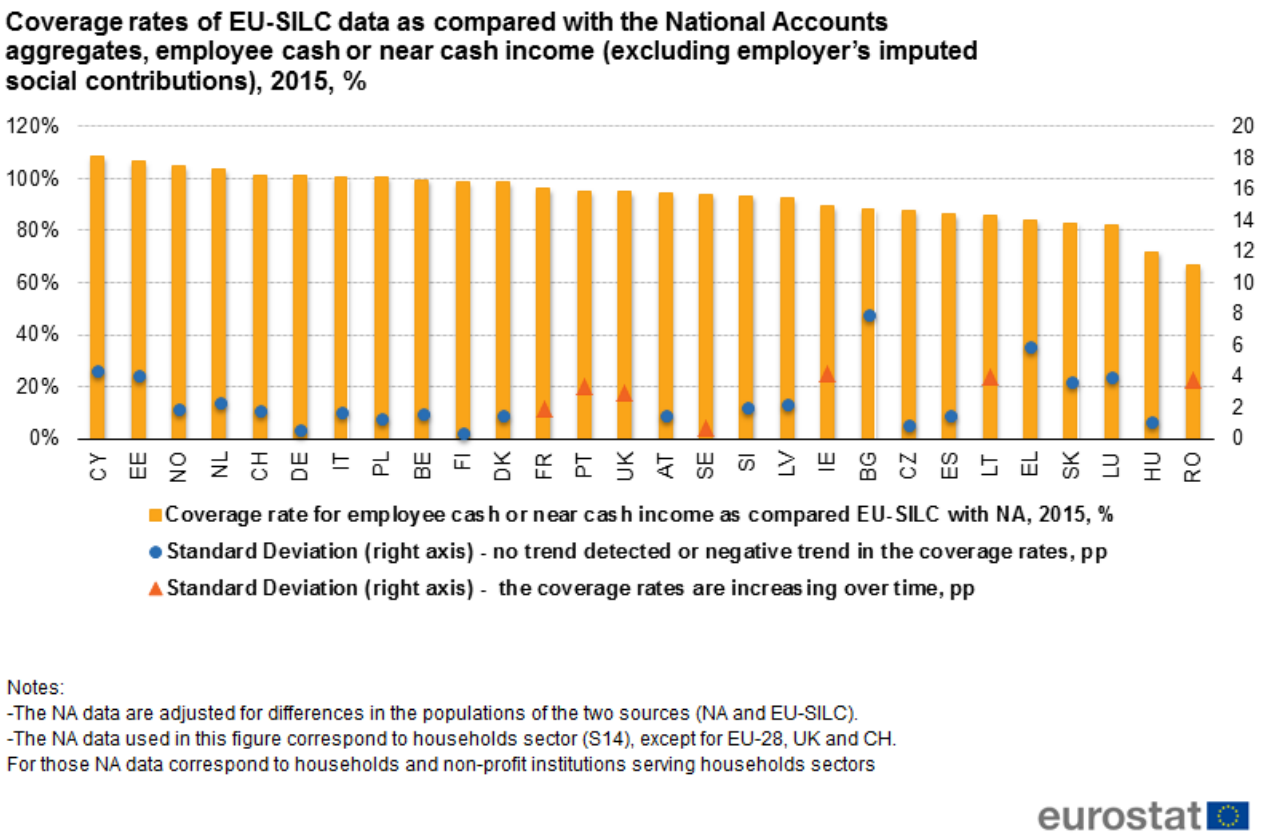

Figure 7: Coverage rates of EU-SILC data as compared with the National Accounts aggregates, employee cash or near cash income (excluding employer imputed social contributions of employer), 2015, %

Similarly to the previous income component, also for social contributions and taxes on income paid (excluding the employer's imputed social contributions) (Figure 8) and for social benefits other than social transfers in kind received (Figure 9), coverage rates are
generally high, with limited fluctuations in time (the average standard deviations being 4.0 pp and 2.5 pp respectively).

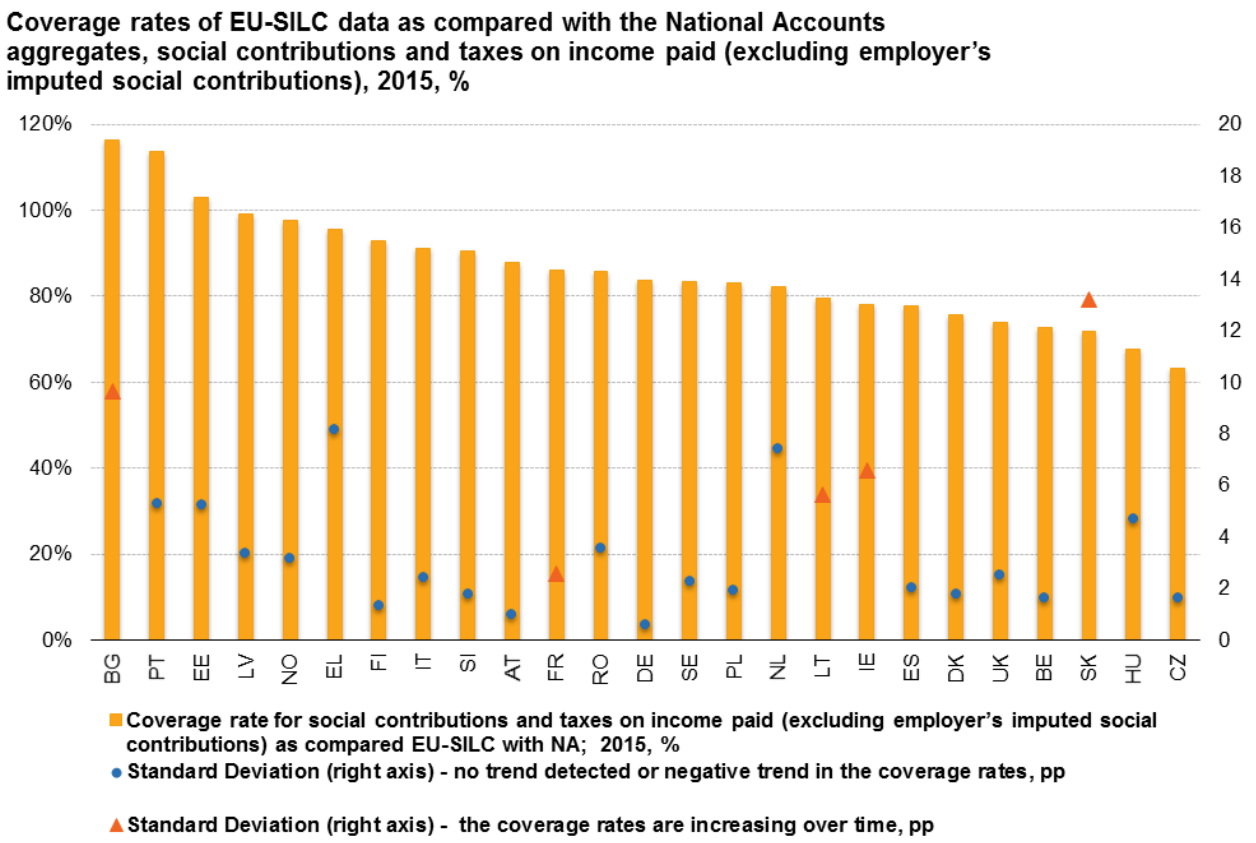

Figure 8: Coverage rates of EU-SILC data as compared with the National Accounts aggregates, social contributions and taxes on income paid (excluding employer's imputed social contributions), 2015, %

The coverage rates for social contributions and taxes on income paid (excluding the employer's imputed social contributions) are most volatile over time for Slovakia and Bulgaria (coverage rate over 100%). For both countries, coverage rates are increasing over time. For social
benefits other than social transfers in kind received, the least stable coverage rates are those for Bulgaria and Cyprus.

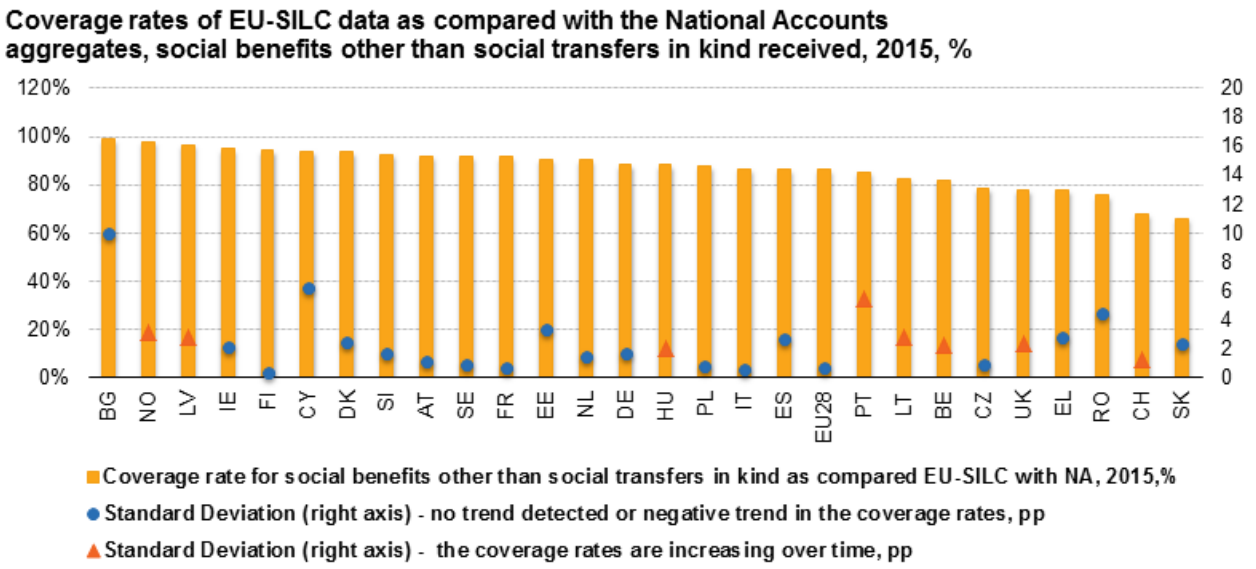

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Figure 9: Coverage rates of EU-SILC data as compared with the National Accounts aggregates, social benefits other than social transfers in kind received, 2015, % Source

As regards self-employed income, there is estimated to be medium conceptual comparability between NA and EU-SILC Generally, coverage rates are relatively lower than for income components with high conceptual comparability. This also applies to the volatility of the coverage rates across countries and over time (the average SD is 5.0 pp). The analysis excludes Norway due to atypically high coverage rates. The highest stability is observed for Poland, Hungary, and Greece and Finland, while the lowest stability in coverage rates is found in Denmark and the United Kingdom. While in
Lithuania the SD is 13.5 pp, there was a steady rise in the coverage rate from 39% in 2008 to 77% in 2015 (Figure 10).

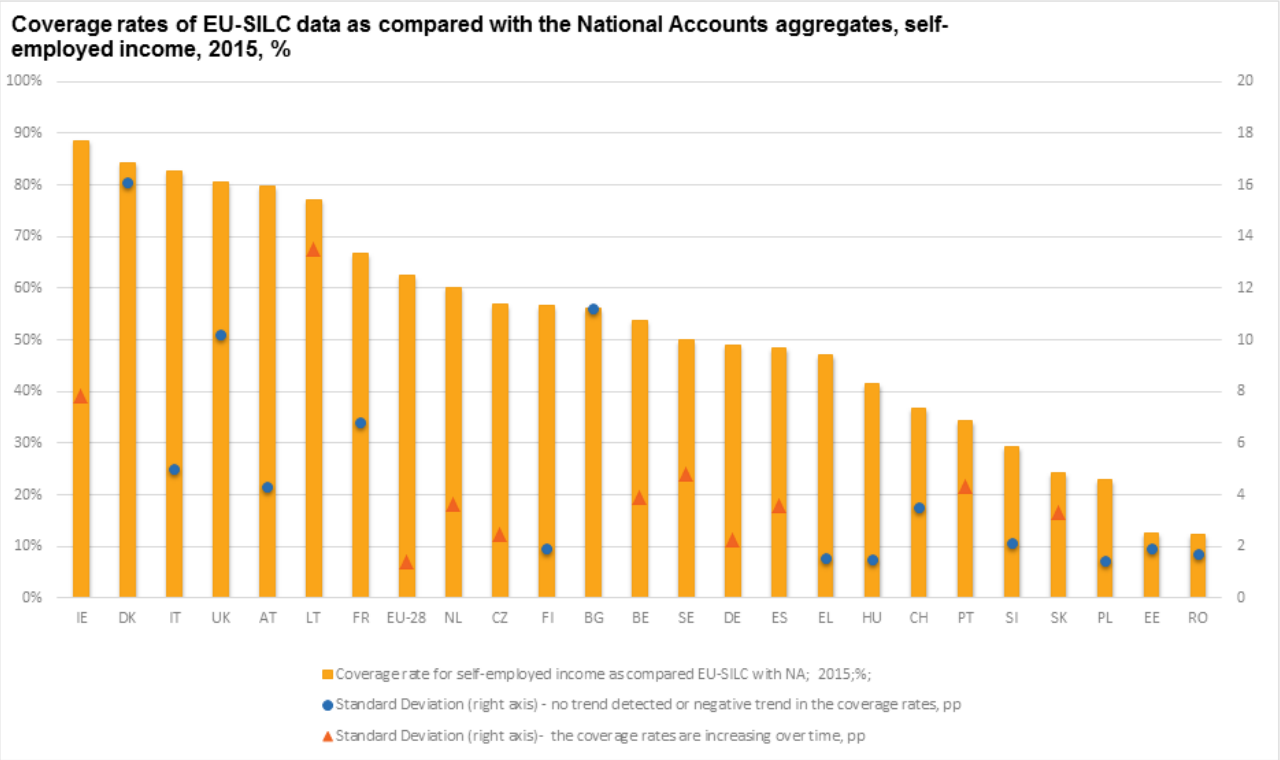

Figure 10: Coverage rates of EU-SILC data as compared with the National Accounts aggregates, self-employed income, 2015, %

Conceptual comparability for property income is evaluated as medium/low. Generally, coverage rates are low and relatively unstable over time (the average SD is 5.7 pp). The greatest stability is observed in Germany, the United Kingdom, Czechia, and Hungary, combined with very low coverage rates, below 20% (Figure 11).

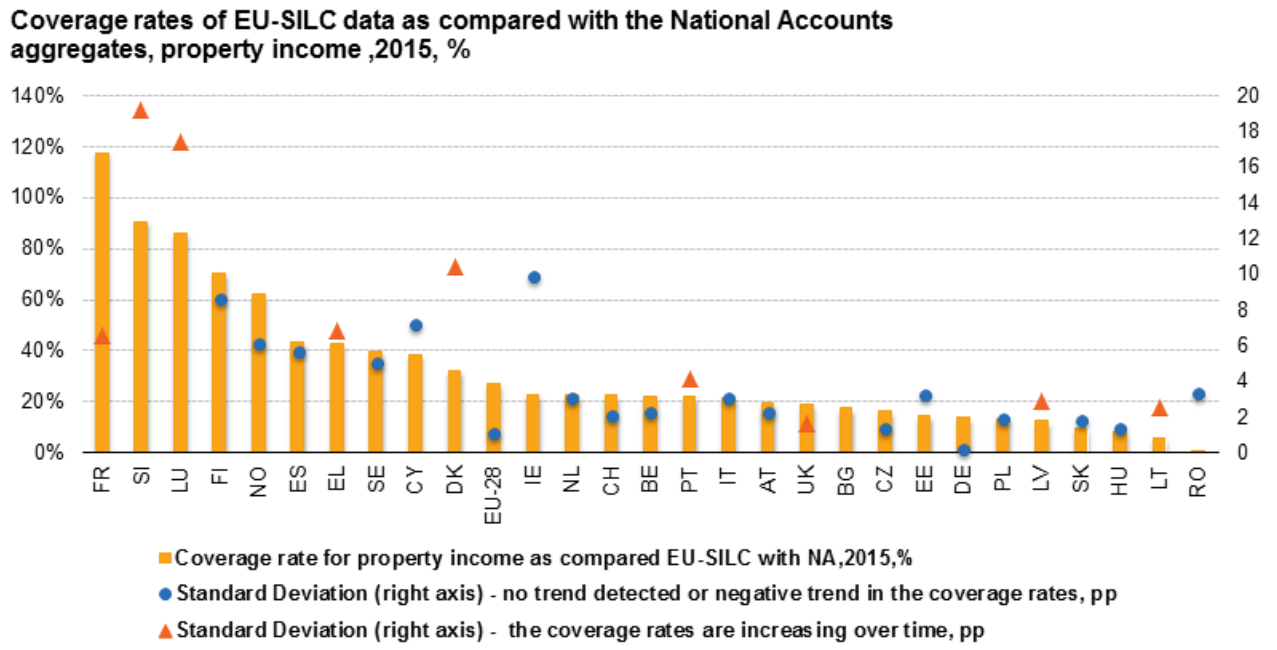

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Figure 11: Coverage rates of EU-SILC data as compared with the National Accounts aggregates, property income ,2015, %

Conclusions

- In 2015, the GDI average data gap for the EU-28 between EU-SILC and NA accounts was 27%. It had been relatively stable between 2009 and 2015. However the data gap over time and across countries varies, depending on the composition of the GDI and on the coverage rates of each income component.

- The comparability of GDI as calculated on the basis of the two data sources depends on the coverage rate, its stability over time and its share in GDI. The data show that the countries concerned are not homogeneous, and that results vary.

- In general, conceptual and data comparability is high for the following income components: employee cash or near-cash income (excluding the employer's imputed social contributions), social benefits other than social transfers in kind received, and social contributions and taxes on income paid (excluding the employer's imputed social contributions). Income from self-employment shows medium comparability. For property income, comparability is medium/low. Income components with low conceptual comparability and low relevance in terms of GDI are taxes on wealth paid and current transfers received and paid.

- The variability of the coverage rate over time may be explained in part by changes in the methods used to collect data. In some cases, rising coverage rates could indicate better reporting of income in the EU-SILC, as a result of growing efforts by the Member States.

- In this article, household GDI in NA and EU-SILC is compared centrally on an experimental basis; both sources are harmonised at EU level. International statistical organisations have encouraged countries to carry out the exercise at national level, possibly using other nationally available micro data sources (such as national surveys and administrative registers). To reduce the bias among the statistical sources, countries are advised to integrate the register data, where appropriate, directly into the framework of EU-SILC data. Notwithstanding the potential richness of national multi-source micro data, comparability issues at cross-country level should not be neglected.

Feedback

To help Eurostat improve these experimental statistics, users and researchers are kindly invited to give us their feedback by email

Source data for tables and graphs

- Download Excel file

Data sources

In the NA the data of the Households sector follows the sequence of accounts and respects the accounting methodology in the framework. The interaction of household sector with other institutional sectors is recorded in a closed framework. The horizontal consistency across the accounts among the institutional sectors should be respected, as well as vertical consistency between the non-financial and financial part of the accounts within the institutional unit. National accounts are not specifically intended to cover material well-being aspects for the households. EU-SILC is designed to reflect the income and living conditions for population in general as well as for subpopulation groups (by income quintile, by household type, by age groups etc.). For example, the inter-household transfers at national level should level out however for the distributional analysis of income for household groups it provides relevant information.

Methods used in this article

2015 is used as year of reference in this article and corresponds to 2015 NA data (Figure 3- Figure 11) and to 2015 income data (data collection year is 2016) for EU-SILC data. For the purpose of the analysis, the NA data for income are adjusted according to the population differences between EU-SILC and NA (Figures 4 – Figure 11). There are conceptual differences between the GDI definition in NA and EU-SILC (see: Methodological note (link)). Besides generic issues like the population coverage, the delineation issues of non-profit institutions for some countries in the NA, the heterogeneity of rules across the countries for classification of the self - employed income in NA (presence of self-employed in non-financial and financial –corporations sectors); and measurement issues in both data sources, there are specific differences in the definition of GDI and its' components. The income components that are not included in EU-SILC income definition but are part of GDI in NA: income from household production of services for own consumption; property income payed; property income attributed to insurance policy holders, operating surplus (including imputed rents), employer's imputed social contributions and Financial Intermediation Services Indirectly Measured (FISIM).

Coverage rates: aggregated data from the EU-SILC are divided by corresponding NA aggregates, expressed in per cent. Stability over time of the coverage rates is measured by standard deviation (SD). It shows the fluctuations of the coverage rate over time as compared to the average coverage rate during the period, SD is measured in percentage points.

In this article, the comparison between the households' GDI in NA and EU-SILC is done centrally on experimental basis; both sources are harmonised at EU level. International statistical organisations have encouraged countries to carry out the exercise nationally, possibly using other nationally available additional micro data sources (for example, national surveys and administrative registers). In order to reduce the bias among the statistical sources, it is advised to countries to integrate the register data where appropriate directly into EU-SILC data framework. Nevertheless, the potential richness of the national multi source micro data the comparability issues at cross-country level should not be neglected.

Context

Several international statistical initiatives are ongoing to coordinate and produce consistent data for households' ICW distributions. OECD is coordinating in close cooperation with Eurostat and ECB the work of G-20 Recommendation I.9 "to encourage the production and dissemination of distributional information (such as information by income quintile), for the household sector". In 2011, the OECD and Eurostat established a joint Expert Group on Disparities in National Accounts. In 2014, the OECD relaunched the expert group to extend the

work towards producing household distributional information on income, consumption and savings. The relevance of the distributive indicators for households' ICW in the European Union was highlighted by Vienna Memorandum signed by European Statistical System Committee (ESSC) on 28th September 2016, in Austria.

In 2016 Eurostat has launched two experimental statistical work streams: joint distributions of ICW by using the existing micro data sources and statistical matching techniques; and development robust bridges between micro and macro statistics that would lead to development of distributional indicators. This article corresponds to the second work stream - development of robust bridges between micro and macro statistics. It shows how well the data lines up for income and its' components form EU-SILC and NA. Further steps will include analysis of the household consumption data as measured in the Household Budget Survey and NA, experimental production of distributive indicators according to internationally agreed guidelines, including development of the quality framework and data imputations.

Explore further

Other articles

The first experimental results for the joint distributions of ICW have been already published on Eurostat website, in the section dedicated to experimental statistics:

- Income, consumption and wealth
- Joint distribution of household income, consumption and wealth - main indicators
- Joint distribution of household income, consumption and wealth - statistics on taxation

Thematic section

- Income, consumption and wealth

Publications

- European system of accounts - 2010 edition

Methodology

- European household income by groups of households - 2013 edition
- The Canberra Group Handbook on Household Income Statistics is also used as a reference for micro data for income. Canbera Handbook
- European system of accounts ESA 2010
- Methodological guidelines and description of the EU-SILC target variables
- National accounts (including GDP and regional accounts) - Overview
- European sector accounts – Overview

External links

- Income Mobility Statistics in Sweden – Compilation and Measurement (J. Lindberg, T. Helgeson, SCB, Paper prepared for the 35th IARIW General Conference, August 20-25, 2018)
- Savings in different Household groups (Sparande i olika Hushållsgrupper - A. Lennmalm, T. Noori, SCB, Sveriges ekonomi, September 2015, p23)
- Adding Inequalities to the SNA Framework: How Macro Disposable Income Benefits and Differs from Micro Disposable Income; Arjan Bruil; Statistics Netherlands; 2018; IARIW

Legislation

- Regulation (EC) No 1177/2003 of 16 June 2003 concerning Community statistics on income and living conditions (EU-SILC)
- Summaries of EU Legislation: EU statistics on income and living conditions