This article presents experimental results on the joint distribution of income, consumption and wealth. The data rely on a statistical matching of various surveys and are therefore based on strong assumptions. The methodology underpinning the empirical analysis is elaborated in the Statistics Explained article on methodological issues.

The interaction between income, consumption and wealth can be analysed on the basis of a number of ad hoc indicators. For instance, the interaction between income and consumption can be studied using an accounting approach that involves computing saving rates, i.e. what fraction of income is left once expenditure for consumption is subtracted. This approach is already used in national accounts (in the household account), but applied to households as a whole, without any distributional information. Income and consumption are aggregated as if there were only one agent (the "representative agent" in the economic theory); such indicators do not in themselves tell us much about the inequalities between households. Nevertheless, as shown in Figure...
1, the saving rate computed at aggregate level does partly reflect the level of inequality in a given country: generally, the more households tend to save overall, the less likely they are to say they are finding it difficult or very difficult to make ends meet.

The phenomenon of households’ vulnerability is hard to describe, as it may take different forms. Therefore, it is essential, when analysing poverty and vulnerability, to account for the various dimensions that may reflect the material difficulties that households are experiencing. One can then describe how the various indicators affect the population and analyse what characteristics make them vulnerable. More focus on those individuals is relevant in terms of policy.

Poverty in the EU

Poverty is usually described on the basis of the 'at-risk-of-poverty' (AROP) indicator, which focuses on households’ income. In 2015, 17.3% of individuals living in the EU-28 were at risk of poverty.

Poverty is multi-dimensional and can be described only on the basis of a number of variables. Poverty analysis in Europe usually covers three different dimensions:

- monetary poverty (according to the income-based AROP indicator)
- severe material deprivation which affected 8.1% of the population in the EU-28 in 2015; and
- very low intensity work which concerned 10.6% of the population aged 0-59 in the EU-28 in 2015.

Because poverty reduction is one of the main Europe 2020 objectives, these indicators are studied very carefully. Further information is available in the Statistics Explained article on Europe 2020 indicators on poverty and social exclusion.

Other indicators of households vulnerability

Poverty as measured using the 'at-risk-of-poverty-and-social-exclusion' (AROPE) indicator sheds a great deal of light on households’ vulnerability. Nevertheless, in order to better describe and understand the mechanisms that drive that vulnerability, other material dimensions such as households’ consumption expenditure and assets are investigated.

Low levels of expenditure

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1For more details on this indicator, one can report to the article dedicated to this issue.
In addition to income, consumption can also be used as a criterion for analysing who is a ‘vulnerable individual’. Vulnerability can be determined on the basis of consumption expenditure rather than household disposable income, with equivalised expenditure replacing equivalised income in the definition. People with equivalised expenditure below 60% of the median equivalised expenditure are considered as suffering from low levels of expenditure. One can then compare figures based on disposable income and those based on expenditure (see Figure 2).

In many countries, the proportion of individuals suffering from low levels of expenditure is very similar to the proportion below the AROP threshold. In some countries, however, using this approach may change the conclusions drawn. For instance, in countries such as Portugal, Estonia and Cyprus, more than one person out of five lives with levels of expenditure under the threshold in 2010, while the proportion of persons with equivalised income under the AROP threshold is significantly lower.

**Asset-based vulnerability**

Another analysis consists of focusing on wealth held by households. Households tend to accumulate wealth partly as a precaution, treating their assets as a buffer for smoothing out variations in income over time. We

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2This is for instance done in the Eurostat publication *Monitoring social inclusion in Europe — 2017 edition*, pp. 241 - 258.

3It is possible also to speak about expenditure-poor, but the term poverty is rather reserved for the usual definition.
define as ‘households at risk of asset-based vulnerability’ those households whose total assets do not enable its members to stay above the AROP threshold for longer than a given period of time. In other words, in the (very) hypothetical event of the household ceasing to receive income, its wealth (used to finance the needs of its members) is lower than the poverty threshold.

Data are not available for all EU countries - only those that took part in the Household Finance and Consumption Survey (the European harmonised survey on assets and liabilities) in 2010. The countries with the highest rates of households at risk of asset-based vulnerability were not the same as those with the highest AROP rates: in Finland, Germany and Austria, more than one household in ten was at risk of asset-based vulnerability after one month in 2010. The countries with the lowest rates were those with the highest rate of home-ownership and this illustrates one of the main drawbacks of this indicator: it does not account for asset liquidity, so it will result almost systematically in home-owners not being among the ‘vulnerable’. As a result, the difficulties that the household may encounter if it were to sell its real-estate assets are disregarded. Nevertheless, home-owners do benefit implicitly from an additional source of income, as they use their home for housing, as if they were landlord and tenant at the same time. National accounts have introduced imputed rents precisely to account for this source of income. Also some experiments have sought to account for this implicit income at the micro-level.

**Saving disparities**

Figure 4: Gini coefficients for income, expenditures, savings and wealth - Source: Eurostat (icw_sr_05) For information about the reference year see here

Findings on asset-based vulnerability reflect the fact that wealth is in general far more unevenly distributed than income or consumption. This is shown in Figure 4, which shows the Gini coefficients for households’ income, expenditure, savings and wealth. Gini coefficients usually range between 30 and 45 when it comes to income or consumption, but they go from 50 to 75 for wealth and even higher for savings.

In order to understand the dynamics of wealth inequality, it is essential to describe the process of asset accumulation and therefore saving behaviours. Savings flows may be defined as the residual between income and consumption, i.e. what is left from income at the end of the period after expenditure for consumption. If income is higher than consumption, this residual is invested in (financial or real) assets and will constitute a part of the wealth held by the household. If consumption is higher than income, the household will have to finance its consumption not only from income, but also by contracting debt or selling assets.

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The fact that a household cannot finance its consumption entirely from its income may be a good indication of financial difficulties. Similarly, a saving rate of close to zero suggests that the household is unable to save and is more likely to restrict its expenditure, thereby not meeting all its needs. Therefore, it is worth establishing the proportion of households that have a negative saving rate. Other distributional indicators, such as the median household saving rate (when households are ranked according to their saving rates, half are above this rate and half are below) are also focused on. Another indicator of interest is the aggregate saving rate, which reflects the saving behaviour of the population as a whole. The computation of such an indicator mimics the national accounts exercise for the household sector, in which all household income and consumption flows are aggregated at national level.

As shown in Figure 5, the proportion of households whose yearly expenditure is higher than their income varies greatly across countries. This indicator has to be interpreted with caution, as it may be affected by significant measurement errors. However, it is quite consistent with the results in Figure 6, which gives a broader overview of the distribution of savings in the population. For example, in 2010, half of all Belgian households saved more than 10% of their annual income, but the situation of Greek households was more difficult, as over half could not finance their expenditure from their income only. Aggregate saving rates are highly consistent with the results obtained with the other indicators.
Apart from the accounting exercise of computing savings from income and consumption at household level, it is also interesting to focus on the interplay between the various indicators of vulnerability we have described above. In particular, individuals who are poor according to the usual definition and at the same time vulnerable with respect to their expenditure levels may be of interest, as they combine several dimensions of poverty. Figure 7 shows the intersection between the usual AROP indicator and the indicator based on consumption; the blue segment represents the proportion of the population affected by both types of vulnerability. This proportion is above 10% for five Member States (Spain, Croatia, Romania, Greece and Bulgaria).

It is also interesting to observe how the proportion of vulnerable people changes when one also takes account of consumption. In many countries, more than one person in four is either at risk of poverty or suffers from low levels of expenditure, in Italy, this applies to more than one in three.

At household level, the overlap between ‘dissaving’ households and households whose members suffer from low levels of expenditure turns out to be quite small in almost all countries (see Figure 8). In 2010, the highest proportions of households combining the two types of vulnerability were observed in Romania (7.3%), Croatia (6.5%) and Greece (6.1%).
Saving behaviours

Understanding households’ saving behaviours may be relevant for policy-making, as budget choices depend greatly on households’ characteristics. From this viewpoint, vulnerability may affect different parts of the population, but the essential question relates to the transitory nature of this vulnerability. A household may be able to sustain a low (or even negative) saving rate for a finite period, but people whose expenditure is higher than their income will at some point be confronted with budget constraints.

The role of life cycle

Figure 9: Median saving rate by age of the reference person - Source: Eurostat (icw_sr_01) For information about the reference year see here

Economic theory recognises that people’s saving behaviour may vary over their lifetime, as they tend to adjust their consumption in order to smooth out income variations. In particular, younger and older people will tend to have lower saving rates, since they are generally earning less than they will earn on average over their lifetime. In Figure 9, one can observe that saving rates increase between the beginning of active life and before retirement. However, the expected decrease of saving rates after retirement as a result of lower income cannot be seen for all countries. Also, basic economic theory predicts that saving rates will be strongly negative at higher ages, since rational individuals will tend to consume all their assets before death. This is not corroborated by the data, suggesting that people may retain their assets in order to pass them on to their children.

Household structure and vulnerability

Figure 10: Median saving rate by type of household - Source: Eurostat (icw_sr_02) For information about the reference year see here

Saving behaviour is also closely linked to household structure (see Figure 10). A family with three children and a single-adult household will have different attitudes to consumption and to the future. The data show (unsurprisingly) that a lone parent with children is more likely to have a low saving rate. However, the situation varies considerably across countries, which is probably a reflection of differing social security systems in Europe.
Income and savings

Figure 11: Median saving rate by income quintile - Source: Eurostat (icw_sr_03) For information about the reference year see here

Savings increase with income; most importantly, saving rates (i.e. the fraction of income not used for consumption) increase with income (see Figure 11). In many countries, the median saving rate in the first quintile of income (the 20% of households with the lowest income) is negative, particularly in Italy (-56.5%), Greece (-50.9%) and Romania (-42.4%). Conversely, the median saving rate in the last quintile of income (the 20% of households with the highest income) is quite high, in particular in Italy (60.7%), Bulgaria (55.2%) and Lithuania (48.4%).

Source data for tables and graphs

- Download Excel file
- Link to the scripts generating the figures

Data sources

EU statistics on income and living conditions (EU-SILC) were launched in 2003 and data collection is governed by Regulation (EC) No 1177/2003 of the European Parliament and of the Council. EU-SILC collects information on income and comprises a cross-sectional dimension and a longitudinal dimension. The Household Budget Survey (HBS) is a survey conducted every 5 years on the basis of a gentlemen’s agreement between Eurostat, the Member States and the EFTA countries. Data are collected using national questionnaires and, in most cases, expenditure diaries that respondents are asked to keep over a certain period of time. The wave used for this article is the 2010 wave, although the reference year may vary across countries.

Household disposable income is established by adding up all monetary incomes received from any source by all members of the household (including income from work, investment and social benefits) — plus income received at household level — and deducting taxes and social contributions paid. In order to reflect differences in household size and composition, this total is divided by the number of ’equivalent adults’ using a standard equivalence scale, the so-called ’modified OECD ‘ scale, which attributes a weight of 1.0 to the first adult in the household, 0.5 to each subsequent member of the household aged 14 and over, and 0.3 to household members aged less than 14. The resulting figure (’equivalised disposable income’) is attributed to each member of the household.

Consumption is described according to the Classification of individual consumption by purpose (COICOP) for each household. Total consumption is obtained by adding up all COICOP items and (as with income) this total is divided by the number of ’equivalent adults’ using the same modified OECD scale. The resulting figures are used to compute equivalised expenditures, which are attributed to each member of the household, in order to compute the ’low levels of expenditure’ indicator.
EU-SILC and HBS data are matched according to the year of reference for HBS, so as to obtain a fused dataset containing household-level information on both income and consumption. The results are considered valid "around 2010". For more details on the statistical matching of EU-SILC and HBS, please see another Statistics Explained article describing the methodology used.

Information on assets and liabilities is from the Household Finance and Consumption Survey (HFCS), in particular the first wave conducted in 2010. Here again, the statistics are valid for the period "around 2010".

**Context**

In order to support its agenda for social fairness and a good balance between economic and social goals, the European Commission has stressed the need to bring social indicators up to a par with macroeconomic indicators within the EU’s reinforced macroeconomic governance. To this end, it is important to ensure the availability of harmonised statistics at EU level that cover the distributional aspects of households’ income, consumption and wealth (ICW).

In September 2016, the Directorates General of the National Statistical Institutes (DGINS) conference in Vienna stressed the importance of ICW statistics shedding light on people’s material well-being and on inequality. The conference concluded that there was a need for a harmonised statistical framework on ICW based on a multi-source approach integrating existing sources of data (EU-SILC, Household Budget Survey (HBS) and the Household Finance and Consumption Survey (HFCS). These data are the first outcome of data integration effort that will be pursued and improved in the coming years.

In the meantime, Eurostat has launched a section on its website dedicated to the dissemination of experimental statistics. These statistics use new data sources and methods in an effort to expand and improve Eurostat’s response to its users’ needs. Since the statistics presented in this article come from experimental data processing and are based on statistical assumptions, they belong to this section until they reach a sufficient level of maturity.

**Other articles**

- Interaction of household income, consumption and wealth - methodological issues
- Europe 2020 indicators - poverty and social exclusion

**Dedicated section**

- Experimental statistics

**Database**

- Income, consumption and wealth - experimental statistics, see:
  - Saving rates (icw_sr)
  - Poverty (icw_pov)

**Publications**

**Statistical books**

- Monitoring social inclusion in Europe - 2017 edition

**Others**

5The DGINS conference is held once a year and aimed at gathering the Directors General of the National Statistical Institutes so as to discuss topics related to the statistical programme. For more details, please have a look here.


**Legislation**


- *Regulation (EC) No 1791/2006* of 20 November 2006 adapting certain Regulations and Decisions in the fields of ... statistics, ..., by reason of the accession of Bulgaria and Romania

**External links**

- Website of ECB’s Household Finance and Consumption Survey

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