research article

Poor and satisfied? A review of the monetary poverty indicator in the EU

Mónica Martí[1,], mmarti@ua.es
Carmen Ródenas, crodenas@ua.es
University of Alicante, Spain

This article seeks to contribute to the generation of more accurate poverty indicators in the EU, by providing some further evidence of potential bias when joint income-wealth perspective on poverty measurement is not considered. Using the 2018 EU-SILC, we compare the individuals' financial satisfaction and his/her household classification as at risk of poverty (AROP). We detect a significant group of people whose households are classified as poor but who are satisfied with their economic situation. The explanations for this mismatch lie both in errors in the income estimation and in the presence of household wealth. Through an exploratory analysis with certain limitations, we find that those in this group have different characteristics from the rest of the poor and are more similar to those who are neither poor nor dissatisfied when we analyse economic stress and *proxy* wealth variables. The article supports the recommendation to revise the AROP indicator based on the joint income-wealth distribution.

Introduction

In order to evaluate progress in the fight against poverty and social exclusion, Europe uses the *European Union − Statistics on Income and Living Conditions* (EU-SILC) to estimate the population at risk of poverty (AROP). This indicator is greatly respected and is expected to fulfil high statistical standards with regard to reliability, validity and comparability. The EU-SILC files are published yearly and *ad-hoc* modules complement the permanently collected variables. In 2018, the special module was devoted to subjective well-being, collecting information on subjective financial well-being (SFWB). This information provides a singular opportunity to test the consistency between the poverty indicator used by the EU and people's individual feelings about poverty.

Yet, the validity of the subjective satisfaction measure is questionable. For example, self-reporting can be different because of the effect of memory bias, the person's

current mood, beliefs about satisfaction or cultural differences (Diener et al, 2009). Each respondent also has a personal interpretation of response scales and these responses may be skewed by recent fulfilment or not of personal wishes, can vary with the weather, the survey timing or the position of questions in the questionnaire (Tavernier et al, (2015). Furthermore, there may even be problems of cognitive dissonance when, for example, people give a subjective assessment of the household's economic situation that is slightly more favourable than it actually is (Bradshaw and Finch, 2003; Angel et al, 2018). However, despite these drawbacks, Diener et al (2009: 188) advocate the use of subjective measures because they show how a person summarises his/her life as a whole.

Prior research consistently shows that income is positively correlated with SFWB. Richer individuals report a higher level of satisfaction while those living in objectively poorer conditions are more likely to report lower SFWB (Medgyesi and Zólyomi, 2016; Palomäki, 2018). However, the relationship is moderate in magnitude. For the USA and the Nordic countries, Hansen et al (2008: 325) find that the correlation is around 0.20–0.40 and Medgyesi and Zólyomi (2016: 22) set it at 0.43, using data from 28 countries in the 2013 EU-SILC.

While previous studies have mainly focused on understanding the moderate correlation between income and SFWB, we highlight the presence of people with income below the poverty line but who nevertheless consider the household's financial situation to be satisfactory. The authors who have examined satisfaction at the microeconomic level using the EU-SILC, have also failed to detect their existence (Halvorsen, 2016; Watson et al, 2017; Zelinský et al, 2018; Džuka et al, 2019; Mysíková et al, 2019; Vladisavljević and Mentus, 2019). Only Headey et al (2009: 37–38), observe that the gap between poor and non-poor in terms of life and financial satisfaction is very small, but they use data drawn from Australian (2007, HILDA) and German (2005, SOEP) national socio-economic panel surveys.

Neither do EU documents analysing satisfaction address the question. This is the case of the European Commission report (Medgyesi and Zólyomi, 2016) on job satisfaction and satisfaction with financial situation or the report on quality of life in Europe (Eurostat, 2015). At most, the latter compares poverty rates and the aggregated share of people reporting low satisfaction.

These individuals, who we refer to as *poor and satisfied*, emerge when we compare financial satisfaction with the AROP status using the EU-SILC. Through an exploratory analysis with certain limitations, this article analyses this group for the first time. As we see later, they are significant in some countries and show different characteristics from the rest of the poor in variables such as economic stress, social exclusion and wealth *proxies*, and are more similar to those who are neither poor nor dissatisfied. The article provides some reasons to explain this mismatch as well as additional evidence in favour of a joint income-wealth perspective in the measurement of poverty. Previous literature has supported this perspective mainly on the basis of the limited correlation between income and wealth. We contribute to the debate through an alternative approach, that is, an analysis of individual financial satisfaction. We do so, taking into account the limitations of this variable.

The article is structured as follows. After specifying the AROP population and SFWB measures, the first section compares both indicators, showing a low association between them, as well as the presence of the *poor and satisfied* group. In the second section, we examine the reasons that may explain this dissonance. We

review problems with the measurement of disposable income and the suitability of adding an additional dimension, net wealth. Our hypothesis is that the feeling of satisfaction among AROP population is not inconsistent. In the third section, we describe the methodology applied to support this hypothesis. The results of both exploratory analysis and logit estimates of the risk of being identified as *poor and satisfied* are shown in the fourth section. Finally, the article ends with the discussion and the main conclusions.

The facts: comparing SFWB and AROP population

As Eurostat (2012; 2019) states, the SFWB variable refers to the respondent's opinion/feeling about his/her degree of satisfaction with the financial situation of his/her household. The respondent has to make a broad, reflective appraisal of all areas of the financial situation of his/her household at a particular point in time (currently). He/she should take into account income adequacy, level of savings, capacity to pay back debt and money owed, the ability to meet large emergency expenses and the level of assets for the entire household. The data collection mode is a personal interview with all current household members aged 16 and over.

This evaluative variable is measured with a Likert-type scale from 10 (completely satisfied) to 0 (not at all satisfied). Using Simms et al's (2019) interpretation of an 11-point Likert scale, the range between 7 and 10 points would contain those who are mostly satisfied, satisfied, strongly satisfied and very strongly satisfied. Central scores of 4 to 6 are taken as neutral (slightly unsatisfied; neither satisfied nor unsatisfied; slightly satisfied) and finally, the range 0–3 points would include those who are very strongly unsatisfied, strongly unsatisfied, unsatisfied and mostly unsatisfied.

Regarding the official poverty measure, AROP population are those who have an equivalent disposable household income (EDHI)[2] below the at-risk-of-poverty threshold, which is set at 60 per cent of the national median, according to Eurostat (2020). That is, the AROP rate is a relative objective measure.[3]

For comparative purposes, ten EU countries have been selected: two large ones, Germany and France, three medium-sized countries, the Netherlands, Italy and Spain, and finally five relatively small countries, Sweden, Denmark, Ireland, Portugal and Greece. This choice brings together countries with diverse welfare systems, home-ownership rates and family support structures. It also shows the differences in well-being situations between the countries hardest hit by the 2007–2014 crisis, Greece and Spain, as well as Ireland, Portugal and Italy.

After merging the four 2018 cross-sectional EU–SILC microdata files, it is possible to compare the individuals' self-reported scores for satisfaction and his/her household classification as AROP.[4] In this comparison we would expect to find AROP population concentrated in the lowest satisfaction scores (below five), but this is not apparent in Figure 1, especially in countries such as Sweden, the Netherlands or France.[5] Only a slight skew to the right (lower values) can be observed in the distribution of scores among AROP population. According to the literature, the association between both variables is low,[6] but the independence hypothesis between AROP and satisfaction is not statistically confirmed by the chi-square test.

However, the null hypothesis of independence can be rejected due to the large number of observations in the sample (Good and Hardin, 2009; Allen, 2017). As this

Figure 1: Percentage of population according to satisfaction with financial situation scores (AROP and NO AROP population)
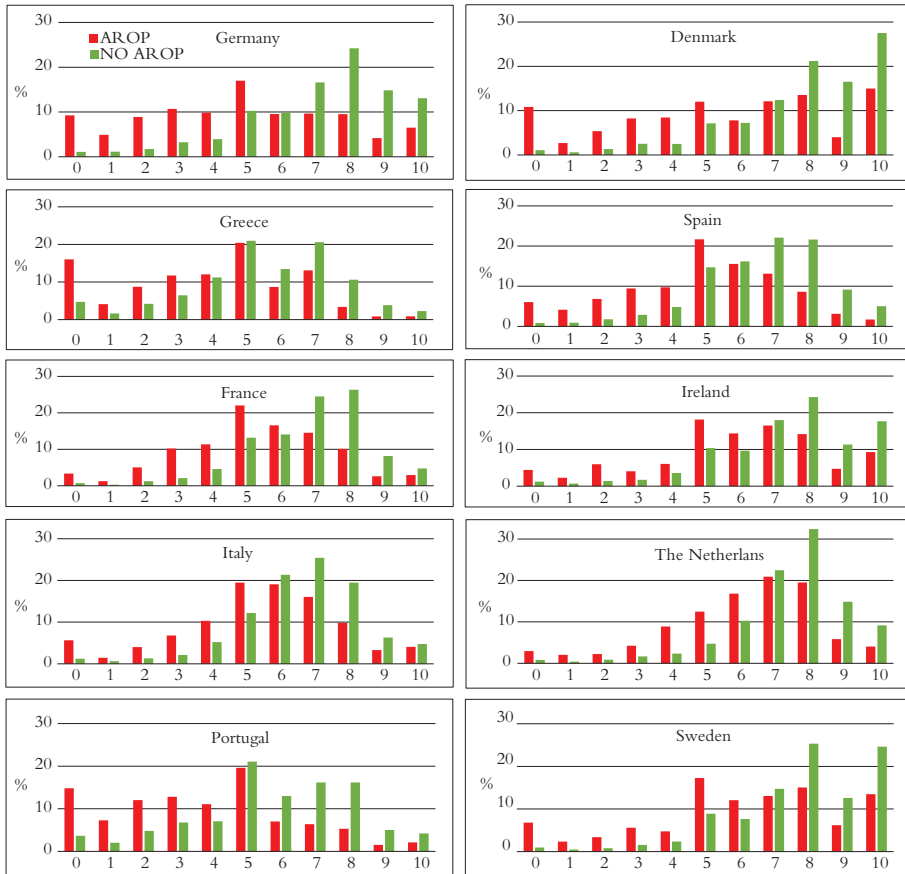
Source: Own calculations based on EU-SILC microdata, 2018.

could be the case for EU–SILC, we have used Cramér's V tests. The results again point to related variables, but the intensity of the relationship is very weak (see Table 1), between 0.24 and 0.37 depending on the country, below 0.6, which is usually understood by social sciences to be a relatively strong correlation (Bryman and Cramer, 2005; Kotrlik et al, 2011; Cohen, 2013; Lee, 2016; Lewinson, 2020).

The percentage of people who are either satisfied, neutral or dissatisfied with their financial situation in each country, as well as the result of crossing these three categories with AROP status is shown in Table 1. The *poor and satisfied* group ranged from 15.3 per cent of population in poverty in Portugal to 50.3 per cent in the Netherlands. We can observe that in six countries there are more AROP population satisfied with their financial situation (scores from 7 to 10) than dissatisfied (from 0 to 3).

The distribution of population by EDHI level and SFWB is not as expected either. In Figure 2, 11 stacked bars have been drawn for each country. The first of these (D0) has been used to isolate all people with negative or zero income.[7] The other ten bars divide the rest of the population with EDHI greater than zero into deciles, and their different tints represent the score for SFWB (from 0 to 10). In addition to

Table 1: Cramér's V test, SFWB and AROP status

| Countries	Cramér's V test	Cumulative score	Total population	AROP	NOT AROP
			Column percentages		
DE	0.373	Dissatisfied (0–3)	11.59	33.74	7.20
		Neutral (4–6)	26.09	36.40	24.05
		Satisfied (7–10)	62.32	29.86	68.75
DK	0.355	Dissatisfied (0–3)	9.17	27.12	5.52
		Neutral (4–6)	18.78	28.25	16.85
		Satisfied (7–10)	72.05	44.63	77.63
EL	0.253	Dissatisfied (0–3)	21.20	40.63	17.02
		Neutral (4–6)	44.84	41.13	45.64
		Satisfied (7–10)	33.96	18.24	37.34
ES	0.332	Dissatisfied (0–3)	10.52	26.50	6.39
		Neutral (4–6)	38.01	47.02	35.67
		Satisfied (7–10)	51.47	26.48	57.94
FR	0.273	Dissatisfied (0–3)	6.19	19.84	4.39
		Neutral (4–6)	33.97	49.96	31.87
		Satisfied (7–10)	59.84	30.20	63.74
IE	0.242	Dissatisfied (0–3)	7.04	16.71	5.10
		Neutral (4–6)	26.12	38.58	23.63
		Satisfied (7–10)	66.84	44.71	71.27
IT	0.249	Dissatisfied (0–3)	7.73	17.91	5.31
		Neutral (4–6)	40.69	48.85	38.74
		Satisfied (7–10)	51.58	33.24	55.95
NL	0.268	Dissatisfied (0–3)	4.95	11.50	3.73
		Neutral (4–6)	20.67	38.21	17.40
		Satisfied (7–10)	74.38	50.29	78.87
PT	0.313	Dissatisfied (0–3)	22.35	46.98	17.28
		Neutral (4–6)	40.55	37.72	41.13
		Satisfied (7–10)	37.10	15.30	41.59
SE	0.308	Dissatisfied (0–3)	6.47	18.17	3.79
		Neutral (4–6)	21.74	34.08	18.91
		Satisfied (7–10)	71.79	47.75	77.30

Source: Own calculations based on EU-SILC microdata, 2018.

the distribution of SFWB across income deciles, the figure also provides the poverty threshold of each country (black dashed vertical line), in such a way that all bars to its left are made up of AROP population.[8]

As we look at the population in higher income deciles (towards the right), their self-scores increase (the spaces indicating satisfaction levels (7–10) are wider). We would expect the degree of satisfaction with financial situation among AROP population to continue declining at the same rate (with the same slope) as it has been doing among non-AROP population from the highest decile to the poverty threshold. However,

the decline in the percentages of the highest satisfaction scores (7 or more) tends to either slow down appreciably or indeed rebound when reaching the income deciles technically in poverty. In particular, the satisfaction reported by the AROP population with zero or negative income, instead of being further reduced compared to previous deciles, stands out in Germany, Denmark, France, the Netherlands and Sweden, where it is even higher than that of the population on the other side of the poverty line.

Figure 2: Distribution of population (%) by level of EDHI (deciles) and SFWB
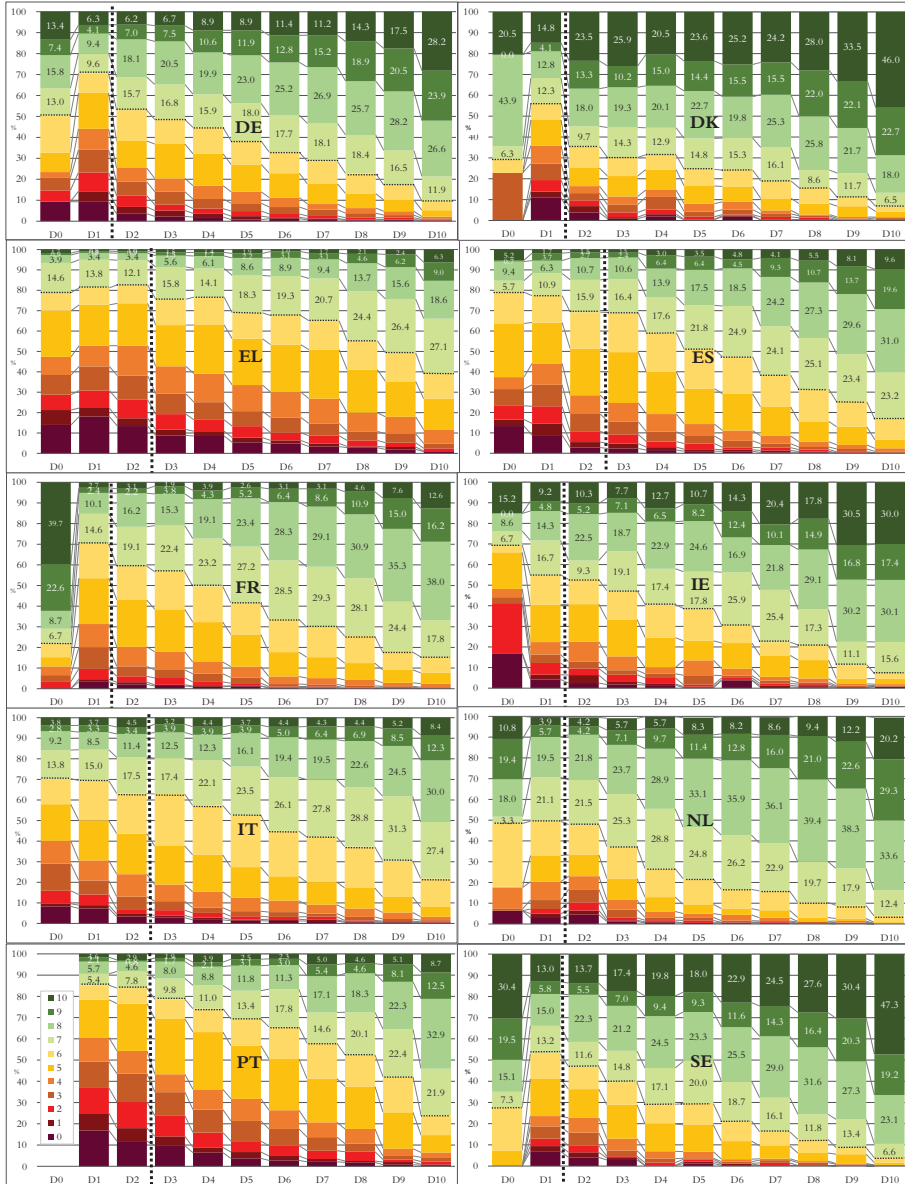
Notes: D0 includes all people with negative or zero income. The black dashed vertical line refers to poverty threshold. Different tints represent SFWB score.
Source: Own calculations based on EU-SILC microdata, 2018.

These findings could point to the possibility that some of the people classified as poor on the basis of the AROP indicator are, in fact, not poor. Otherwise, it is difficult to understand why those people are satisfied with their financial situation.

How the dissonance between poverty and satisfaction can be explained

In this section, we will examine how the dissonance between the two measures can be explained by errors in the measurement of income and the omission of net wealth.

Problems with the EDHI

According to Eurostat (2019), the EDHI is equal to the total disposable household income divided by the number of people in the household, re-scaled into equivalent adults. The total disposable household income is the sum of the gross personal income components of all household members plus gross income components at household level, minus regular taxes on wealth, regular inter-household cash transfer, tax on income and social insurance contributions. These concepts, whose reference period is the year previous to the interview, are shown in detail in Table 2.

A first, probably low impact, mismatch in the comparison may come from the *difference in the reference periods* (Medgyesi and Zólyomi, 2016: 27). While in the AROP indicator disposable income is that corresponding to the year prior to the interview, in assessing SFWB, income is that available at the time of the survey.[9] If this were the reason why we identified a population as *poor and satisfied*, it would mean that the financial situation of many individuals had improved significantly in the few months between the end of the previous administrative year and the time of the survey, which is unlikely under normal circumstances.

Poor and satisfied might also exist because some *income components are either underestimated or underreported*. Underestimation might be significant in countries where income data are collected through surveys. The increasing use of administrative registers to obtain income in the EU-SILC has reduced non-response and biases in many of the components of this variable. The registers avoid the problem of remembering (voluntarily or not) both the amount and the different sources of income, in particular the financial or real assets income. In general, the analyses on the recent transition from survey income data to registers find an increase in household income.[10] However, the use of administrative data does not seem to play a role in our analysis. The percentages of satisfied AROP population in the countries that obtain income data through surveys, Germany, Greece and Portugal, are not higher than in those that use administrative data. In fact, Greece and Portugal have the lowest percentages.

Administrative files, however, cannot always provide all the information on the income actually received by households. This is the case for income that is not declared, which is obviously neither recorded in the registers nor reported in the interview. Thus, the economic situation of these households is better than that shown in the data. The income of people working abroad, real assets incomes or those of self-employed workers are examples. The latter can underreport their income to surveys but also to treasury public, because these incomes are less controllable by the authorities than

Table 2: Total disposable household income (HY020) in EU-SILC

Total gross household income (HY010)	
a) Sum for all household members of gross personal income components: • Gross employee cash or near cash income (PY010G) • Company car (PY021G) • Gross cash benefits or losses from self-employment (PY050G) • Pensions received from individual private plans (PY080G) • Unemployment benefits (PY090G) • Old-age benefits (PY100G) • Survivor' benefits (PY110G) • Sickness benefits (PY120G) • Disability benefits (PY130G) • Education-related allowances (PY140G)	b) Plus gross income components at household level: • Income from rental of a property or land (HY040G) • Family/children related allowances (HY050G) • Social exclusion not elsewhere classified (HY060G) • Housing allowances (HY070G) • Regular inter-household cash transfers received (HY080G) • Interests, dividends, profit from capital investments in unincorporated business (HY090G) • Income received by people aged under 16 (HY110G)

Minus:
• Regular taxes on wealth (HY120G)
• Regular inter-household cash transfer paid (HY130G)
• Tax on income and social insurance contributions (HY140G). It includes:
  – income taxes paid during the income reference period
  – tax adjustments-repayment/receipt received or paid during the income reference period
  – social insurance contributions paid during the income reference period	

HY020 = HY010 – HY120G – HY130G – HY140G	

Source: Eurostat (2019).

those obtained by employees. In addition, employees in certain situations, sectors or countries may try to hide part of their labour income (black economy).[11] Situations of this kind could explain some cases of *poor and satisfied* population.

In relation to the regular inter-household cash transfers received, Headey (2008) says that 'parental subsidies should be recorded in surveys as inter-household transfers but are, in practice, often omitted as a source of income' (p 34). So, younger educated AROP population who are satisfied with their economic situation can be explained because, although their disposable income in registers is low, they may be borrowing to consume, or perhaps living partly off a parental subsidy.

Even though Eurostat describes the content of each of the survey variables in the methodological guidelines precisely and in detail, these criteria are not specifically applied in some countries. This is the case of the *Interests, dividends, profit from capital investments in unincorporated business* variable, which offers positive values in all selected countries, except in Denmark and the Netherlands where around 49 per cent and 23 per cent, respectively, of households declare a negative value. When Eurostat and Statistics Netherlands were asked, the explanation in the case of Denmark is that until 2020 'Danish SILC has included interest paid on regular bank loans, payday loans, loans from abroad and study loans' and in the Dutch case 'interest paid on overdrafts has also been included'. If these are the reasons, the EDHI of households with any kind of debt or loan will be lower than that of households with the same income but without debt and could even be classified as poor, when they are not, according to the AROP methodology.

The *treatment of capital gains and adjustments to income tax in previous years* may also explain the differences. Income from regular sources (labour, capital or entrepreneurial profits) are incorporated in the calculation as gross income, from which social insurance contributions and taxes are then deducted. However, income from irregular sources, basically the realised capital gains, are not included because they are not gross income, but they are taken into account when direct taxes are discounted. Income tax is also levied on capital gains in the selected countries (Princen et al, 2020). In the end, this leads to certain households having lower total net disposable income. Since this does not greatly affect the population,[12] the country´s median income is not significantly reduced. Thus, the poverty line remains stable, although people who are not actually in monetary poverty could be classified as AROP population. This problem does not exist, for example, in the USA's poverty measurement because it is calculated using gross income (before any deductions or taxes) instead of net income.

This mismatch can be easily solved by incorporating household net wealth into the poverty measure. The realised capital gains measure the change in the value of wealth when any asset is sold. Thus, even if the capital gains tax continued to be introduced into the calculation of disposable income, capital gains or losses would be captured in the value of wealth, preventing people who are not really poor from being occasionally classified as such. This change would also correct the inconsistency of introducing the regular taxes on wealth into the calculation of disposable income.

Capital gains or losses also influence satisfaction subjectively. They occur when an asset is sold, resulting in an increase in liquid assets. Regardless of the existence of a gain or loss, the increase in liquidity and, consequently, in spending power, can give a sense of economic well-being and satisfaction with the financial situation.

In addition to the income tax mismatch, there is a second incongruity when calculating disposable income. It stems from the inclusion of tax adjustments from previous years. These adjustments can either increase or decrease disposable income. It is possible that in some households a decrease in income caused by the adjustment can bring the EDHI below the poverty line. As these are very one-off situations and originate in previously enjoyed income, they may not affect the individual's overall assessment of his/her current financial situation.

These distortions may largely explain the origin of the negative disposable incomes found in Figure 2. Nevertheless, it is a complete contradiction that the way in which taxes are incorporated into the AROP indicator leads to people being classified as poor when they are not, because either they have experienced capital gains, have significant wealth or have paid tax adjustments from previous years.

Finally, *the AROP indicator is measured in absolute terms (time) and in relative terms (national population)* could also explain some of the discrepancies observed. As stated in the literature review, satisfaction with financial situation may depend more on a relative income (over time or in relation to reference group) than on an absolute one. However, although the AROP indicator considers only the situation of the household at a specific point in time, when people assess their satisfaction, they could take into account not only the present but also their financial past and future. Moreover, while the AROP indicator is measured in relative terms with respect to the total population of the country, individuals may consider other groups that are closer to them, such as relatives, work colleagues or even neighbours, as reference group. In this sense, some of the discrepancies could also be justified. There are also empirical studies that show people do not have a realistic idea about their own position within the

socio-economic hierarchy (Lierse et al, 2022: 372). Medgyesi and Zólyomi (2016: 20), Neff (2009) and Olson and Schober (1993) add that as people tend to lower their needs and expectations in response to limited economic resources, they report higher satisfaction even when they have lower levels of income.

The other dimension of poverty: net wealth

Household income offers limited information on household economic welfare. It only reveals households' resources obtained during a certain period, but it says nothing about the households' economic capacity to sustain their standard of living or their vulnerability in times of economic crisis (Azpitarte, 2012). This information is provided by the households' net wealth (assets minus debts) which can be directly transformed into cash or can be used as collateral for a loan in order to obtain financial liquidity. Thanks to the households' net wealth, the families can smooth out their consumption in difficult periods. They can feel financially secure, because savings and assets can be used to meet unexpected financial setbacks. In contrast, households might be much more vulnerable than their mere income suggests if the financial liabilities are incorporated into poverty measurement (Kuypers and Marx, 2018). It makes sense, then, that the answer to financial satisfaction is based on these two concepts: income and net wealth.

In the literature there is a broader debate about which concept of wealth should be included in the poverty measurement (Headey, 2008; Brandolini et al, 2010; Azpitarte, 2012; Kuypers and Marx, 2018), and sometimes the omission of wealth in empirical analyses is justified by the lack of a database with both income and wealth variables. The EU-SILC does not include any variable which directly measures household net wealth,[13] but it does contain some variables that may indicate some kind of household wealth. These variables are the following:

- *Tenure status*: housing wealth indicator.
- *Imputed rent*: *proxy* variable of the housing wealth value when the households are owner-occupiers.
- *The capacity to face unexpected financial expenses*: clear indicator of liquid assets given the requirement of immediacy.
- *Income from rental of property or land*, *interests*, *dividends*, *profit from capital investments in unincorporated business and pension from individual private plans*: very good *proxies* for the value of non-housing wealth, insofar as asset income is proportional in some way to the value of the assets, except in Denmark and the Netherlands for the reasons mentioned earlier.
- *Regular taxes on wealth:* a positive value indicates the existence of some net wealth in the household, whose value exceeds a minimum threshold.

Methodology

Our hypothesis is that the feeling of financial satisfaction among the AROP population is not inconsistent. In fact, the presence of *severely materially deprived* and *low work intensity* – as defined by Eurostat – is very small in this group. To support

this hypothesis, we first compare some variables of *economic stress*[14] and *proxy* variables of wealth between the *poor and satisfied* group and other groups of population in an exploratory analysis. Then, in order to know more about the *poor and satisfied* group, we estimate a logit model. We are interested in the effect that different demographic and socio–economic variables have on the probability of an individual at risk of poverty being classified as *poor and satisfied*.

Exploratory analysis: economic stress and wealth

For the comparison, we restrict the analysis to the population whose EDHI is below the median of the distribution. In this way, we can divide the population into four more balanced groups. The first contains the AROP population who are satisfied with their financial situation (scores from 7 to 10) and the second contains the remaining AROP population. The third and fourth group are made up of the non–AROP population whose EDHI is below the median. Those who are also dissatisfied (scores from 0 to 3) constitute the third group, while the last group is made up of non–dissatisfied population (scores 4 to 10). These four groups will be referred to as *poor and satisfied*, *poor and non-satisfied*, *non-poor and dissatisfied* and, finally, *non-poor and non-dissatisfied*.

To assess *economic stress*, we calculate the percentage of people in each group who has the ability to do each of the following EU-SILC items: keep home adequately warm; afford to pay for one week annual holiday away from home; replacing worn-out furniture; make ends meet; meet financial burden of the total housing cost; get together with friends/family (relatives) for a drink/meal at least once a month; participate regularly in a leisure activity and, finally, spend a small amount of money each week on yourself.

Regarding the *proxy* variables of wealth, we analyse tenure status, capacity to face unexpected financial expenses, owners imputed rent and income from financial assets. The poor quality of the data, as explained later, discourages the analysis of income from real assets, pensions from private plans and regular taxes on wealth variables. We also calculate the percentage in each group of outright owners and people with capacity to face unexpected financial expenses and the mean of each group for owners' imputed rent and income from financial assets.

Logit model: the risk of being identified as poor and satisfied

We estimate the risk of being identified as *poor and satisfied*,[14] by using a logit model in which the dependent variable, γ_i, equals 1 if the individual belongs to the *poor and satisfied* group, and otherwise equals 0. Thus, the probability of the individual i being included in that group is equal to

$$Pr\left[\gamma_i = 1\right] = \frac{e^{(x_i'\beta)}}{1 + e^{(x_i'\beta)}}$$

where x_i' is the set of covariates, and β is the vector of parameters associated to the covariates to be estimated. The vector β can be interpreted in terms of odds ratio, given that

$$\frac{Pr\left[\gamma_i = 1\right]}{Pr\left[\gamma_i = 0\right]} = e^{(x_i'\beta)}$$

The selected countries exhibit notable differences in terms of welfare systems, tax systems, proportion of homeowners, family support structures and the impact of the Great Recession. For this reason, the model has been estimated separately for each country in order to capture possible changes in the behaviour of the variables as a consequence of the aforementioned differences. Moreover, variations in the fit of the model cannot be ruled out due to the different quality and comparability of the economic information. Differences in data quality are due to: non–compliance with the Eurostat guidelines, insufficiently precise definitions of target variables, and sources of data collection, surveys *versus* registers (Zardo and Goedemé, 2020).

Analysis and results

Economic stress and wealth

The percentage of people in each group, as defined in the third section (Exploratory analysis: *economic stress* and wealth), who do not suffer from each of the *economic stress* items can be found in Figure 3.

The figure draws the space of *non-economic stress* for each of the four groups from each country. A larger comfort area indicates less *economic stress* in the corresponding group. In general, the *poor and satisfied* group shows a profile much closer to the *non-poor and non-dissatisfied* group than the rest of the AROP population. The percentage of the *poor and satisfied* is, in fact, even better than that of the *non-poor and non-dissatisfied* group with regard to some items. The figure also shows that the *non-poor and dissatisfied* group, in many countries and variables, are even worse off than the *poor and non-satisfied* group.

The comparison of the *proxy* variables of wealth among the four groups can be seen in Figures 4 and 5. If the cause behind the feeling of satisfaction is the existence in the household of net wealth which can generate income (property or capital), the *poor and satisfied* group will show percentages more like the *non-poor and non-dissatisfied* group than the other two groups. Figure 4 shows the percentage of the population who own their usual residence and those who report capacity to face unexpected expenses in each group. The results for tenure status are not as clear-cut as those for the ability to meet unexpected expenses. As might be expected, the groups with the highest percentages of homeowners are *poor and satisfied* and *non-poor and non-dissatisfied*, although the difference with the other two groups is not very significant. This is possibly because the desirability and affordability of home ownership varies greatly – from 76.1 per cent of households in Spain to 44.1 per cent in Germany – depending on social customs and the housing policies implemented in each country.[16] In contrast, in the case of the second variable, the percentage of the *poor and satisfied* who can afford unforeseen expenses is clearly closer to that of the *non-poor and non-dissatisfied* than to those of the other two groups.

Figure 5 only shows the average amount of imputed rent for those households that own their dwellings and the average incomes collected from financial assets. It can be observed that, the behaviour of the *poor and satisfied* is repeated: they offer values higher than those shown by the *poor and non-satisfied* and the *non-poor and dissatisfied* groups in most of the countries.

Figure 3: People (%) who do not suffer from *economic stress* by population group

Source: Own calculations based on EU-SILC microdata, 2018.

Figure 4: Outright owners and people with capacity to face unexpected financial expenses by group of population (%)
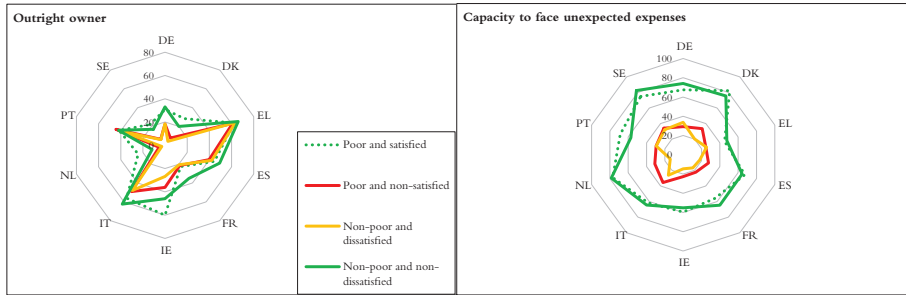
Source: Own calculations based on EU-SILC microdata, 2018.

The risk of being identified as poor and satisfied

For the estimation of the logit model, out of the 240,648 observations in the initial database, we have selected those belonging to households in poverty, 36,457 records to be precise. The candidate variables for the model were sequentially introduced in different specifications. We found that the most parsimonious model set 11 variables, after assessing the contribution of each variable and checking that there was no multicollinearity between them. These variables are: age, consensual union, highest education level attained, general health, activity status, capacity to face unexpected expenses, value of imputed rent and income from financial assets (descriptive statistics in the appendix).

Initially, the analysis also included the variable sex, country of birth and children. Although all of them were statistically significant, their contribution to the model was very low and in some categories zero, so they were eliminated from the specification. The household type variable was also tested, with a similar result.

The variable self-defined current economic status is used to capture the influence of the labour status. It provides more detailed information than the basic activity status. The latter only includes the category at work, while the former distinguishes between self-employed and employed. This distinction seems important because it is possible that some countries have difficulties measuring the income of the self-employed, which can affect probability.

The tenure status (outright owner and owner paying mortgage) variable was initially included as a *proxy* indicator of wealth. However, the two categories of this variable show a high correlation with the imputed rent variable. In order to avoid obtaining unstable parameters, tenure status was removed and imputed rent was kept in the model. The latter provides information, not only on owner-occupied households, but also on the value of the residence. The variable was re-coded as follows. When the household is owner-occupied, it takes the value imputed to the dwelling, and if not, zero.

Income from real assets, pension from private plans and regular taxes on wealth variables were included as *proxy* indicators of wealth value in the initial tests. However, they were dropped because of the high percentage of zero values in the sample (between 94 per cent and 100 per cent of the observations depended on the variable and the country).[17] Finally, although income from financial assets is included in the

Figure 5: Mean values of owners' imputed rent and income from financial assets by group of population
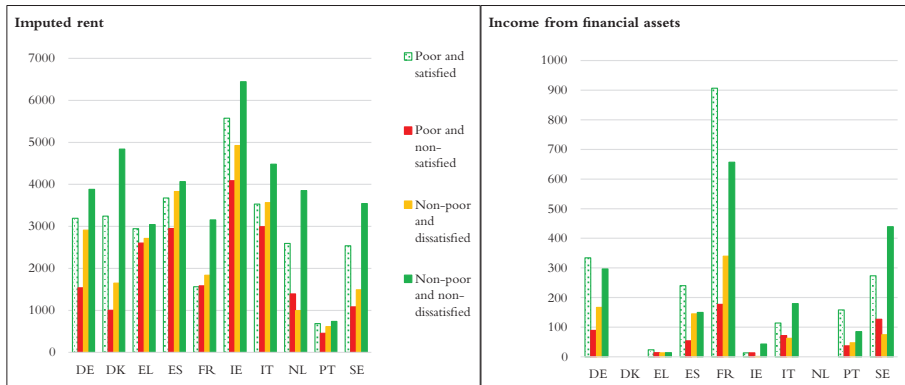
Source: Own calculations based on EU-SILC microdata, 2018.

model, this is not the case in all countries. While in Denmark and the Netherlands it is removed because it is not a *proxy* variable for the value of assets, in Greece, Ireland and Portugal more than 93 per cent of the observations have a value of zero. Undoubtedly, these figures show that EU-SILC still has some difficulties capturing non-labour income in many countries.

Table 3 reports the estimates of the logit model for the risk of being identified as *poor and satisfied* as compared to poor and non-satisfied, given that someone is poor. Reasonable values of goodness of fit are obtained[18] in all countries, except in Greece where the area under receiver operating characteristic curve (ROC curve) is smaller than 0.7. The adjusted count R^2 also reaches very low values in Greece and Portugal, two countries with very small percentages of *poor and satisfied*.

The estimates confirm the descriptive results. The variables that most significantly increase the odds of being *poor and satisfied* are the capacity to face unexpected expenses and the income from financial assets (when it is included).[19] The increase of the first variable ranges from two-fold in Greece and Italy to more than seven-fold in Denmark. Satisfaction is thus clearly related to the existence of a minimum amount of savings, sufficiently liquid, to meet unexpected expenses. The *proxy* indicators of wealth value clearly also have a positive influence on the odds of being *poor and satisfied*. The odds of this group of variables express the change per thousand euros. The only exceptions are Ireland, where the imputed rent variable is not statistically significant, and France, where its influence is negative. The variables good and very good health and unemployed also show a common pattern across countries. The results indicate that the odds of being *poor and satisfied* doubles for individuals in good or very good health status in almost all countries, while the unemployed face the lowest odds of being included in this group.

The results for the remaining variables seem to reflect differentiated behaviour patterns between countries. As expected, young people between 16 and 30 years old face greater odds of being *poor and satisfied* as compared to poor and dissatisfied, except in Greece. It is possible, as noted earlier, that the household EDHI of some independent young people is underestimated because it does not include parental subsidies. Similarly, those people over 65 are more likely to be included in this

Table 3: Logit estimates of the risk of being identified as *poor and satisfied* (exponentiated coefficients and 95 per cent confidence intervals in brackets)

	Germany		Denmark		Greece		Spain		France	
	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI
Age and consensual union										
16–30	1.219***	[1.214,1.224]	1.813***	[1.777,1.851]	0.701***	[0.692,0.711]	1.356***	[1.349,1.363]	2.076***	[2.064,2.088]
65 and over	1.362***	[1.357,1.368]	3.971***	[3.867,4.079]	0.537***	[0.529,0.546]	1.077***	[1.070,1.083]	0.784***	[0.778,0.790]
Single	0.694***	[0.692,0.696]	1.229***	[1.204,1.255]	0.921***	[0.911,0.931]	0.868***	[0.864,0.872]	0.989***	[0.985,0.994]
Education, health and activity status										
< Upper secondary	1.053***	[1.049,1.056]	1.976***	[1.941,2.011]	0.706***	[0.699,0.713]	0.614***	[0.611,0.616]	0.857***	[0.853,0.861]
Good and very good	2.802***	[2.793,2.811]	2.163***	[2.127,2.199]	1.153***	[1.139,1.167]	2.376***	[2.364,2.388]	1.898***	[1.888,1.907]
Self-employed	0.701***	[0.696,0.707]	0.155***	[0.149,0.160]	1.404***	[1.383,1.426]	1.176***	[1.169,1.184]	0.719***	[0.713,0.725]
Unemployed	0.320***	[0.317,0.322]	0.193***	[0.187,0.200]	0.818***	[0.806,0.829]	0.387***	[0.385,0.390]	0.406***	[0.403,0.410]
Inactive	0.793***	[0.790,0.797]	0.508***	[0.498,0.518]	1.278***	[1.260,1.296]	1.153***	[1.147,1.159]	1.199***	[1.192,1.206]
Proxy indicators of wealth										
Capacity to face unexpected expenses	3.334***	[3.324,3.345]	7.357***	[7.236,7.481]	2.158***	[2.138,2.179]	4.717***	[4.700,4.735]	3.367***	[3.350,3.384]
Proxy indicators of wealth value										
Value of imputed rent	1.035***	[1.034,1.035]	1.085***	[1.083,1.087]	1.026***	[1.024,1.028]	1.025***	[1.024,1.026]	0.946***	[0.946,0.947]
Income from financial assets	1.333***	[1.329,1.337]					1.112***	[1.109,1.116]	1.172***	[1.169,1.174]
_cons	0.177***	[0.176,0.178]	0.107***	[0.103,0.110]	0.189***	[0.186,0.192]	0.130***	[0.130,0.131]	0.196***	[0.194,0.197]

(*Continued*)

Table 3: Continued

	Germany		Denmark		Greece		Spain		France	
	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI
Area under ROC curve	0.778	[0.757,0.792]	0.839	[0.789, 0.869]	0.653	[0.627,0.659]	0.782	[0.758,0.786]	0.737	[0.700,0.755]
Correctly classified	75.11%		73.82%		81.56%		77.20%		75.03%	
Adjusted count R^2	17.12%		45.95%		0.00%		17.53%		11.33%	
Sensitivity	45.90%		74.11%		0.00%		46.78%		26.89%	
Initial-Log likelihood	−6756864.3		−305234.77		−698694.8		−4538744.2		−2715851.3	
Final-Log likelihood	−5582780.1		−216028.84		−665287.64		−3732553.2		−2357294	
McFadden R^2	0.1738		0.2923		0.0478		0.1776		0.1320	
N	3170		382		7898		5281		1598	

	Ireland		Italy		The Netherlands		Portugal		Sweden	
	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI	Odds Ratio	CI
Age and consensual union										
16-30	1.644***	[1.602,1.687]	1.588***	[1.580,1.596]	1.174***	[1.161,1.188]	2.672***	[2.620,2.724]	1.487***	[1.467,1.506]
65 and over	2.176***	[2.135,2.219]	1.155***	[1.149,1.162]	1.871***	[1.846,1.897]	0.578***	[0.567,0.590]	3.797***	[3.737,3.857]
Single	0.882***	[0.868,0.897]	0.754***	[0.751,0.757]	1.094***	[1.082,1.105]	0.703***	[0.694,0.713]	0.759***	[0.749,0.769]
Education, health and activity status										
< Upper secondary	2.305***	[2.269,2.341]	0.523***	[0.521,0.524]	1.069***	[1.057,1.080]	0.818***	[0.806,0.831]	1.226***	[1.212,1.239]
Good and very good	2.024***	[1.992,2.056]	1.557***	[1.550,1.564]	2.587***	[2.560,2.614]	2.235***	[2.204,2.268]	2.032***	[2.008,2.055]
Self-employed	1.247***	[1.207,1.289]	0.980***	[0.974,0.986]	0.474***	[0.466,0.482]	0.907***	[0.888,0.926]	0.432***	[0.423,0.442]
Unemployed	0.495***	[0.482,0.509]	0.314***	[0.312,0.316]	0.219***	[0.213,0.225]	0.414***	[0.405,0.423]	0.430***	[0.422,0.439]
Inactive	0.644***	[0.629,0.659]	0.726***	[0.723,0.730]	0.982**	[0.971,0.994]	0.908***	[0.893,0.924]	0.555***	[0.547,0.563]

(Continued)

Table 3: Continued

	Ireland		Italy		The Netherlands		Portugal		Sweden	
Proxy indicators of wealth										
Capacity to face unexpected expenses	3.612***	[3.552,3.673]	2.220***	[2.212,2.228]	5.748***	[5.694,5.803]	3.412***	[3.367,3.458]	4.103***	[4.057,4.150]
Proxy indicators of wealth value										
Value of imputed rent	1.001	[1.000,1.003]	1.044***	[1.044,1.045]	1.017***	[1.015,1.018]	1.191***	[1.182,1.200]	1.083***	[1.081,1.085]
Income from financial assets			1.218***	[1.211,1.224]					1.055***	[1.048,1.063]
_cons	0.260***	[0.253,0.267]	0.463***	[0.460,0.466]	0.211***	[0.208,0.215]	0.111***	[0.109,0.113]	0.293***	[0.288,0.299]
Area under ROC curve	0.751	[0.726,0.787]	0.705	[0.686,0.717]	0.800	[0.771,0.821]	0.772	[0.733,0.781]	0.785	[0.756,0.828]
Correctly classified	69.05%		68.77%		73.70%		84.44%		73.04%	
Adjusted count R^2	34.44%		10.05%		44.23%		0.20%		45.27%	
Sensitivity	65.78%		31.30%		75.42%		9.88%		71.28%	
Initial-Log likelihood	-257149.1		-4421947.1		-79637918		-37637914		-554238.23	
Final-Log likelihood	-219308.37		-4005915.6		-624796.68		-318368.85		-447332.45	
McFadden R^2	0.1472		0.0941		0.2155		0.1541		0.1929	
N	953		4527		1232		3245		601	

Notes: The reference person is in a consensual union, between 31 and 64 years of age, employed, without capacity to face unexpected expenses, whose highest education level attained is above upper secondary and whose general health status ranges from fair to very bad.

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Source: Own calculations based on EU-SILC microdata, 2018.

group, with the exception of Greece (again), France and Portugal, which reaches its highest parameters in the Nordic countries. This is an expected result, insofar as the omission of wealth in the objective poverty indicator and the effect of capital gains on household income have a greater impact on this group according to life cycle consumption theory. The lesser odds faced by the singles is confirmed in all countries except Denmark and the Netherlands.

Education and inactivity are factors that clearly condition the chances of being *poor and satisfied* in a different way in northern versus southern countries. The value of the dummies for individuals whose education is above upper secondary suggest that more highly educated people in the northern countries have greater odds of being *poor and satisfied*, while those who reside in southern Europe have smaller odds. The greater odds faced by the inactive (students, housewives, retired people…) is only observed in Greece, Spain and France, and by those who are self-employed in Greece, Spain and Ireland.

Despite problems with the data in some *proxy* variables, the results underline the importance of wealth, especially liquid assets for the *poor and satisfied* in all countries. If this is so, the AROP rates may not reflect reality, but may be describing a situation that is worse due to a falsely higher level of AROP population, at least in those countries where the *poor and satisfied* group have reached a considerable weight.

Discussion and conclusion

Most existing research has focused on determining the relationship between income and financial satisfaction. While the literature provides explanations for the moderate positive correlation between them, it has not addressed the presence of people with income below the poverty line but who nevertheless consider their household's financial situation satisfactory. The *poor and satisfied* collective emerges when we compare financial satisfaction with official AROP status. Specifically, for 2018 we have found a poor population group, satisfied with its household financial situation which has a significant weight in some countries. In Denmark, France, Ireland, Italy, the Netherlands and Sweden, there are more AROP population satisfied than dissatisfied. In addition, this group shows different characteristics from the rest of the poor and, rather, resembles the group of the population that is neither in poverty nor in a situation of vulnerability.

Although the article has not examined in depth how the gap between objective and subjective poverty would change according to the different definitions of poverty and its correlation with variables other than income, we have found reasons for this mismatch. When making the comparison, the periods of reference of each variable are different and the AROP indicator is measured in absolute terms (time) and in relative terms (national population). As regards the measurement of EDHI, it has also been detected that both problems in data collection for some disposable income components and the treatment of capital gains and adjustments to income tax in previous years can generate this mismatch. Some of these distortions are easy to eliminate without making profound changes to EU-SILC.

Both descriptive and regression analyses reveal that the risk of being identified as *poor and satisfied* is positively associated with the *proxy* variables of wealth. Satisfaction is clearly related to the existence of a minimum amount of savings, especially liquid assets.

Figure 6: Estimated change in the AROP rate for the population aged 16 and over
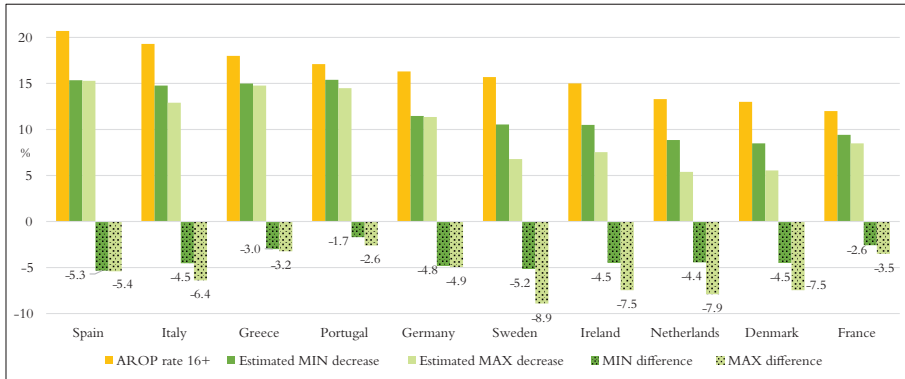
Source: Own calculations based on EU-SILC microdata, 2018.

These conclusions must be considered with caution, given the exploratory and limited nature of our research. As we explain in the introduction, the financial satisfaction variable has some drawbacks and may not be the best benchmark to assess the validity of the poverty indicator. Even so, the use of this variable has made it possible to visualise the existence of the *poor and satisfied* group. With regard to our analysis, we highlight two limitations. First, the non-response rate of the financial satisfaction variable is significant in some countries, and second, the comparability of the EU-SILC non-labour income variables should improve.

Nevertheless, we propose that the AROP rate should take into account some measures of household net wealth instead of just the household disposable income. Our findings support the joint income-wealth perspective in the measurement of poverty.

The corollary of our results is that the AROP rates do not reflect reality, but could be describing a more pessimistic situation, at least in those countries where the *poor and satisfied* group have reached a considerable weight. How pessimistic? We can make a rough calculation relying on three assumptions. First, the poverty lines remain unchanged. Second, all poor and satisfied people have enough net wealth not to be considered in poverty, and third, net wealth does not change the classification of the rest of the population.[20] Taking into account these assumptions, we will estimate the range within which the official rate could fall if the *poor and satisfied* group were excluded from AROP population. The upper and lower limits depend on the presence of non-response in each country's financial satisfaction variable and the assumptions made about it. Non-response ranges from a minimum of 2 per cent in Spain to a maximum in Sweden, where it exceeds 40 per cent. Figure 6 shows the official rate and this estimation. The maximum reduction of the AROP rate is achieved if the scores among non-respondents are distributed as in the reporting sample. The minimum change is obtained if it is assumed that only the data from the reporting sample should be taken into account.

The difference between the official rate and the estimated one can be lower by as much as 8.9 points for Sweden, 7.9 for the Netherlands and 7.5 for Ireland and Denmark. But it may only decrease 3 points in Greece and 1.7 in Portugal. Overall, the variations determine an average AROP rate for the 10 countries that would fall from 16 per cent to 10.3 per cent at best, or at least to 12 per cent of the population.

In any case, this would be indicative of a better average poverty situation than officially established. As a result, the objective poverty country ranking would change significantly as well.

ORCID iDs
Mónica Martí [ID] https://orcid.org/0000-0001-6750-6530
Carmen Ródenas [ID] https://orcid.org/0000-0001-6134-5705

Notes

[1] Corresponding author.

[2] Eurostat uses the so-called modified OECD equivalence scale. Recent discussion about the equivalence scales in the EU context in Mysíková (2021).

[3] There are other ways of measuring poverty, for example, in absolute terms as is done in the USA. The article does not discuss these measures because it is not our aim (see Smeeding, 2006 or UNECE, 2017).

[4] The non-response rate of the financial satisfaction variable by country can be seen in Table A in the appendix.

[5] All calculations and estimates provided in this article have been made using the appropriate individual weights.

[6] This low association could be affected by the different measurement levels of the variables. Monetary poverty is a household variable while financial satisfaction is measured at the individual level. To see whether the different opinions within the household could partly explain this result, we repeated the comparison made in Figure 1, selecting only single-person households, where discrepancies do not exist. These households represent 25 per cent of the total sample of households. The results showed no significant changes.

[7] The percentage of people in this stacked bar varies between countries. The percentage ranges from 0 per cent in Portugal to 1 per cent in Italy. Obviously, it is much less than a decile.

[8] In order to distinguish between AROP and non-AROP populations, the two deciles closest to the poverty threshold of each country have been adjusted, assigning this value as the upper limit of the nearest decile and also as the lower limit of the next one.

[9] The EU–SILC regulation limits the mismatch between the current survey-based variables and the income reference period to a maximum of eight months [Commission Regulation (EC) No 1981/2003]. However, this lag has been recognised as a drawback in the EU–SILC (Jäntti et al, 2013; EUROSTAT, 2021).

[10] For example, for Spain, it means an increase in household income of 16 per cent on average (Goerlich, 2020). In France, Burricand (2013) confirms that, on average, disposable income figures collected in the survey were under-evaluated, with a very significant impact on top income groups according to Törmälehto (2017). Finally, Consolini and Donatiello (2013) reveal that the inclusion of Italian administrative data produces a substantial increase in the estimate of average income and the number of self-employed earners, while the increase for employees is less pronounced.

[11] In 2019, undeclared work accounts for 14.6 per cent of gross value added in the private sector in the EU, with substantial differences among countries. In addition, a strong positive significant relationship with people at risk of poverty has been found (Franic et al, 2023).

[12] According to Princen et al (2020), in the few Member States for which data on an individual's capital gains tax is available, revenues are rather low. In 2016, revenue varied from 0.01 per cent of GDP in Slovenia to 1.69 per cent in Sweden.

[13] In 2020 the special EU–SILC module included some *proxy* wealth variables, according to Commission Regulation (EU) 2019/414, not yet available in Eurostat. The *Household Finance and Consumption Survey* (HFCS) provided by the European Central Bank does contain information on both variables simultaneously, but it is not possible to use for our purposes because it does not cover information on SFWB.

[14] The literature uses the terms of financial/economic strain, financial/economic stress or financial/economic hardship interchangeably. Like Ródenas et al (2020) or Whelan and Maître (2007: 162), we are going to use the label *economic stress* and a set of items very similar to theirs.

[15] This exercise does not constitute an attempt to provide a causal model but it simply serves as a statistical description of the association between the crossover of AROP and SFWB on the one hand, and a set of personal and socio–economic variables, on the other.

[16] Land use planning, housing market prices, mortgage policy, housing subsidies policy, the size of the social housing sector, property taxes, taxes on buying and selling houses or the size of the public and private rental sector.

[17] In these variables, there are no missing values (Table A in the appendix), so we do not know whether the zero value refers to the fact that no information is available or that the individual actually lacks that source of income.

[18] In addition, the Hosmer–Lemeshow statistic was computed for all specifications, testing with different values for group, and the null hypothesis was always rejected, which means that the models fit reasonably well.

[19] We have used standardised coefficients to make this comparison.

[20] These are three simplifying assumptions. Obviously, in a joint income and net wealth framework, the ranking of households would change. Previous research finds poverty rates decrease when wealth is included in the analysis. Yet, Kuypers and Marx (2021) have demonstrated that poverty does not decline when the poverty line is also defined in terms of both income and (annuitised) wealth.

References

Allen, M. (ed) (2017) *The Sage Encyclopedia of Communication Research Methods*, Thousand Oaks, CA: SAGE.

Angel, S., Heuberger, R. and Lamei, N. (2018) Differences between household income from surveys and registers and how these affect the poverty headcount: evidence from the Austrian SILC, *Social Indicators Research*, 138: 575–603. doi: 10.1007/s11205-017-1672-7

Azpitarte, F. (2012) Measuring poverty using both income and wealth: a cross-country comparison between the US and Spain, *Review of Income and Wealth*, 58(1): 24–50. doi: 10.1111/j.1475-4991.2011.00481.x

Bradshaw, J. and Finch, N. (2003) Overlaps in dimensions of poverty, *Journal of Social Policy*, 32(4): 513–25. doi: 10.1017/s004727940300713x

Brandolini, A., Magri, S. and Smeeding, T. (2010) Asset-based measurement of poverty, *Journal of Policy Analysis and Management*, 29(2): 267–84. doi:10.1002/pam.20491

Bryman, A. and Cramer, D. (2005) *Quantitative Data Analysis with SPSS 12 and 13: A Guide for Social Scientists*, London: Routledge

Burricand, C. (2013) Transition from survey data to registers in the French SILC survey, in M. Jäntti, V.M. Törmälehto and E. Marlier (eds) *The Use of Registers in the Context of EU-SILC: Challenges and Opportunities*, Luxembourg: Publications Office of the European Union, pp. 111–24.

Cohen, J. (2013) *Statistical Power Analysis for the Behavioral Sciences*, Cambridge, MA: Academic Press.

Consolini, P. and Donatiello, G. (2013) Improvements of data quality through the combined use of survey and administrative sources and micro simulation model, in M. Jäntti, V.M. Törmälehto and E. Marlier (eds) *The Use of Registers in the Context of EU-SILC: Challenges and Opportunities*, Luxembourg: Publications Office of the European Union, pp 125–39.

Diener, E., Oishi, S. and Lucas, R.E. (2009) Subjective wellbeing: the science of happiness and life satisfaction, in S.J. Lopez and C.R. Snyder (eds) *The Oxford Handbook of Positive Psychology*, Oxford: Oxford University Press, pp 187–94.

Džuka, J., Lačný, M. and Babinčák, P. (2019) Subjective well-being and income below the 'at-risk-of-poverty threshold': analysis of Slovak EU-SILC data, *Studia Psychologica*, 61(4): 213–29. doi: 10.21909/sp.2019.04.784

Eurostat (2012) *EU-SILC 2013 Module on Well-Being. Description of SILC Secondary Target Variables*, Version 5 – March, Luxembourg: Eurostat.

Eurostat (2015) *Quality of Life in Europe: Facts and Views, Eurostat Statistical Books, European Union*, Luxembourg: Eurostat.

Eurostat (2019) *Methodological Guidelines and Description of Eu-Silc Target Variables. 2018 Operation*, July. DocSILC065 (2018 operation), Luxembourg: Eurostat.

Eurostat (2020) *Eurostat Statistics Explained – Glossary: at Risk of Poverty or Social Exclusion (AROPE)*, Luxembourg: Eurostat.

Eurostat (2021) *EU Statistics on Income and Living Conditions (EU-SILC) Methodology*, Luxembourg: Eurostat. https://ec.europa.eu/eurostat/statistics-explained/.

Franic, J., Horodnic, A. and Williams, C. (2023) *Extent of Undeclared work in the European Union*, Bratislava: European Labour Authority, https://www.ela.europa.eu/sites/default/files/2023-03/Study-on-the-extent-of-undeclared-work-in-the-EU.pdf.

Goerlich, F.J. (2020) La Encuesta de Condiciones de Vida: evaluación de los cambios metodológicos en relación a la obtención de los ingresos, *Revista Hacienda Pública Española*, 233(2): 85–116. doi: 10.7866/hpe-rpe.20.2.4

Good, P. and Hardin, J. (2009) *Common Errors in Statistics: and How to Avoid Them*, Hoboken, NJ: John Wiley and Sons.

Halvorsen, K. (2016) Economic, financial, and political crisis and well-being in the PIGS-countries, SAGE Open, October–December, 1–13. doi: 10.1177/2158244016675198

Hansen, T., Slagsvold, B. and Moum, T. (2008) Financial satisfaction in old age: a satisfaction paradox or a result of accumulated wealth?, *Social Indicators Research*, 89, 323–47. doi: 10.1007/s11205–007–9234–z

Headey, B. (2008) Poverty is low consumption and low wealth, not just low income, *Social Indicators Research*, 89: 23–39. doi: 10.1007/s11205–007–9231–2

Headey, B., Krause P. and Wagner, G.G. (2009) Poverty redefined as low consumption and low wealth, not just low income: psychological consequences in Australia and Germany, Joint OECD-University of Maryland Conference, Measuring poverty, inequality and social exclusion: lessons from Europe, Paris. March 16–17.

Jäntti, M., Törmälehto, V.M. and Marlier, E. (2013) *The Use of Registers in the Context of EU–SILC: Challenges and Opportunities*, Luxembourg: Publications Office of the European Union.

Kotrlik, J.W., Williams, H.A. and Jabor, M.K. (2011) Reporting and interpreting effect size in quantitative agricultural education research, *Journal of Agricultural Education*, 52(1): 132–42. doi: 10.5032/jae.2011.01132

Kuypers, S. and Marx, I. (2018) Estimation of joint income-wealth poverty: a sensitivity analysis, *Social Indicators Research*, 136: 117–37. doi: 10.1007/s11205–016–1529–5

Kuypers, S. and Marx, I. (2021) Poverty in the EU using augmented measures of financial resources: the role of assets and debt, *Journal of European Social Policy*, 31(5): 496–516. doi: 10.1177/09589287211040421

Lee, D.K. (2016) Alternatives to P value: confidence interval and effect size, *Korean Journal of Anesthesiology*, 69(6): 555–62. doi: 10.4097/kjae.2016.69.6.555

Lewinson, E. (2020) A definitive guide to effect size, in Blog *Towards Data Science*, https://towardsdatascience.com/a- definitive-guide-to-effect-size-9bc93f00db86.

Lierse, H., Sachweh, P. and Waitkus, N. (2022) Introduction: wealth, inequality and redistribution in capitalist societies, *Social Justice Research*, 35(4): 367–78. doi: 10.1007/s11211–022–00402–6

Medgyesi, M. and Zólyomi, E. (2016) Job satisfaction and satisfaction in financial situation and their impact on life satisfaction, *Social Situation Monitor Research Note 6/2016*. Directorate-General for Employment, Social Affairs and Inclusion 2016, European Commission.

Mysíková, M. (2021) *Measuring Income Poverty in the EU: Visegrád Countries and European Empirical Data*, Prague: Institute of Sociology of the Czech Academy of Sciences.

Mysíková, M., Želinský, T., Garner, T.I. and Večerník, J. (2019) Subjective perceptions of poverty and objective economic conditions: Czechia and Slovakia a quarter century after the dissolution of Czechoslovakia, *Social Indicators Research*, 145: 523–50. doi: 10.1007/s11205–019–02102–2

Neff, D. (2009) The Satisfied Poor: Evidence from South India, Manchester: Global Development Institute Working Paper Series 7109, GDI, The University of Manchester.

Olson, G.I. and Schober, B.I. (1993) The satisfied poor: development of an intervention-oriented theoretical framework to explain satisfaction with a life in poverty, *Social Indicators Research*, 28: 173–93. doi: 10.1007/bf01079657

Palomäki, L.M. (2018) *Pensioners' Subjective Economic Well-Being in European Countries. Comparisons Behind the Income Satisfaction Paradox*, Helsinki: Finnish Centre for Pensions, Studies 04.

Princen, S., Kalyva, A., Leodolter, A. et al. (2020) *Taxation of Household Capital in EU Member States: Impact on Economic Efficiency, Revenue and Redistribution*, European economy discussion paper 130, Luxembourg: Publications Office of the European Union.

Ródenas, C., Martí, M. and León, A. (2020) Economic stress in non-poor Spanish households during the Great Recession, *Applied Economic Analysis*, 28(82): 19–45. doi: 10.1108/aea-11-2019-0045

Simms, L.J., Zelazny, K. et al. (2019) Does the number of response options matter? Psychometric perspectives using personality questionnaire data, *Psychological Assessment*, 31(4): 557–66. doi: 10.1037/pas0000648

Smeeding, T. (2006) Poor people in rich nations: the United States in comparative perspective, *Journal of Economic Perspectives*, 20(1): 69–90. doi: 10.1257/089533006776526094

Tavernier, J.L., Cuneo, P. and Plateau, C. (2015) Measurement of quality of life and well-being in France: the drivers of subjective well-being, *Review of Income and Wealth*, 61(1): 25–33. doi:10.1111/roiw.12157

Törmälehto, V.M. (2017) *High Income and Affluence: Evidence from the European Union Statistics on Income and Living Conditions (EU-SILC)*, Luxembourg: Publications Office of the European Union.

UNECE (United Nations Economic Commission for Europe) (2017) *Guide on Poverty Measurement*, ECE/CES/STAT/2017/4, Geneva: UNECE.

Vladisavljević, M. and Mentus, V. (2019) The structure of subjective well-being and its relation to objective well-being indicators: evidence from EU-SILC for Serbia, *Psychological Reports*, 122(1): 36–60. doi: 10.1177/0033294118756335

Watson, D., Maître, B., Whelan, C.T. and Russell, H. (2017) Poverty, economic stress and quality of life: lessons from the Irish case, *International Review of Economics*, 64: 125–43. doi: 10.1007/s12232-016-0265-0

Whelan, C.T. and Maître, B. (2007) Measuring material deprivation with EU-SILC: lessons from the Irish survey, *European Societies*, 9(2): 147–73. doi: 10.1080/14616690701217767

Zardo, L. and Goedemé, T. (2020) *The Comparability of the EU-SILC Income Variables: Review and Recommendations*, Luxembourg: Publications Office of the European Union.

Zelinský, T., Soroková, T. and Petríková, D. (2018) Economic characteristics and subjective well-being, *Sociológia*, 50(3): 334–64.

Appendix

Table A: Descriptive statistics according to AROP and financial satisfaction status

Dummy variables (%)	Germany		Denmark		Greece		Spain		France		Ireland		Italy		The Netherlands		Portugal		Sweden	
	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied
Age (rx010)																				
16–30	25.64	19.93	46.58	49.61	18.74	22.05	27.73	21.30	32.86	14.99	8.18	8.59	17.79	13.31	40.31	33.76	24.19	8.69	32.47	34.24
65 and over	31.51	24.27	36.19	7.39	11.36	19.08	16.91	18.22	17.34	21.06	43.09	20.15	21.62	27.18	25.96	11.97	15.72	31.32	37.42	14.18
Consensual union (pb200)																				
Single	48.80	65.22	83.79	86.44	36.57	43.93	43.97	46.79	54.66	52.64	72.73	70.21	48.76	53.92	68.44	73.87	39.52	48.00	79.85	81.21
Education status (pe040)																				
< Upper secondary	27.39	32.44	36.00	25.03	37.40	48.03	49.73	68.66	36.53	46.35	57.66	41.42	49.47	68.88	25.16	27.93	68.56	83.56	38.38	36.74
Health status (ph010)																				
Good and very good	69.56	41.34	70.18	55.37	81.85	74.94	83.28	64.90	72.57	52.73	73.87	55.93	76.97	63.21	78.23	52.37	60.08	29.42	68.65	55.55
Activity status (pl031)																				

(Continued)

Table A: Continued

	Germany		Denmark		Greece		Spain		France		Ireland		Italy		The Netherlands		Portugal		Sweden	
Dummy variables (%)	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied
Self-employed	4.09	2.95	4.78	9.78	20.64	12.74	13.27	6.48	10.03	9.08	10.86	5.39	13.15	7.49	7.99	13.73	14.70	8.24	8.66	7.64
Unemployed	3.62	19.49	4.01	21.96	22.48	29.72	12.13	31.52	7.87	20.49	10.12	19.47	8.01	18.35	1.31	8.57	10.24	20.02	6.32	18.74
Inactive	55.82	52.09	71.13	53.09	42.24	43.18	45.84	38.95	51.92	45.18	67.32	62.49	48.84	52.13	68.47	60.67	41.80	50.32	65.56	60.40
Capacity to face unexpected expenses (hs060)																				
Yes	59.55	22.38	78.42	30.29	39.04	20.40	63.71	22.84	50.82	22.60	50.35	19.52	55.20	31.03	71.65	24.96	60.07	28.77	71.75	30.48
Continuous variables																				
Value of imputed rent (hy030n/ hy030g)																				
Mean	3.187631	1.548327	3.355627	1.043889	2.943451	2.602542	3.677879	2.950853	1.580455	1.592047	5.595729	4.159197	3.532628	2.969437	2.635441	1.317744	6.891116	6.456167	2.649049	1.120955
Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max	24.958	15.641	38.67317	27.14559	10.49064	22.53984	14.88492	14.88492	22.736	21.242	23.57899	24.92024	12.144	12.204	21.624	11.765	4.32099	5.96607	13.264	15.66304

(Continued)

Table A: Continued

Continuous variables (%)	Germany		Denmark		Greece		Spain		France		Ireland		Italy		The Netherlands		Portugal		Sweden	
	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied	Poor and satisfied	Poor and dissatisfied
Income from financial assets (hy090g)																				
Mean	0.3379191	0.0903242					0.2402055	0.053704	0.9195112	0.1767631			0.1142134	0.0712976					0.2995308	0.1033327
Min	0	0					0	0	0	0			0	0					0	0
Max	14.719	10					33.7307	8.1578	148.09	13.66			3.86	7.28					13.88258	5.04541
Missing values (% of AROP population sample)																				
Satisfaction with financial situation (pw030t)	3.08		29.46		6.3		1.20		24.96		27.31		26.16		36.43		37.81		40.91	
Age (rx010)	0		0		0		0		0		0		0		0		0		0	
Consensual union (pb200)	0		0		0		0		0		0.15		0		0		0		0	
Education status (pe040)	0		3.64		0		0		0.28		1.43		0		6.34		0		7.58	

(*Continued*)

Table A: Continued

	Germany	Denmark	Greece	Spain	France	Ireland	Italy	The Netherlands	Portugal	Sweden
Missing values (% of AROP population sample)										
Health status (ph010)	0.24	29.12	0	0	0.32	0	1.52	36.25	0.20	37.61
Activity status (pl031)	0	0	0	0	0	0	0	3.94	0	1.25
Capacity to face unexpected expenses (hs060)	1.21	0.52	0	0	0.46	0.45	0	5.42	0.10	7.04
Value of imputed rent (hy030n/ hy030g)	0	0	0	0	0	0	0	0	0	0
Income from financial assets (hy090g)	0	0	0	0	0	0	0	0	0	0
AROP sample	3312	577	8429	5345	2155	1333	6192	2083	5909	1122

Note: Data used in logistic regression model (see Table 3).
Source: Own calculations based on EU-SILC microdata, 2018.