MEASUREMENT OF ABSOLUTE POVERTY IN ITALY: AN EMPIRICAL ANALYSIS[1]

Valeria De Martino, Livia Celardo

Abstract. Absolute poverty is a socio-economic measure based on the monetary evaluation of a basket of goods and services, considered essential to avoid serious forms of social exclusion. Absolute poverty has been estimated in Italy since 2005 by the Italian Institute of Statistics, with reference to household consumption, using data from the Household Budget Survey (HBS), comparing the expenditure of Italian households with the absolute poverty thresholds. The reference unit is the household, considered in relation to the characteristics of the individual components, their specific needs (nutritional, for instance) and any scale or forms of savings that can be achieved when the family composition varies. Essential needs have been identified in adequate nutrition, in the availability of a dwelling - equipped with necessary goods and services according to the needs of the household - and in the minimum necessary to dress, communicate, get informed, move in the territory, educate and maintain good health. Consequently, the basket is composed of three macro components - food, housing, residual - whose monetary valuation was not carried out at the absolute minimum price, but at the minimum price accessible to all households taking into account the different distribution channels. The monetary value of the total basket was obtained from direct sum of the various components and corresponds to the household absolute poverty threshold. Monthly expenditure used to purchase goods and services exclusively devoted to meet the households needs (including presents purchased), is compared with the value of the poverty threshold, in order to classify a household as absolutely poor or non-poor. After a methodological revision in 2022, the poverty threshold is now defined by the combination of the household type, the region and the municipality of residence. As a consequence, it is possible to identify as many absolute poverty lines as many combinations exist between the elements mentioned before. The methodology revision has allowed the release of more punctual data, capturing the heterogeneity of the expenditure for the different household types in the different areas/territories of the Country. Then, in this paper we briefly show the main changes in the methodology for the measurement of absolute poverty and we present some descriptive analysis on the poverty thresholds calculated for the period of 2014-2022.

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[1] All authors contributed to the study conception and design, and the paper is the result of the common work of the authors. In particular, Livia Celardo has written Sections 3, Valeria De Martino has written Sections 2. Section 1 and 4 are the result of common work of the authors. All authors have read and approved the final manuscript.

1. Introduction

There are many ways to define and measure poverty, but with few exceptions the empirical basis for poverty comparisons is statistical, employing point estimates of relevant poverty measures, generally derived from household survey data (Simler and Arndt, 2007). The last 50 years has seen great progresses in the production and availability of such data for developing countries, thanks to the efforts of National Statistics Institutions (NSIs) and the support of the international development agencies (Chen and Ravallion, 2007).

One of the primary studies on poverty was done by Rowntree (1901), who defined households as being in primary poverty if their total earnings were insufficient to obtain the *minimum necessities of merely physical efficiency*. He estimated the minimum costs for food, rent, clothing, fuel and sundries that would satisfy the minimum needs of families of different sizes (Ringen, 1988). Therefore, a poverty line identifies the society's minimum standard of living to which everybody should be entitled (Laderchi et al., 2003). Following that, a household is classified as poor if its members cannot afford this minimum. There are two main approaches for measuring poverty (Carbonaro, 1993). The first one is the *relative* approach, which defines the poverty line in relation to the average standard of living experienced by a society (Beycan, 2023). Therefore, the relative approach captures a form of "social inclusion", whose cost in terms of consumption increases with standards of living (thus, the value associated to a relative poverty threshold is larger in richer societies). The second approach is known as the *absolute* approach. This approach captures basic needs satisfaction, so then an absolute poverty line has a fixed threshold in the space of consumption (Klasen, 2016). Following this point of view, the poverty line should be adjusted for individual circumstances – the age for instance, so that all the individuals on the poverty line have the same standard of living. The absolute approach to measuring poverty also implies that the real poverty line (which is the result of the monetarisation of the basket of reference goods and services) is fixed over time. The poverty line should only change over time because of changes in prices (Son and Kakwani, 2009). This property implies that the poverty line should be adjusted over time by means of the true cost of living index, so the observed differences in the poverty line measure the real change in the poverty line.

Traditionally, absolute poverty has been estimated in developing countries (Ravallion, 2016), but even in economically advanced countries there is a non-negligible share of the population that is unable to achieve standards of living that are considered socially acceptable (Aprea et al., 2023). Considering the European context, Italy is the only country that calculates official statistics on absolute poverty. The Italian Institute of Statistics (Istat, hereafter) releases estimates of household absolute poverty, defined with reference to household consumption using the

Household Budget Survey (HBS, hereafter). Also individual measures of absolute poverty are released, through the use of savings/non-savings coefficients included in the calculation of the thresholds, taking into account households of different sizes and allowing comparison between household expenditures and the thresholds. Poverty measures are usually identified as household-based indicators, mainly because government and organizations often prefer family-based measures since they capture shared living arrangements, while individual measures are more useful for the analysis of specific populations, such as children, elderly people or single individuals.

The methodology developed by Istat from 2005 to evaluate the absolute poverty indicator (Freguja et al., 2007; Istat, 2009; Cutillo et al., 2022) is based on the standard budget approach, where poverty thresholds correspond to a basket of goods and services considered essential to avoid serious forms of social exclusion.

The inclusion process of the absolute poverty estimation in Istat started in 1996, when there was a need to combine relative poverty indicators with a methodology based on absolute poverty; through a working group of academic experts on poverty issues composed of Istat researchers and members of the *Commission of Inquiry on poverty and marginalisation*, a first methodology has been developed (Commissione di indagine sulla povertà e sull'emarginazione, 1998). This methodology was mainly based on the definition of a set of essential needs and the availability of minimum resources to enable the acquisition of such assets.

In later studies conducted by Istat, some limitations of the methodology used were highlighted, which imposed a subsequent revision, also due to regulatory changes related to the provision of goods and services and the spread of new lifestyles. For this reason, Istat has set up a Study Committee composed of experts on poverty themes to evaluate the composition of a basket of essential goods and services, reviewing and modifying the previous approach. Adjustments and changes were made focusing on goods and services that were considered essential to avoid serious forms of social exclusion in the reference context. At the same time, the production of estimates has been suspended since 2003, while from 2005 absolute poverty indicators based on this new methodology have been produced again (Istat, 2009).

Then, in 2021 a National Inter-institutional Study Commission was established, chaired by the President of Istat, with the participation of representatives of the University, the Bank of Italy and experts from various government bodies, to revise and update the methodology for estimating absolute poverty.

The Committee validated the overall methodological framework (in terms of main theoretical assumptions and basket components), but at the same time taking into account innovations introduced in the HBS in 2022 (that is, the most recent

version of COICOP[2] 2018 classification and the new populations released on the basis of the results of the Istat Permanent Population Census). Moreover, the Commission introduced some methodological changes in the estimation of the three sub-components of the reference basket (i.e., food, housing, residual), in the annual revaluation of the basket, promoting the use of new available data sources in the estimating methodology.

Then, in this paper we firstly show the main changes occurred in the calculation of the absolute poverty threshold, and then we present an application of the updated methodology to a specific household type (i.e., two adults and two children).

2. Methodology

The main changes implemented in the revision of the absolute poverty estimation concerned all the sub-components of the reference poverty basket. There are three main components of the reference basket (food, housing and residual), which can be further specified through sub-components. Regarding the food component, the main revision applied concerns the number of food items considered. This number was increased to 96 types of items (instead of 34 of the previous version) to be more closely aligned with the population's daily diet and in accordance with the recommendations of the Healthy Eating Guidelines. Food items were selected using data from the latest national survey on food consumption conducted by the Council for Agricultural Research and Economics (CREA - IV SCAI 2017-2020 study), which involved a sample ranging from 3 months to 74 years of age. The quantities in grams of each food item was reshaped following the new nutritional principles, resulting in a balance of nutrients. The age groups considered in the calculation of the appropriate food diets were incremented to seven (from 0 to 3 years, from 4 to 10, from 11 to 17, from 18 to 29, from 30 to 59, from 60 to 74, 75 years old and over) and the minimum price for each food item considered have been calculated by means of the consumer price survey, following for fresh food mainly the traditional part of the CPI (Consumer Price Index) survey and for other foods by exploiting the data source of data scanners that offered a wide variety of detailed information at regional level.

In order to take into account household composition directly related to consumption, the final value of the household food component is obtained by applying to the value of the additive food component specific multiplicative coefficients that synthesize the effect of the forms of savings/not savings when

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[2] The objective of the Classification of Individual Consumption According to Purpose (COICOP) is to provide an international reference framework for grouping household consumption expenditures on goods and services within homogeneous categories.

purchasing. The general system followed for the calculation of savings is similar to the one adopted for the previous version, but in this case the phenomenon has been studied more in depth. The coefficients have been reformulated through the processing of HBS data, taking advantage of the availability of a wider database. These coefficients have a specific weight for both the food and the residual components.

The housing sub-component is divided into four main categories: rent, electrical energy, heating and durable goods. The rent sub-component main updates and changes concern the rent estimation, which is conducted exogenously through an external census database (the Real Estate Lease Database - the database of all the rental contracts provided by the Italian Tax Office). The rent is calculated as the median value of the cells obtained through stratification given by region, type of municipality and size class of the dwelling.

Electrical energy component includes expenditures on hot water production and cooking gas (considered with heating in 2005); the value has been estimated through a model for the reference year of 2019 on HBS data, so that the new estimate is no longer exogenous. The model is calculated excluding households with high electrical energy expenditure identified by the possession of energy-intensive household appliances.

For the heating component, the Bank of Italy's methodology for calculating energy poverty was utilized. The estimates were made using the unit heating demand for several types of buildings, classified according to climate zone, construction period and type (from the database *Research on the Energy System*), and the value was obtained applying unit prices from the integrated database *Istat-Regulatory Authority for Energy, Networks and Environment*.

For durable goods, the list of goods was updated and reference was made to the minimum price applied at the level of four geographical breakdowns.

The residual component aims to estimate the minimum necessary «*to furnish and maintain housing, dress, communicate, inform oneself, move about the area, educate oneself and maintain good health*» (Istat, 2009), taking account of the needs and behaviour of households without defining the specific quantities. The monetary value of the residual component is obtained from a food basket adjusted for the effect of the forms of saving/not saving when buying only for a share corresponding to the weight, in the residual basket itself, of the non-durable goods (excluding health products, medical self-diagnosis devices and water supply).

These major changes in all components of the basket have led to an improvement in the detail of the calculation of the thresholds for each household type; they can be calculated at regional level and they allow a better representation of the phenomenon in the different areas of the Country. According to the new estimation methodology, the absolute poverty thresholds range by size (number) and composition (age group)

of the household (as it was in the past), region of residence (it was by geographical areas in the 2005 methodology) and demographic size of the municipality of residence (as it was in the past).

Poverty measurement is then based on a comparison of resources to needs. A family is identified poor when his monthly expenditure is equal to or less than the value of the absolute poverty threshold. An individual is poor if belongs to an absolute poor household.

Since 2022, all the components of the absolute poverty basket are annually revaluated using specific consumer price indices calculated mainly at regional level, and the revalorization of all the basket components is carried out every 5 years.

Defining absolute poverty thresholds predominantly exogenous (i.e., calculated using data sources outside the HBS) had the great advantage of bringing to 26.9% the proportion of endogenous source of the average threshold, against 61.1% of the methodology used in the past. By using alternative data sources it was possible to limit potential distortions related to survey data.

3. Results

After the methodological revision of the absolute poverty estimation, the poverty threshold is now defined as the combination of the household type, the region and the municipality of residence. The methodology revision has allowed the release of more punctual data, capturing the heterogeneity of the expenditure for the different household types in the different areas/territories of Italy.

As a consequence, the availability of a larger number of absolute poverty thresholds brought with it a high variability of thresholds; the same family type with a certain average monthly expenditure can be classified as poor in one region and non-poor in another. The same applies to municipalities in the same region, but of different sizes.

In order to show, with a practical example, the huge heterogeneity of the poverty thresholds, in this section we show a descriptive analysis of the absolute poverty threshold referred to a specific type of household (couple of two adults aged 30-59, one child aged 4-10 and one child aged 11-17).

Overall, couples with two children resident in Italy are almost 3.4 million and represent 12.8% of all household types. The households of this type that fall under the condition of absolute poverty are over 361 thousand, registering an absolute poverty rate of 10.7% at national level, with higher values in the Southern regions (13.8%) and lower values in the North-East of the country (8.2%).

In order to show the informative value of the new poverty thresholds, on this specific type of household we have analyzed how poverty line changes in time and space.

If we look at the time variation of the thresholds for this specific household type for all the Italian regions, we observe that from 2014 to 2021 they have slightly grown, while in 2022 it has been observed a significant increase in all the Italian regions, mainly due to an increase in inflation (Figure 1). Looking at the distance between the maximum and the minimum poverty line, from the figure it is possible to observe that over the time this gap has slightly increased (moving from around 660 in 2014 to 730 euro in 2022). Overall, for the family type here considered, each year from 2014 to 2022 the minimum threshold has been observed in small municipalities of Basilicata, while the maximum poverty line has been identified in the metropolitan areas of Lombardia, meaning that over the time Basilicata has remained the area where living costs are lowest, while the metropolitan area of Lombardia – Milan, for instance – is still the area where families need much more budgetary resources to spend in order not to fall below the poverty line.

Figure 1 – *Minimum and maximum absolute poverty thresholds (2014-2022) for the reference household, by year.*
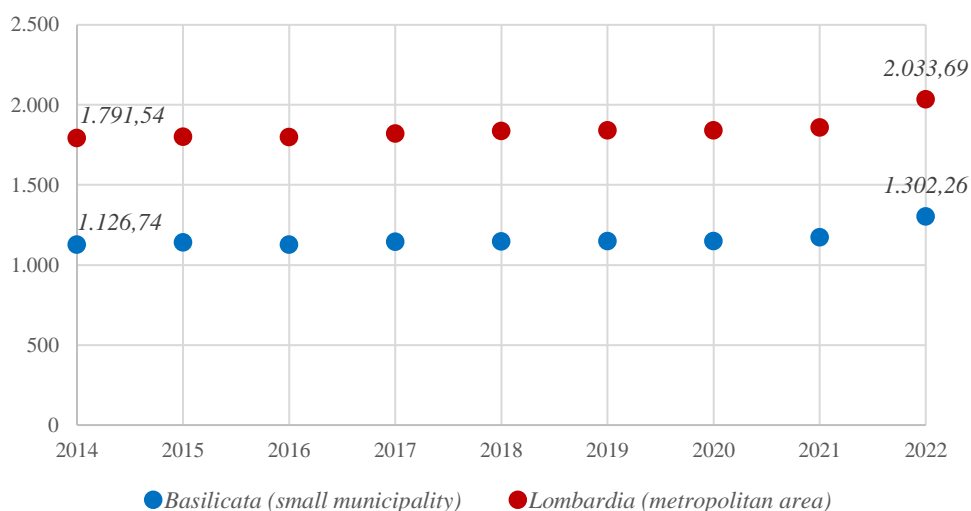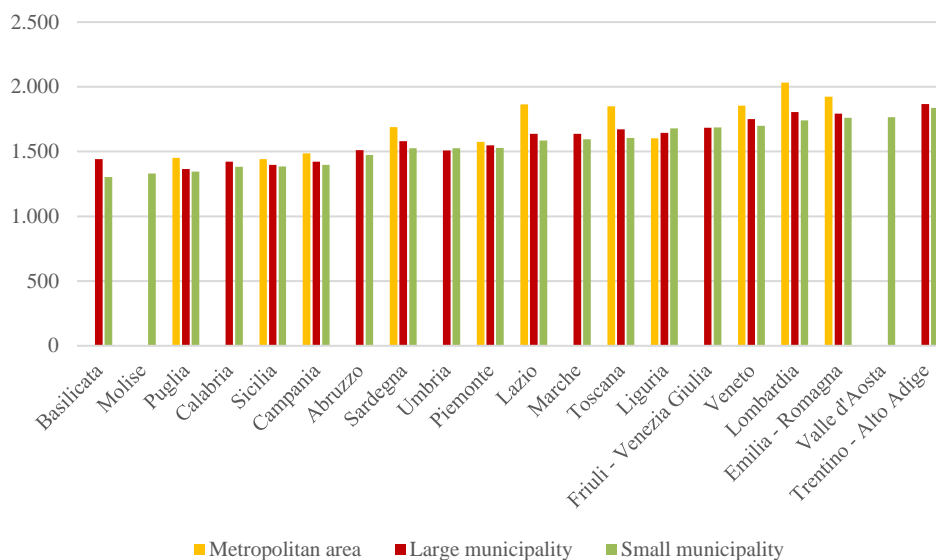

Source: Household Budget Survey (HBS) - ISTAT.

We have then observed the territorial variation of the poverty thresholds, fixing 2022 as the reference year (Figure 2). The distribution of the absolute poverty

thresholds for the family type here considered, in 2022 shows that on average the metropolitan areas have the highest thresholds while small municipalities have the lowest. This means that living in a bigger municipality increase, on average, the living costs of the household, so then they need more resources in comparison to families living in a more "rural" or "peri-urban" context. Liguria is the only case where poverty thresholds are lower in metropolitan areas than in small and medium size municipalities. Looking at the sub-components of the poverty threshold in Liguria region, differently from the other regions, there are two main categories for which the costs are lower in the metropolitan areas than in smaller municipalities: rent and energy sub-components. In fact, in 2022, the rent and the energy sub-components are both almost 40 euros less in metropolitan areas than in smaller municipalities. Concerning the rent component, in particular, one of the factor that influence rents in the smaller municipalities of this region is the tourist vocation. In fact, in Liguria region there are many small cities along the coastline where the number of arrivals per year is high, increasing the cost of rents in these locations.

Figure 2 – *Absolute poverty thresholds (2022) for the reference household, by region and municipality size.*
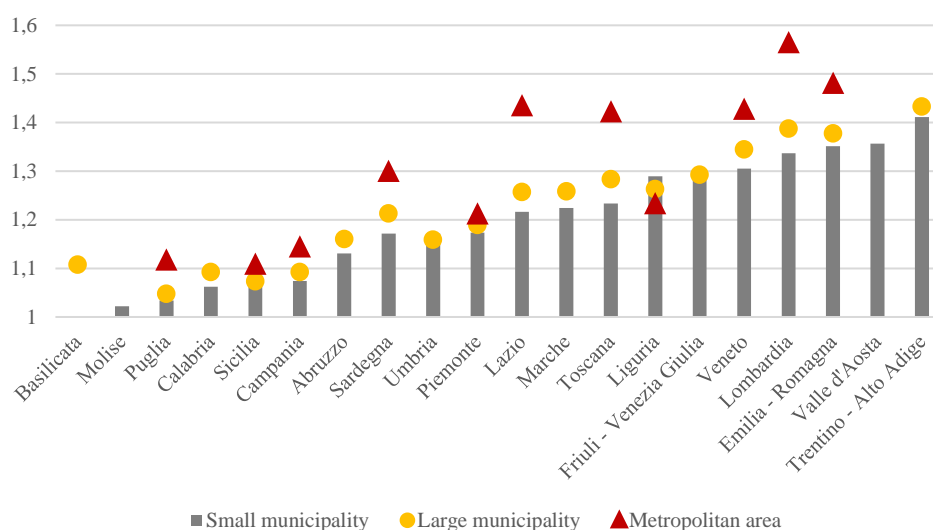

Source: Household Budget Survey (HBS) - ISTAT.

In order to compare more the different poverty thresholds, we have constructed two index numbers using 2022 as the reference year. The first index represents the

ratio between the observed threshold and the global minimum poverty threshold (in this case, the threshold of small size municipalities in Basilicata), aiming at comparing the living cost in the different regions with reference to the lowest poverty line in the Country. The minimum poverty threshold is then equal to 1 and all the other threshold are related to this value. As it can be seen from Figure 3, considering only small municipalities, the highest threshold is observed for Trentino-Alto Adige region (more than 1.4 times the minimum poverty line). On the other hand, the maximum poverty threshold observed (metropolitan areas in Lombardia) is almost 1.6 times over the minimum poverty threshold.

Figure 3 – *Absolute poverty thresholds (2022) for the reference household, by region and municipality size. Lowest among regions and municipality size has been used as reference value (index=1).*
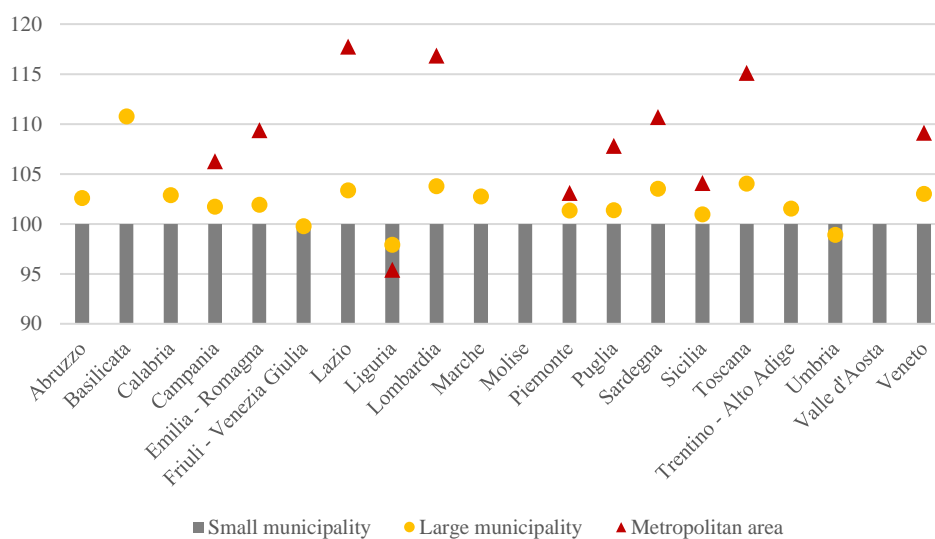

Source: Household Budget Survey (HBS) - ISTAT.

The second index number have been constructed by using for each region the threshold of the small municipality as the reference unit (index=100). Figure 4 shows, for each region, the distance between small/large municipality and the metropolitan area. As shown in the graph, the largest distance is observed for Lombardia region, where the poverty line for this type of household in the metropolitan area is almost 300 euro higher than in the small municipality. Similarly, in the region of Lazio the threshold observed in the metropolitan areas is more than 280 euro higher than small municipalities. Not considering Liguria region, for which

living in the metropolitan area is less expensive than living in small municipalities, the lowest distances where observed in Piemonte and Sicilia regions, where the difference between small and larger municipalities is around 50 euro.

Figure 4 – *Absolute poverty thresholds (2022) for the reference household, by region and municipality size. Lowest within each region has been used as reference value (index=100).*

Source: Household Budget Survey (HBS) - ISTAT.

4. Conclusions

The new methodology introduced in 2022 for estimating absolute poverty in Italy, which provides more detailed data, allows for the calculation of absolute poverty thresholds at the regional level, by municipality size (in three levels) and by family composition, considering all possible combinations of seven age groups. The values of the regional thresholds reflect the variability of price trends, which are very heterogeneous from North to South and within municipalities of different sizes. The study of the threshold's valorisation enables a deeper understanding of the phenomenon of poverty, through the representation of the complexity of the minimum requirements for a standard living. The descriptive analysis highlighted the wide variability of the poverty threshold, not only between regions (those regions

in the North of Italy have, on average, a higher threshold), but also between municipalities of different size in the same region.

For the family type here considered, the metropolitan areas of Lombardia (e.g., Milan) result as the territories where the poverty threshold is highest, for all the years considered (2014-2022), while Basilicata (small size municipalities) resulted the lowest. For a generalization of this trend, the evidences shown in the previous paragraph should be verified for other household type; in general, Northern areas are more likely to reveal higher living costs, resulting in higher poverty lines. The same trend is observed for larger municipalities and metropolitan areas.

The deep analysis of the poverty lines for different households and for different areas of the Country allows a better understanding of the living costs of the Italian families and also a more punctual planning of the social policies.

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Valeria DE MARTINO, Italian Institute of Statistics (ISTAT), valedema@istat.it
Livia CELARDO, Italian Institute of Statistics (ISTAT), livia.celardo@istat.it