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THE CONCEPT AND MEASUREMENT OF POVERTY

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Abstract. This paper has a twofold aim. On the one side, without the presumption of being exhaustive, it tries to give a general overview of the different approaches and measures of poverty, and, on the other side, it focusses the attention on the absolute poverty indicators, describing the most important innovations introduced in the Italian methodology by the Scientific Commission established at beginning of 2022. Therefore, after a general introduction, the second paragraph mainly discusses the multiple dimensions of poverty and the approaches to provide a measure of these dimensions (relative and absolute poverty, income and consumption-based measures, the role of wealth, the importance of investigating hard to reach population and the subjective poverty). In paragraph three, an overview of the Italian measures of poverty in the European context is given, by describing the European Union Statistics on Living Conditions (EU-SILC) indicators and those compiled relying on national Household Budget Survey (thereof those about absolute poverty). In the fourth paragraph the attention is addressed to describe the Italian methodology to estimate absolute poverty, focussing on the recent innovations introduced. Paragraph five discusses the use of income instead of consumption in the context of Italian methodology. Finally, some concluding remarks are traced, raising specifically the issue of the nonmonetary components in the estimation of absolute poverty and the related challenges for the future research work in the Italian context.

1. Introduction

The analysis of the living conditions of a population raises theoretical and methodological questions that are difficult to resolve. They all revolve around the same point: what individual's well-being is, and how it is measured. The answer is complex and concerns firstly the definition of the space of measurement on which to apply the empirical analysis and secondly the choice of the concrete methods of estimation (Brandolini and Saraceno, 2007, p. 23-60).

The approaches that limit the analysis of levels of well-being to material aspects have been contrasted by approaches that underline the need to investigate the dimensions that have to do with the freedom, rights, and capabilities of individuals (Rawls, 1971; Sen, 1992). However, the difficulties associated with measuring these intangible spheres of daily life explain the more frequent use of objectively

observable and measurable indicators on a well-defined scale, such as income, consumption expenditure and wealth. Analyzing living conditions according to a multidimensional approach, considering a plurality of non-monetary indicators, does not at all exclude the use of traditional monetary indicators, that indeed continue to be recognized as having a fundamental informative power which cannot be ignored. The difference lies in the role that the monetary aspect plays in the traditional univariate approach and in the multidimensional one. In the first approach, income or consumption expenditure or wealth constitute the only relevant domains with the implicit presumption that, through these variables, all the material aspects of well-being can be considered. In other words, it is hypothesized that there is such a high correlation between one and the others, so that the loss of information due to the use of a single variable is negligible. In the second approach, however, the aforementioned a priori hypothesis is abandoned, but income or consumption expenditure continue to play a central role although no longer exclusive and its degree of correlation with other well-being factors measured through non-monetary indicators can be assessed a posteriori on empirical basis.

Poverty measurement and analysis are crucial components of the screening of the living conditions of a population and as such also they can be conducted following different approaches, thereof each gives different and meaningful keys to understanding this phenomenon.

2. The multiple dimensions of poverty and their measures

Poverty has been defined in different ways and it is not the aim of this contribution to go through all of them but that we can summarize all as related to “a matter of deprivation” (Sen, 1981, p. 22). It means that there are several ways to define and to measure it. These ways represent not only different ways to collect and analyse statistical data, but also lead to distinct approaches in fighting against poverty. In developing countries, poverty can indicate absolute deprivation, which denies the fulfilling of basic needs and violates fundamental rights, while in developed countries poverty can indicate relative deprivation, the inability to afford the standard of life enjoyed by a reference group with higher incomes.

2.1 Relative and absolute approach to measuring poverty

Poverty, hunger, inequality, together with the climate change, are just some of the big challenges in today's world we need to address urgently. Numerous references to people's well-being and to a fair distribution of the benefits of

development are presented as indispensable components among the sustainable development goals (SDGs)[1]. Specifically, incidence of relative and absolute poverty are fundamental indicators for monitoring two of the 17 goals set by the 2030 Agenda for Sustainable Development (Goal 1, "No poverty - End poverty in all its forms everywhere", and Goal 10, "Reduce inequalities - Reduce inequality within and among countries").

Within a variety of possible approaches, poverty is generally measured according to two main ones: the absolute and the relative approach, depending on the underlying concept of poverty and on the consequent way to estimate the thresholds (in absolute or relative terms). To the two traditional ones, the indicator of societal poverty, aimed at combining absolute and relative measures, has been designed by the World Bank to give a more comprehensive measure of poverty that overcome the division between absolute and relative concepts.

Concerning absolute poverty, it is broadly agreed that it is no longer referred to as a concept of survival. Absolute poverty is mainly meant as inability to meet basic needs, typically defined by the nutritional ones with component of nonfood basic needs (Ravallion, 2016), and absolute measures of poverty are defined in real terms across time and space. Following this approach, the World Bank has established absolute International Poverty Lines (IPLs) that allow to compare the situation of different countries over time, also considering different clusters of countries identified by income level (low, lower-middle, and upper-middle-income countries). These lines in 2017 purchasing power parities are now equal to 2.15 US dollars of daily consumption a day for the first group (low-income), 3.65 US dollars for the second group (lower-middle income) and 6.85 US dollars (upper-middle-income).

Relative poverty measures households/people with an equivalent disposable income/consumption below a certain threshold and it is mainly meant as the lack of resources to participate adequately in one's society as it progresses. It is defined in relation to the overall distribution of expenditure or income in a country that, in their turns, depend on the economic cycle and, in the first case, also on the level and structure of prices. This makes the comparison among indicators complex both in terms of time and of different national realities. While absolute poverty refers to the resources a person must secure to maintain a "minimum standard of living", relative poverty is concerned with how well off an individual is in comparison to other residents in that country, which does not necessarily imply a low standard of living. In theory, therefore, while an absolute poverty line is a measure that should,

[1] The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership (https://sdgs.un.org/goals).

adjusting by price evolution, remain stable over time, a relative poverty line is one that could be expected to shift with the overall standard of living.

Societal poverty (Jolliffe and Beer Prydz, 2021) is an indicator introduced by the World Bank in more recent years (2018) and it is aimed at capturing in one measure both the concepts of absolute and relative poverty. IPLs are derived from the national poverty lines, and they mean that, for each group of countries, if someone lives on less than those lines, this must be considered poor. But if identifying the same basic needs across countries ensures equality in the bundles of goods across countries, this equality may not result in the same level of wellbeing. A basic social activity (as the participation in the labor market) has a cost in poor countries, lower than that in the richer ones. To overcome this issue, a poverty line that keeps functioning the same across countries may result in a poverty line with varying levels of consumption. The societal poverty line (SPL) was introduced to this aim, and it is given as max (2.15 US dollars, 1.15 US dollars + 50% of median consumption or income) in 2017 PPP and as such combines an absolute component (the predefined poverty line $2.15) with a relative one (50% of median consumption or income). If someone is poor in absolute terms, is also poor in terms of societal poverty. In very poor countries the societal poverty will coincide with the absolute poverty threshold (2.15 US dollars), because 1.15 US dollars + 50% of median consumption or income is lower than 2.15 US dollars. In the more advanced economies, a person who suffers societal poverty, might not be poor in absolute terms because 1.15 US dollars + 50% of median consumption is strongly higher than the IPL. As such, societal poverty enables also providing a measure of inequality.

Estimates of absolute poverty rates (and recently of societal poverty) in a comparable manner across the countries are indeed regularly produced by the World Bank, whereas relative poverty indicators at national level are compiled and disseminated in most part of the advanced economies with harmonized approaches as is the case European Union Statistics on Income and Living Conditions (EU-SILC) program and the At Risk of Poverty indicator (AROP). National measures of absolute poverty are compiled mainly in low- and middle income- countries and in a small number of high-income ones, thereof Italy, together with US, Canada.

2.2 Income and consumption-based measures of poverty

In general, the measures of poverty based on monetary variables, consumption expenditure and income, take as their premise that the same level of expenditure/income corresponds to the same level of well-being. Current income is a measure of household economic resources which also depend on income allocation choices. A weak correlation with consumption may derive from the fact that

households can save part of their income or allocate it to the purchase of goods and services that do not fall within the definition of consumption expenditure. In addition, by falling back on capital of household or thanks to economical support of informal networks, low levels of disposable income may not result in levels of consumption expenditures similarly low. Income may also present significant fluctuations over time (as it happens to the income of self-employed or seasonal workers), which do not reflect a similar variability in terms of available resources. In fact, at any given time, the standard of living of a household depends more on permanent income than the current one (Friedman, 1957; Modigliani, 1966). In addition, consumption is influenced by allocation decisions or preferences (Coudouel *et al*., 2002; Meyer and Sullivan, 2010) and the propensity to consume varies with the family life cycle.

In other words, a greater use of income for consumption by some households may lead to less poverty when consumption variable is chosen over income; on the contrary, the moderate lifestyles of some population groups can lead to higher levels of poverty if calculated on consumption rather than income.

The choice between consumption and income as point of reference for the analysis of poverty therefore remains partly open, and it is quite the comparison between the two aggregates that provides the most informative contribution. The availability of statistical sources and their characteristics then become crucial to properly analyse the phenomenon (Freguja and Pannuzi, 2007).

2.3 Income, consumption, and wealth

The measures of poverty based on income or on consumption expenditure do not consider real and financial wealth, except for the resulting income flow. However, individuals can also rely on the possession of tangible and intangible assets to cope with the needs of everyday life and to face unexpected events. The role of wealth in supporting households' consumption recently and clearly emerged during the Covid-19 pandemic when the flows of current labour income were suddenly stopped, in particular for the self-employees, by the abrupt interruption of a lot of productive activities, playing the role of a "safety net", able to contrast unexpected negative events. Therefore, it is largely agreed that it is important considering wealth not only as one of the dimensions of the economic well-being or a major determinant of the longer-term prospects of households and individuals, but as a relevant component to better understand vulnerability and when policies are designed to contrast poverty.

This view implies looking at how to combine poverty indicators with those about financial wealth (easily to be liquidated unlike that based on real asset) to better identify the more vulnerable segments of population or those that are vulnerable

despite their income level. Households that are poor on income basis and that do not have financial wealth resources to face their conditions are in a sever poverty and are more vulnerable than those poor as well but with financial wealth available. Households that are not poor but whose income puts them slightly over the poverty line but without financial wealth are vulnerable because they do not have available any safety net to face, at least in the short run, unexpected shocks. Being poor on wealth and income basis is different from being poor only on income basis as well as being not poor on income basis but poor on wealth basis is different from not being poor on both the dimensions. Analysing this combination of factors specifically for the poor households represents a crucial point to define adequate policies to contrast poverty and to prevent worsening of living conditions due to shocks.

To this aim it is very important the availability of households' data that combines these three different dimensions of the well-being, generating at the same time a more comprehensive picture of poverty (also by other dimensions as the access to education, to health and other welfare services). Unfortunately, this is an objective that is difficult to pursue. In the high-income countries surveys on households' consumption are in most of the cases separated by those on income, and those on income collect only partly information on wealth. In low-and middle-income countries households' survey are very often designed to collect data on a so wide set of variables (income, consumption, expenditure, living conditions, households' productive activities) that questions related to wealth are a few and often do not allow to obtain enough or reliable data. The consequence of this lack of integrated data set, is a frequent omission of the wealth dimension in the estimation of poverty, that, in addition also reflects a partial lack of analytical tools accounting for the role of assets in the poverty definition (Brandolini *et al.*, 2010).

One exception is represented by the Household Finance and Consumption Survey (HFCS) that is a joint project among all the national central banks of the Eurosystem, the central banks of two European Union (EU) countries that have not yet adopted the euro and various national statistical institutes. Within this frame, the Survey on Household Income and Wealth (SHIW), that the Bank of Italy has been conducting since the early 1960s, allows for the analysis of poverty conditions by considering not only annual income flows, but also the wealth held by households. To grasp the importance of assets, a household can be defined as "financially poor" if, even by selling all immediately available financial assets, it does not have sufficient resources to maintain itself at the poverty threshold level for at least three months, i.e. it has financial wealth liquid (equivalent) lower than 15% (=25%×60%) of the median annual equivalent income.

The importance of an integrated analysis of households' economic well-being has been recognized in several contexts (Balestra and Oehler, 2023): the report of the

Commission on the Measurement of Economic Performance and Social Progress (Stiglitz *et al*., 2009) and the Vienna Memorandum published by the Conference of the Directors General of the National Statistical Institutes in 2016. Furthermore, in 2017 Eurostat and the OECD established a working group on the joint distribution of income, consumption, and wealth (ICW) at the micro level to have measures of the joint distribution of economic well-being across household groups.

Istat has been working on the experimental micro data production project on the joint ICW distributions for some years and recently also with the Bank of Italy, applying statistical matching methods to EU-SILC, HBS and to SHIW of the Bank of Italy. After the consolidation of the consumption imputation methodology (Donatiello *et al*., 2022), Istat and the Bank of Italy produced the first experimental ICW distributions for the year 2016 and are preparing to produce the experimental micro data for 2020. The objective is to provide a synthetic data set that allows analyzing the propensity to consume, to save, and asset-based poverty and wealth inequality. The publication of experimental indicators on household joint distribution of income, consumption and wealth and the availability of microdata for Eurostat (Eurostat *et al.*, 2023) will make it possible to fill an important information gap for the analysis of the determinants of poverty and inequalities.

2.4 More vulnerable and hard to reach populations

Most of the poverty measures are based on surveys which samples are selected from registers which scope is the entire population residing in private households. This means, in most of the cases, excluding some of the more vulnerable or disadvantaged groups that are particularly hard to be detected, because they are hard to sample (homeless, undocumented migrants, members of ethnic minorities or older people living in institutions) or are hard to identify (gender minorities for instance).

Hard-to-reach populations are groups, whose members may be reluctant to self-identify and for whom no sampling frame is available or who are a few or geographically concentrated so that proportional sample allocation fails. They frequently constitute a small proportion of the general population and are socially "invisible" due to their marginalized status, stigma associated with their identities or behaviours, desire for anonymity and fear of legal repercussions (Feldman, 2004; Raifman *et al*., 2022). Examples include people who suffer from severe forms of poverty and social exclusion related to housing deprivation and homelessness.

Covering these population groups has increased its importance also in the policy makers demand and has become particularly relevant for those countries which are committed to deliver on "Leaving No One Behind" principle of Sustainable Development Goals and Agenda 2030. Dedicated surveys on sub-groups represent a

way to fulfil this growing need of having a comprehensive view of the actual living conditions of the entire population and they have achieved significant methodological advancement and experience useful for improving the measurement of poverty, also making use of specialised or simplified proxy measures.

Regarding homelessness, only few countries have developed methodologies to regularly produce statistics[2] because of the difficulties in collecting information on the population group affected by these issues (Grassi *et al*., 2010). Istat has released analytical data on homeless people who use the services addressed to them thanks to two sample surveys conducted in 2011 and 2014, in collaboration with the Italian Ministry of Employment and Social Policy, the Italian Federation of Associations for the Homeless (fio.PSD) and the Italian Caritas organization (Istat, 2012, 2014, 2015). On the basis of these previous sample surveys, starting from 2025, it is planned to support the permanent census periodically with: i) the mapping of services for the homeless (canteens, dormitories, etc.); ii) a survey on homeless people benefitting from a select sample of the services; iii) a Point in Time (PIT) survey of people on the street (street homeless) (Di Leo, 2021)

Amongst hard to reach populations there are Roma, Sinti and Caminanti (RSC) populations, about which little reliable statistical information is available, also due to the limits imposed by the legislation for the protection of personal data, and in particular of sensitive data, such as ethnicity.[3] To fill this information gap, Istat, in collaboration with the National Office Against Racial Discrimination in defense of differences (UNAR) and several associations, has launched a series of research projects and surveys, concerning housing transition projects to provide indicators that measure the inclusion gap between the RSC population living in settlements and those in stable housing (De Martino *et al.*, 2017; Istat-UNAR, 2021).

[2] The main experiences are currently conducted in the United States, Australia, Netherlands, France and Sweden.

[3] In pursuit of the objectives identified by the National strategy for Roma, Sinti and Caminanti inclusion (RSC), implementing the European communication (Communication 173 of April 4, 2011 an EU Framework for national Roma integration strategies until 2020, approved by the Board in its meeting of 23-24 June 2011), our country is called to improve the statistical knowledge of these populations and develop a system of indicators to monitor inclusion policies, with particular regard to sectors of health, housing, education and work. A new Strategy has been released in May 2023 (National Roma and Sinti equality, inclusion, and participation strategy (2021-2030)) to implement the Recommendation of the Council of the European Union of 12 March (2021/C 93/01) and the role of the data availability and of Istat have been relaunched.

2.5 Subjective poverty

In addition to the relative and absolute poverty lines, it should be mentioned the subjective poverty lines which can be established starting from the perception that individuals have of their own condition with respect to the level of income and the availability of goods and services, usually in comparison with other groups of individuals or based on other specific criteria. In Europe, the aim of the subjective poverty indicator is to assess the respondents' perception of the difficulties experienced by the household in making ends meet (source: EU-SILC). The assessment considers the households' material wellbeing situation including income, expenditure, debt and wealth.

The differences between the lines of subjective poverty and those of objective poverty can be traced back to the expectations and distance of one's condition from that of the reference groups. In some cases, however, this difference may be the result of the ability to adapt to the deprivations. It can derive from psychological, relational, and cultural resources that discourage/prevent poor people from aspiring to improve one's condition, effectively making one's status even more miserable (Saraceno, 2023; Lucchini, 2023).

3. Overview of the Italian measures of poverty in the European context

In Italy the attention on poverty measurement experienced mixed fortunes after the second world war and a long period in which the problem was neglected also for its not appreciated political implications in the fascism era.

In 1951 it was established a "Parliamentary commission of inquiry into poverty in Italy and the means to combat it". It worked until 1954 and oversaw the conduction of different activities thereof a survey carried out by the Italian Central Institute of Statistics (Istat). The surveys managed by Istat were a general survey on the living conditions of the population, carried out at the same time as the labour force and a survey of the budgets of poor families. The results classified Italian households by considering three main dimension of consumption indicators: food consumption, clothing and footwear, housing. From the combination of the indicators referred to these three areas, it was estimated that 1,357,000 households (11.8%) were in extreme poverty, and 1,345,000 lived in condition of serious deprivation. It meant that almost one quarter of Italian population was poor at that time.

In the following 30 years, except for some episodes, no figures about poverty in Italy were produced (also by Istat) and the experience of the Parliamentary commission in the 50s remained isolated (Brandolini, 2021). After more than 30 years, in 1984, a new Commission of inquiry was established and by different names

and under renewed legal framework, it went on working and presenting an annual report to the Parliament until 2012 when it was dissolved. Under the umbrella of this Commission, since 1994 data on poverty were regularly disseminated and since 1998 (1997 data) it was Istat to elaborate and disseminate indicators about both relative and absolute poverty based on households' consumption data derived from Household Budget Survey.

In 2003 Istat interrupted the dissemination of the absolute poverty figures for some limitations of the methodology used to date, and established a Scientific Commission chaired by Livi Bacci and then by Andrea Brandolini that operated until 2007, when the estimations based on the updated methodology were released starting from 2005. In 2022 a new Scientific Commission (Inter Institution Scientific Commission on Absolute Poverty, IISCAP) was established (chaired by Istat President, Giancarlo Blangiardo) having the task to revise and update the methodology released by the previous one and has concluded its activity with a workshop held on the 7th of November 2023, releasing the results of its work that are the main subject of this edition of the RIEDS. To the innovations introduced by this Commission paragraph 4 will be dedicated.

In parallel with the national research and studies, during the 90s' of the last century, in the UE took place the project of a harmonized measure enabling the comparison across the member states. The European Community Household Panel (ECHP), replaced in 2004 by European Statistics on Income and Living Conditions (EU-SILC) were launched to fill the gap of statistics on income and provide reliable information on this variable to be used as the basis of poverty estimation. The European Council in 2001 approved a list of 18 indicators (the Leaken indicators) with ECHP before EU-SILC later provided the data to produce these indicators that combined monetary and nonmonetary dimensions of the poverty and deprivation.

This framework (national indicators of relative and absolute poverty based on households' expenditure data deriving from HBS, European harmonized indicators about relative poverty and households' deprivation based on information deriving from EU-SILC) is still ongoing for the Italian measures of poverty regularly produced by Istat. As aforementioned it has been complemented by the design and partial implementation of special surveys on hard-to-reach populations.

The fight against poverty and social exclusion remains at the top of the EU's social and political agenda. The joint pilot initiative between DG Employment, Social Affairs and Inclusion and the Joint Research Centre, called "Measuring and monitoring absolute poverty (ABSPO)", was launched in December 2018 to explore the technical, methodological, and data requirements of developing a cross-country comparable absolute poverty measure for EU-wide use (Menyhért *et al.*, 2021). The ABSPO project represents a novel approach and pilot initiative offering innovative modelling strategies using reference budgets and survey-based statistical methods to

measure poverty in EU countries. These yield new insights about the extent, distribution, and persistence of poverty in the EU that may complement and contextualise existing EU social indicators.

3.1 Measures of relative poverty

Indeed, Istat produces two measures of relative poverty: one based on consumption expenditure data (from HBS) and the other on income information (from EU-SILC).

The relative expenditure-based poverty measure is built on the International Standard Poverty Line (Ispl) which is the limit of demarcation between the poor and non-poor. The poverty threshold is defined for a two-members' household that is considered poor when its level of expenditure is lower than that reached, on average, by a single person. For households of different sizes an equivalence scale known as Carbonaro equivalence scale (1985)[4] is used (Istat, 2023). The values of the equivalence scale[5] represent the coefficients by which the expenditure of a household of a certain size is divided to make equivalent to that of a household of two components (with coefficient equal to 1). According to the methodology, the effect of economies of scale is introduced only after the determination of the poverty line which, in fact, is calculated on the not equivalent distribution of consumption expenditure. In other words, the threshold value (the consumption expenditure per capita) is the value of the consumption of a single person, obtained without considering the characteristics and size of the household they belong to.

Since 2004, Istat also provides statistics on relative poverty that are income based and harmonized at European level; the data source is the Income and living conditions survey (EU-SILC - Regulation EC n.1177/2003). The methodology of Eurostat sets the at-risk-of-poverty (AROP) threshold at 60% of median equivalent income. The longitudinal nature of the survey[6] also permits to estimate the persistent at-risk-of-poverty rate, i.e., the percentage of the population living in households where the equivalised disposable income was below the at-risk-of-poverty threshold for the current year and at least two out of the preceding three years.

[4] It is based on a simple double logarithmic function between consumption expenditures and size of the household (De Santis, 1996). The scale was estimated on the household budget survey data 1981-1983.
[5] 0.60 for a single member; 1.0 for two household members; 1.33 for three household members; 1.63 for four household members; 1.90 for five household members; 2.16 for six household members; 2.40 for seven household members or more.
[6] EU-SILC provides also longitudinal data on individual-level changes over time, observed periodically over a 4-year period (since 2022, in Italy, over a 6-year period).

The modified OECD scale is used to calculate the equivalent income. This equivalence scale gives a weight of 1.0 to the first adult in the household, 0.5 to any other household member aged 14 and over and 0.3 to each child below 14.

The variation in the value of the poverty line, from year to year, depends on changes in the distribution of consumption expenditure or of income and can lead to increases in the incidence of poverty even in periods of economic growth or vice versa. If this growth, for instance, determines a generalized increase in consumption, but more accentuated among families with the highest spending levels, the result is greater inequality which determines an increase in the value of the poverty threshold (even in a situation of invariance of the prices) and an increase in the number of relatively poor families. As a matter of fact, the families with the lowest consumption have worsened their conditions compared to the others, despite they have improved their standard of living. Conversely, in periods of economic recession/stagnation there could be a stability or decrease in the incidence of relative poverty if non-poor families reduced their consumption and therefore there is a consequent relative decrease in inequality in consumption spending (Freguja and Pannuzi, 2007).

3.2 Absolute poverty and non-monetary components

Istat is the only national statistical institute among EU Member States that conducts absolute poverty measurement in official capacity and, starting from 2017, this indicator, together with 11 other indicators of the framework for the measurement of Equitable and Sustainable Well-being (Bes), has entered to be part of the economic planning cycle, as required by Law n. 163 of 4 August 2016.

The details of the methodology to estimate absolute poverty will be discussed in the paragraph 4 focussing on the innovations introduced in the last update of the methodology. In general, in the Italian measures of poverty the thresholds to distinguish between poor and non-poor corresponds to the minimum expenditure required to purchase in monetary transaction the basket of goods and services that are considered essential to attain the "minimum acceptable" standard of living (Grassi and Pannuzi, 2009). Therefore, on the one side the choice of goods and services included in the basket refers to a concept of poverty broader than that of subsistence, and, on the other side, it ignores nonmonetary components (as in-kind transfers or the availability and the use of public services) that can influence people's quality of life (Saraceno, 2023a) but that are also very difficult to evaluate. If the value of some goods own produced or received as income in kind are considered respectively in HBS and EU-SILC and can be included in households' total expenditure or income, the evaluation of public in-kind transfers is controversial and poses conceptual and methodological problem of how to consider their actual

availability, accessibility, and quality for households belonging to different social classes and in different contexts.

3.3 EU-SILC indicators of material deprivation and social exclusion

Concerning nonmonetary components, "absolute" material deprivation measures are available every year thanks to EU-SILC. The severe material and social deprivation rate (SMSD) is an indicator that means the inability to afford some items considered by most people to be desirable or even necessary to get an adequate living standard. The indicator distinguishes between individuals who cannot afford a certain good or service, and those who do not have this good or service for another reason, because, for instance, they do not want or do not need it. The indicator measures the percentage of the population experiencing an enforced lack of at least 7 out of 13 deprivation items (6 related to the individual and 7 related to the household). The list of these items goes from the capacity to face unexpected expenses to replacing worn-out furniture for the household level and, for the individuals, from having internet connection to getting together with friends/family for a drink/meal at least once a month.

SMSD is then combined with other two indicators compiled based on EU-SILC data and that are the AROP (already shortly discussed in the previous paragraph) and the persons (aged less than 65 years) living in a household with very low work intensity (that is those living in households where adults worked for 20 % or less of their combined work-time potential during the previous 12 months; Eurostat, 2023). Combining the three indicators, at risk of poverty or social exclusion (AROPE) is obtained, as multidimensional indicator that corresponds to the sum of persons who are either at risk of poverty, or severely materially and socially deprived or living in a household with a very low work intensity. People are included only once even if they are in more than one of the situations mentioned above. The AROPE rate is the main indicator to monitor the EU 2030 target on poverty and social exclusion and was the headline indicator to monitor the EU 2020 Strategy poverty target.

4. The Italian methodology to estimate absolute poverty and the recent innovations

Absolute poverty is a condition in which households' consumption (or income) are below a certain threshold, based on the definition of a basket of basic needs. This latter refers to the identification of goods and services that, in a specific context, preserve individuals and households from deep social exclusion, and to their monetary evaluation. Since 2005, Istat calculates absolute poverty thresholds as the monetary value, at current prices, of a fixed basket of goods and services considered as essential for each household (according to the number and age of its members, geographical area of residence and municipality demographic size) to attain the minimum acceptable standard of living to avoid social exclusion.

In the approach adopted by Istat, the basic needs basket consists of three macro components: food (that means adequate nutrition), housing (dwelling of adequate size according to household dimension and equipped with heating and main services, durable goods, and accessories), residual (minimum necessary to dress, communicate, be informed, move, be educated and be in good health). On the one side, it is assumed that they are homogeneous all over the country (even if there are some differences due to 'external' reasons, such as the climatic conditions in the heating requirement), so that goods and services to satisfy them are the same everywhere in the Italian territory. On the other side, it is also assumed that the costs to meet basic needs may differ across the geographical areas of the country, since they reflect local differences of prices of goods and services in the basic need basket. The sum of the monetary values of the three different components returns the monetary value of the basket, corresponding to the absolute poverty threshold that varies according to number and age of household members, geographical area of residence and municipality demographic size. Therefore, there is not a single threshold, but as many absolute poverty thresholds as there are combinations of family types (by number and age of members), geographical distribution and type of municipality of residence (distinguishing between municipalities in the center of the metropolitan area, metropolitan area suburb municipalities, and municipalities with 50,001 inhabitants and above and other municipalities up to 50,000 inhabitants). They are revaluated every year by specific consumer price indices that, according to what was decided by the 2022-23 Inter Institution Scientific Commission on Absolute Poverty established by Istat, will be used between pictures of the monetary values of the thresholds carried out every three years avoiding that they are updated by inflation dynamics for a too much long time as it happened from 2005 to 2021.

Regarding the compilation of all these thresholds, the granularity of the new data sources available to this aim, has allowed to estimate them at regional level, whereas in the past they were calculated at level of geographical area.

To evaluate if a household is poor in absolute terms or not, data are used from the Household Budget Survey (HBS), carried out by Istat every year, whose main target is the estimation of all the expenditures incurred by resident households to purchase goods and services exclusively devoted to household consumption. As the largest part of consumption expenditure (namely, food and housing) is done at household level, household is the survey unit and household questionnaires are used. For this reason, for the estimation of absolute poverty the reference unit of the basket is the household; from this it also derives the need to define at the household level all individual needs (aggregated according to demographic characteristics of individuals and considering both potential economies of scale and saving forms that can be realized in different household typologies).

The methodology for the estimation of absolute poverty defines as absolute poor a household with a consumption expenditure lower or equal to the threshold. It is like saying that a household that cannot afford to purchase goods and services essential to meet basic needs cannot even attain an acceptable, although modest, standard of living in the social context in which they live, and this could imply severe forms of social exclusion. If all household members have the same chance of accessing household economic resources, if a household is defined as absolute poor, also all its members are absolute poor.

Two indicators are currently disseminated which summarize information on poverty. The first is the proportion of the poor (incidence), that is the ratio between the number of households (individuals) in a condition of poverty and the number of resident households (individuals). The second is the average poverty gap (intensity), which measures "how poor the poor are", that means by how much, in percentage terms, the average monthly expenditure of poor households is below the poverty line.

As aforementioned, in January 2022 a new Scientific Commission on Absolute Poverty (IISCAP), chaired by Istat President, Giancarlo Blangiardo, was appointed to revise and update the methodological approach adopted in 2007 and realising figure from 2005. The conclusions of the IISCAP substantially confirmed the fundamentals of that methodology, introducing some important innovations, mainly in the estimation of thresholds given the extraordinary richer availability of new data sources usable to this aim. The reasons of this choice in continuity assumed by the new Commission are related on the one side to the effectiveness of the 2007 methodology to detect the evolution of poverty since 2005 and on the other side to the results of several simulations that proved the stability of the results although the different data sources used to estimate the thresholds. The other important news introduced were related to the new population frame that was used to calibrate the data collected in the HBS and the new classification of consumption (COICOP 2018) adopted for 2022 HBS round. These two important changes have affected only partly the evaluation of the thresholds (mainly for the residual component that is still

endogenously estimated) whereas they have affected the estimation of the expenditure of each household that is used to consider them poor or not poor. The other important change that could have had consequences on the position of each household with respect to the reference threshold is the saving/not saving coefficient used to consider the economy of scale in the purchase that can be achieved by large size households.

4.1 The Food component

The food component is based on the nutritional needs of the individual, that vary by age classes, identified with those officially summarized in the Recommended Nutrient Intake Levels (RNILs) established by the Italian Society of Human Nutrition (SINU). The last release of RNILs (2014) was used for the last revision of the Istat methodology for absolute poverty. Therefore, food and drink needs were defined considering the individual calories needed to carry out the usual daily activity and are supposed to be invariable over time and independent from individual preferences. Then, these nutritional needs were converted into individual food combinations, by age group, expressed in average daily grams for each type of food. The selection of food and beverages was carried out considering the results from the new survey conducted by Council for Agricultural Research and Economics Research Centre for Food and Nutrition (Crea). The final number of items selected for the 2022 estimation of absolute poverty was equal to 101.

To achieve the monetary evaluation of this basket of food items, a correspondence table was set up to connect the 101 items to one or more products in the consumer price basket. In this work a very important innovation about the data sources used was introduced given that 33 out 101 food items were mapped to the products for which prices are collected in the traditional territorial data collection, whereas the remaining 68 were mapped to products for which the data source for consumer price indices (CPIs) estimation is represented by scanner data, an alternative data source that was introduced in 2018 in the estimation of the Italian CPIs and that brings a very wide coverage of the territory and of the product details.

The evaluation of the monetary value (cost) of each basket component has been obtained considering for each good, the minimum price accessible to all households, not simply the absolute minimum price. In this step of the compilation of the threshold for the food component, another important innovation was introduced in the last exercise of revision of the methodology. As a matter of fact, taking advantage of the granularity of information available for scanner data and the possibility to better represent the consumption behavior of the poor people, for the 68 products for which this new data source was used, the minimum price was estimated at regional

level considering the lowest quintile of distribution of Global Trade Item Number GTINs' prices for each market (identified selecting the most representative in terms of turnover) by retail trade distributional channel. For the items evaluated by using the prices derived from the traditional data collection, the algorithm was the same as in the past (average regional of minimum provincial prices detected by retail trade distributional channel), except for the reference territorial level (region instead of geographical area).

Adding up the individual components yields the monetary value of the household's food additive basket.

From the additive food basket, the final thresholds of the food component were recalculated by applying the multiplicative coefficients that summarize the effect of saving/non-saving forms of purchasing (household per capita food expenditure decreases as household size increases). Multiplicative coefficients were re-estimated in 2022 by studying the additive food basket per capita and the average food expenditure per capita of households confirming the methodology adopted since 2005.

4.2 The Housing Component

The housing component includes several needs that are considered fundamental to attain minimum acceptable standard of living to avoid social exclusion. They are made of the availability of a dwelling adequate to the size of the household, heated and provided by electricity, and equipped with some basic durable goods as refrigerator, cooker, washing machine and TV. Concerning dwelling, the minimum requirement is defined as a rented dwelling (the minimum dwelling size is given by Ministerial Decree 5/7/1975, that establishes the criteria for habitability, duly modified to consider the lack of small surface dwelling in Italy) at market prices, given the hypothesis that a family with severe budget constraints does not own a home because it is unlikely to be able to access the financing needed to purchase it, given the lack of the minimum assets needed to take out a mortgage, and that the supply of subsidized rental housing is insufficient to meet the needs of low-income households.

Therefore, estimating the monetary value of the expenditure necessary to guarantee these basic needs means estimating the value of the rental to be paid for an adequate dwelling, the amount to be paid to have the electricity necessary to enlighten the dwelling and to feed the appliances and that necessary to heat it, together with the cost of the annual consumption flow provided by the ownership of some essential durables. Indeed, the housing component of the threshold of absolute poverty can be broken down by four subcomponents: rentals (the prevailing one),

heating, electricity, and durable goods. Except for durable goods, the revised methodology released by the new Scientific Commission in 2023 has introduced important innovations in the estimation of the monetary value of each subcomponent.

Concerning the subcomponent of rentals, the most important innovation is about the data source used to estimate the monetary expenditure necessary to rent a dwelling in a region (not on a geographical area as it was in the previous methodology) for a household of a certain size. Differently from the past when this estimation was endogenous and based on the HBS data, in the revised approach it is the data base of rentals of dwelling made available to Istat by Tax Office (almost a census) the source of this estimation. In addition, if previously the price per square meter was obtained through a model applied to HBS, since 2022 estimation of absolute poverty indicators, this price is obtained by stratifying the information, duly treated for the outliers detected, in the Tax Office data base. This change has meant calculating the value of this subcomponent by an exogenous source, increasing to about 70% on average the share of the total threshold of absolute poverty exogenously compiled.

Quite the opposite, concerning electricity, the change has moved from an exogenous approach (based on the 1993 analysis carried out by ENEL, the national statistical agency for electricity), to an endogenous one to estimate the monetary value of the basic need of providing the dwelling by electricity enough to enlighten it and feed the appliances. It means using a model where the data are those obtained from HBS, and the model is a pooled model that uses data of 2014-2019 with 2019 prices. This model allows obtaining the threshold for electricity, domestic hot water, and cooking gas (in the methodology released in 2023, the latter ones have been separated from the estimation of the heating subcomponent differently from the previous approach).

As regards the heating subcomponent the innovation introduced has moved again from the use of HBS data (endogenous source) to an exogenous one, by using the methodology defined by Faiella *et al.* (2017), and the estimates made by Faiella and Lavecchia for the years 2014-2019. They have specified the minimum expenditure necessary to meet the European standard EN 15251 (which establishes 17.5 degrees as the temperature threshold for minimum acceptable comfort). The estimates of the minimum expenditure necessary to have this minimum temperature are based on the unit demand for heating (expressed in terms of physical energy expressed as Kwh per square meter) for 140 typical buildings, classified according to the climate zone, the period of construction and the type of dwelling. The same regression model used in 2003-2005 has been used (with a few changes), but as dependent variable, the threshold of energy poverty as calculated with the method proposed by Faiella et al. (2017).

Finally, for what concerns the durables by which the dwelling must be equipped, the same method as in 2005 has been used in the 2022-23 revision. Therefore, the minimum cost of durable goods considered essential has been obtained from consumer price survey, spreading the cost according to the same average duration in years that was used in 2005 (Tv set 10 years, washing machine 15, refrigerator 10, oven instead of non-electric kitchen 15 years) to consider the value of the consumption flow provided by each durable considered as essential.

4.3 The Residual Component

In the Istat methodology to estimate absolute poverty, the assumption is that households must also be able to acquire the minimum necessary to clothe, communicate, be informed, move, educate, and keep healthy. This is the third main component of the basket of basic needs deemed necessary to attain a living standard that avoids serious risk of social exclusion, in the conceptual frame that has overcome the concept of absolute poverty as mere survival. The estimation of the monetary value of the residual component completes the estimation of the monetary value of the thresholds used to evaluate if a household (and their individuals) is poor or not.

In the revision of the Istat methodology implemented by IISCAP in 2022-23, the approach established in 2005 was substantially confirmed. First, it was detailed the basket of products belonging to clothing, footwear, communication, information, education, and health areas that are deemed necessary to guarantee fulfilling the basic needs related to these areas. Second, it was confirmed that would have been arbitrary establishing the quantities of each product necessary to this aim. Therefore, given that the residual component expenditure depends strongly on the individual characteristics of the family members, both in level and composition, and is less sensitive to the effect of economies of scale than the expenses for housing, heating, household utilities or for durable goods, it was hypothesized, as in the former approach, that the residual component is affected by the family composition in a similar way to the food component. Consequently, the coefficients of a linear regression that associates, at family level (considering the different household composition by age group of members), food expenditure and residual expenditure, as detected in Italian HBS, were estimated, and used to calculate the monetary value also of this component.

The main innovation introduced in 2022-23 were about the basket of products and the model underlying the linear regression.

Concerning the basket of products, a deepen analysis was conducted on HBS data to understand if, compared to the past, some items have significantly increased their

relevance in the households' expenditure to be considered as part of those necessary to satisfy basic needs. At the end, it was agreed on the one side to introduce in the basket of products textbooks for secondary school (lower and upper) and taxes and fees for public secondary school, on the other side to drop the games for chance (were deemed not still sustainable the reasons for their inclusion), and some obsolete components such as landline phone equipment or traditional mail delivery service.

As regards the model and the linear regression, the intercept was introduced to facilitate the role of R^2 to explain the share of variance explained by the model and better interpret the meaning of the coefficient of the different variables considered in the model. The second innovation introduced in the model is about the food expenditure (the covariate). In 2005 to the food basket value used to estimate the monetary value of the residual threshold, were applied the coefficients summarizing the effect of the forms of saving/not saving estimated to consider for the food component the different size of the households. Given that only some of the goods in the basket of the residual components are prone to forms of savings (due to discounts, promotional offers for the quantity purchased, or to savings packages or large formats), it has been agreed to apply only partly the coefficients of saving/non-saving to the food component in the model to estimate the residual one. Specifically, these coefficients were applied only to 18.6% of the food basket considering the share of expenditure of the residual basket component that were deemed prone to saving/non-saving attitudes.

4.4 A summary of the innovations introduced in 2022-23 to estimate absolute poverty and their impact

In table 1 a summary is traced of the main innovations introduced in 2022-23 in Istat methodology to estimate absolute poverty and that were described in the previous paragraphs.

As it was clarified in the introduction to this paragraph, all these innovations have been introduced in a methodological framework that was established by the Scientific Commission that worked in 2003-2007 and confirmed by that one that worked in 2022-2023.

Table 1 – *Summary of innovations introduced in 2022-23 in the Istat methodology to estimate absolute poverty*.

	New data sources	Methodological and other innovations
Food component	Scanner data	Use of the last release of Recommended Nutrient Intake Levels (RNILs) established by the Italian Society of Human Nutrition (SINU) in 2014. The selection of food and beverages to convert the nutritional needs carried out considering the results from the new survey (2017-22) conducted by Council for Agricultural Research and Economics Research Centre for Food and Nutrition (Crea). For scanner data, minimum price estimated at regional level considering the lowest quintile of distribution of GTINs' prices for each market (identified selecting the most representative in terms of turnover) by retail trade distributional channel.
Dwelling component		
Rentals	Frome HBS to Tax Office data	From a model based on HBS data to stratification of Tax Office data.
Electricity	From external to HBS data	Pooled model that uses HBS data of 2014-2019 with 2019 prices.
Heating	From HBS to external data sources	Change in the dependent variable of the model by using the threshold of energy poverty as calculated with the method by Faiella et al. (2017).
Durables	-	-
Residual component		Revision of the basket. Intercept in the model that established the relationship between food expenditure and the residual component. Specific consideration of saving/non-saving coefficients.
Households' expenditure to assess their position (poor/non-poor)		Introduction of COICOP 2018 in HBS data. New population frame from population Census 2021.

The year 2021 was the year when a parallel HBS was conducted by using the in one case the COICOP 1999 and, in the other case, the COICOP 2018.

2021 Absolute poverty indicators were released by Istat based on the previous methodological design and the previous population frame. For sake of impact evaluation, absolute poverty rates were also compiled considering all the innovations introduced and summarized in table one. By grouping these innovations in three main components (population frame, new classification, methodological innovations), the impact of each of them and of all of them considered all together was estimated. In table 2 the results are reported.

Table 2 – *Impact of innovations introduced in the methodological design to estimate absolute poverty in Italy. Absolute poverty rates. Year 2021*.

	2021 Official absolute poverty rates released by Istat	Innovation introduced in 2022-23						
		Population frame	COICOP 2018	Meth. innovations	Population frame and COICOP 2018	Population frame and meth. innovations	COICOP 2018 and meth. innovations	All
Household	7.5	7.4	7.7	8.2	7.5	8.1	8.2	8.1
Individual	9.4	9.2	9.6	9.6	9.4	9.4	9.7	9.5

The comparison between the 2021 absolute poverty rates released by Istat and that compiled based on the innovations introduced highlights the robustness of the backbone of the methodology adopted in 2005 and confirmed in 2022. The impact of the innovations introduced is low and mainly referred to the indicator by household, whereas by individual it is substantially marginal.

5. Income-Based Approach for Measuring absolute poverty

Since the definition of the absolute poverty lines is exogenous to the distribution of both income and consumption, the absolute poverty can be also analysed by focusing on households' income, shedding a different light on the characteristics of the phenomenon (Cutillo *et al.*, 2020). The poverty lines can be easily applied to IT-SILC data, according to the household's size and age composition, plus the geographical area of living and the size of the municipality. As an example, we can compare estimates of incidence and intensity of absolute poverty carried out by using the 2019 wave of the Italian HBS and SILC.

When focusing on households, the consumption-based absolute poverty incidence is 6.7% (about 1.71 million households), whereas 5.8% (about 1.5 million households) is the figure obtained when we follow an income-based approach. When focusing on individuals, larger differences emerge: the consumption-based value

(7.6%) is indeed much higher than the income-based value (5.5%). In absolute values, poor individuals according to the income distribution are about 3.25 million less than poor individuals observed according to their expenditures (4.48 million). Contributing to these results is the fact that consumption also reflects the expectations of future incomes and the saving and dissaving along the life course rather than the mere current income. The greatest differences emerge when the incidence of absolute poverty is assessed by household size. While for a single-member household income-poverty is higher than consumption-poverty (8.8% vs 6.6%), for large size households the situation overturns (9.6% vs 15.2%). Consistently, single persons aged below 65 years old are more frequently poor when considering income rather than consumption (11.7% vs. 6.8%, respectively), while in all household types with children the consumption-poverty is higher than the income-poverty.

Income-based poverty is higher than consumption-based poverty among the households headed by individuals aged less than 35 (10.7% vs. 9.7%), often suffering from income constraints due to unemployment and low-paid jobs, whereas consumption-based is higher than income-based poverty among the elderly (5.3% vs. 2.9%), that generally have a high saving propensity.

The incidence of absolute poverty is much higher within households with at least a foreign than within households with all members with the Italian citizenship (income-based 16.6% vs 4.7%), even if the gap between the two types of households enlarges when consumption-based poverty is used (23.9% vs 5.0%), maybe due to different consumption habits between immigrant and native households.

Finally, the absolute poverty intensity, measured through the poverty gap (the average percentage distance from the threshold for poor households) almost doubles when poverty is based on income than on consumption (38.2% vs. 19.9%) because, as well-known, the income distribution is much more unequal than the consumption distribution.

6. Concluding remarks

The topic of poverty measurement has increased its importance in the last decades and in the last years, considering obstacles that the fight against poverty and specifically absolute and extreme poverty are finding, although the progress and the results achieved. The recent Covid-19 and inflation crisis (the latter also pushed by the Ukrainian war and the international stability issues) have spotlighted again the attention on poverty and the objective of leave no one behind (LNOB) that is central in the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs).

Italian context is the context of an economically advanced country where the phenomenon of absolute and extreme poverty has a different weight than in the low- and middle-income countries, but the indicators of the last decades highlight the persistence (and in the recent years the increase) of a share of population forced to live in condition of marginality.

The worth of the Italian measures of absolute poverty is that of focussing the attention on the conditions of a minority that is such only in terms of percentage but not in terms of number (more than 5.5 million individuals in the preliminary figures recently released about 2023) and that has the risk to be disregarded. As a matter of fact, the constant and stable release of absolute poverty indicators has played an important role in attracting the attention of the policy makers on this so important social dimension and pushing them to adopt measures to contrast absolute poverty (in the recent year measure as inclusion income, REI, citizenship income, RDC and the recent inclusion benefit, ADI).

These are reasons that stress the importance of the work done by the 2022-23 Scientific Commission to improve the quality of the indicators produced by Istat, assessing the robustness of the main methodological choices adopted so far.

But, as it is illustrated in this contribution, the measure of absolute poverty is still based on a monetary approach. It is crucial but seems to be not enough to represent a phenomenon that in a quickly changing society assumes new and in some case unknown characteristics. Poverty progressively is no longer only lack of money to purchase goods and services that allow satisfy basic needs, that is a fundamental aspect of social exclusion but that does not exhaust it.

Therefore, the challenge of complementing the measure of absolute poverty with other indicators that enable to detect the more complex dimensions of this phenomenon are in front of Istat and of the scientific community and can be better faced starting from the recent achievements.

This is why one of the legacies from the 2022-23 Scientific Commission was that of advising Istat to establish an Advisory Board that, in continuity with the work done, can deal, in the coming years, with this crucial challenge.

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