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# THE USE OF ALTERNATIVE DATA SOURCES TO ESTIMATE THE THRESHOLDS OF ABSOLUTE POVERTY IN ITALY

Federico Polidoro, Istat (Italy) ([polidoro@istat.it](mailto:polidoro@istat.it))

Ilaria Arigoni, Istat (Italy) ([arigoni@istat.it](mailto:arigoni@istat.it))

Alessandro Brunetti, Istat (Italy) ([albrunet@istat.it](mailto:albrunet@istat.it))

Andrea Cutillo, Istat (Italy) ([cutillo@istat.it](mailto:cutillo@istat.it))

Valeria de Martino, Istat (Italy) ([valedema@istat.it](mailto:valedema@istat.it))

Federico Di Leo, Istat (Italy) ([dileo@istat.it](mailto:dileo@istat.it))

Cristina Freguja, Istat (Italy) ([freguja@istat.it](mailto:freguja@istat.it))

## Outline

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- The profile of absolute poverty rate in Italy since 2005
- Istat methodology to measure absolute poverty in Italy and the revision in progress
- The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data and administrative data base of rentals for housing
- Some concluding remarks and lessons for the future

# The profile of absolute poverty rate in Italy since 2005

**Figure 1. Absolute poverty rates by households and individuals. Years 2005 – 2021. Percentage values**

Sub-prime crisis has consequences not on the level but on the characteristics of the poor households. In 2010 it is the first time that the poverty rate in terms of individuals is higher than that in terms of households. It means that the large families are affected by absolute poverty more than the small-size ones. Since then this evidence is confirmed and the gap has been expanding until reaching the value of almost two percentage points in 2021.



## The profile of absolute poverty rate in Italy since 2005

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- The evolution of poverty rate from 2005 took place across years with low inflation rate, with the exception of 2011 and 2012 when also for this reason the absolute poverty increased.
- The increase in the poverty rate between 2011 and 2012 was not re-absorbed (in 2013 further increase), despite the decreasing level of inflation (a couple of years, 2016 and 2020, of decrease of the general level of consumer prices).
- The effects of inflation on the poor are not transitory but produces long term effects.
- What will be the consequences of the sharp rise of inflation in 2022 on the estimation of absolute poverty rate?

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- Absolute poverty is a condition in which people are below a certain threshold, based on the definition of a basket of basic needs.
- The basket refers to goods and services that, in a given context, preserve individuals and households from deep social exclusion, and to their monetary evaluation.
- Istat calculates absolute poverty thresholds as the monetary value, at current prices, of a fixed basket of goods and services considered as essential (basic needs) 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.

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- Basic needs are identified in three macro components:
  - ✓ **Food**, that means adequate nutrition
  - ✓ **Housing**, that means availability of a dwelling of adequate size according to household dimension and equipped with heating and main services, durable goods and accessories
  - ✓ **Residual**, that means the minimum necessary to dress, communicate, be informed, move, be educated and be in good health

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- Basic needs:
  - ✓ 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 in different geographical areas of the country, since they reflect local variations of prices of goods and services in the basic need basket

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- The monetary value of each of the three components of the basket is calculated in a different way:
  - ✓ **The food component** was evaluated on the data from the 2005 Istat consumer price survey used to arrive at the monetary valuation of individual food combinations (identified considering the individual calories needed to carry out the usual daily activity). Some economies of scale are taken into account
  - ✓ **The housing component** was evaluated on the data coming from HBS for the rentals components, from consumer price survey for some durables and from the 2005 electricity and gas tariffs related to a mean expenditure
  - ✓ **The residual component** was evaluated on the basis of HBS data through a model that puts it in relationship with food expenditure



## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- Monetary value (cost) of each basket component is obtained considering, for single goods and services, the minimum price accessible to all households, bearing in mind that price may differ according to different retail trade channels and geographical areas.
- The sum of the monetary values of the three different components returns the monetary value of the basket (absolute poverty threshold).
- The thresholds, were defined for the year 2005 varies according to number and age of household members, geographical area, and municipality demographic size (indeed, there are several absolute poverty thresholds).
- They have been reevaluated every year by specific consumer price indices until 2021.

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- Absolute poverty thresholds represent the values against which the consumption expenditure of a family is compared to classify it as absolutely poor or non-poor.
- It is absolute poor a household with a consumption expenditure lower or equal to the threshold. Assuming that all household members have the same chance of accessing household economic resources, if a household is defined absolute poor, also all its members are absolute poor.
- Absolute poverty rate and absolute poverty intensity (poverty gap) are calculated.

## Istat methodology to measure absolute poverty in Italy and the revision in progress

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- More than 15 years after the start of the estimation of the absolute poverty in Italy on the basis of the new methodology before described, Istat has established a new scientific commission, chaired by Istat president (professor Giancarlo Blangiardo) to revise or at least update it.
- The composition of the Commission combines experts coming from Istat, Bank of Italy, Ministry of Economy and Finance, other institutions, research centres and academia.
- Importance of the work of the commission given that since 2018 absolute poverty rate is one of the equitable and sustainable well-being indicators (contributing annually to define economic policies in the Economic and Financial Document (DEF) and in the Report to the Parliament)

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data and administrative data base of rentals for housing

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- Since the beginning of the work of the Commission, it emerged that the also considering the methodological framework used to estimate absolute poverty in Italy so far, the new data sources available to estimate some of the components of the thresholds represent a huge news.
- For the food component, the possibility to use scanner data (detected by Istat since 2018 to estimate inflation) is available allowing replace for processed food the data coming from traditional data collection.
- For the rentals within the housing component, the use of the new administrative data source introduced in the compilation of CPI/HICP since 2022 represents the other opportunity to innovate the estimation of the thresholds moving from the survey data to a census data set of information.

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

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- Scanner data are transaction data bringing information on turnover and quantity sold on weekly basis
- For the processed food in the poverty basket, the estimate of the annual minimum average price based on the transaction data concerning all the references (identified by barcodes or GTINs) that are actually bought by households during the reference year.
- The estimates could be compiled at provincial level (107 are the provinces in Italy) and then aggregated by region, using the weighted arithmetic mean, with weight proportional to the resident population of the provinces (used also for the aggregation of CPIs).

# The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

**Table 1. Coverage of the food basket by source (scanner data and traditional data collection)**

Source of price information	Items
Traditional price collection (33 items)	<p><u>Cheese</u> (fontina, scamorza, pecorino, grana, parmigiano);  <u>Bread</u> (loaves, wholemeal bread);  <u>Meat</u> (beef, pork, turkey, chicken, sausage);  <u>Vegetables</u> (potatoes, cabbage, green beans, mushrooms, spinach, broccoli, swiss chard, aubergines, tomatoes, pumpkins, zucchini, carrots, celery, fennel);  <u>Fruits</u> (oranges, mandarins, apricots, apples, pears, peaches, bananas).</p>
Scanner data (61 items)	<p><u>Milk</u> (whole, partially skimmed, skimmed);  <u>Package cheese</u> (mozzarella, ricotta, yogurt, cream cheese, baby food cheese);  <u>Package bread</u> (bread rolls, pancarré);  <u>Pasta</u> (weath pasta, fresh egg pasta, dried egg pasta, stuffed pasta, baby food pasta);  <u>Cereals</u> (rice, spelt, maize, breakfast cereals, baby food cereals powder);  <u>Biscuits</u> (cookies, shortbread cookies, baby food cookies, rusks);  <u>Saltines</u>;  <u>Package meat</u> (raw ham, cooked ham, baby food meat);  <u>Frozen fish</u> (squid, shrimps, cod, sea bream, sole, salmon, swordfish);  <u>Package fish</u> (canned tuna fish, baby food fish);  <u>Package legumes</u> (lentils, beans, peas, baby food legumes);  <u>Package vegetables</u> (lettuce, arugula, radicchio, baby food vegetables);  <u>Package fruits</u> (olives, dried fruits, baby food fruits);  <u>Eggs</u>;  <u>Fats</u> (extra virgin olive oil, olive oil, seed oil, butter);  <u>Ice creams and sweets</u> (ice cream, croissant, bundt cake, pie, chocolate, chocolate cream, jam, honey, sugar).</p>

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

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- The annual minimum average price (at provincial level) could be calculated by selecting, month by month (week by week ?), the subset of GTINs that belong to the left tail (first quintile) of the price distribution.
- Moreover, in order to take properly into account:
  - (a) the differences in the pricing policies of the outlets of the different retail trade channels;
  - (b) the differences in the size and packaging of the references of a single item that are sold

the selection of GTINs, for every item, can be done separately for the main homogenous groups of references and for the outlets of the different types

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

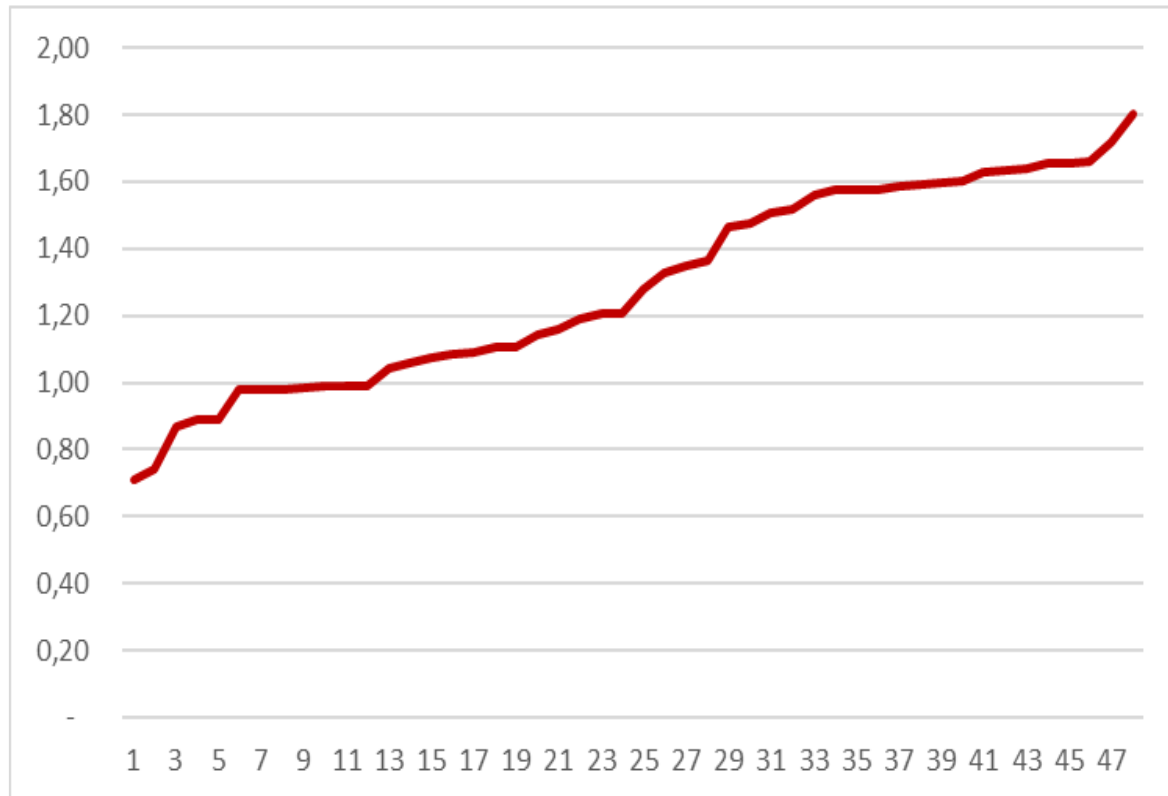
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- For example, for canned tuna fish, minimum average prices are calculated for five different groups (combinations of size and package) of GTINs
  - ✓ three pieces 80 gr cans
  - ✓ single 80 gr cans
  - ✓ two pieces 160 gr cans
  - ✓ single 160 gr cans,
  - ✓ single 200 gr cansand for the retail trade channel one by one.
- The monthly minimum average prices of the different groups of references are then referred to the same unit of measure (grams, in the example above) and standard quantity and then aggregated by groups and by outlet types by weighted arithmetic mean (weights proportional to the turnover).



## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

In 2021 in the case of whole milk, GTINs of the 2 main markets (national level), of the most common packaging (single, 1000 ml) of non-Bio quality sold in the outlets of the sample are 48



The figure shows the prices of the 48 selected GTINs in ascending order:

min = 0.71;

max = 1.80;

1st quintile = 0.99;

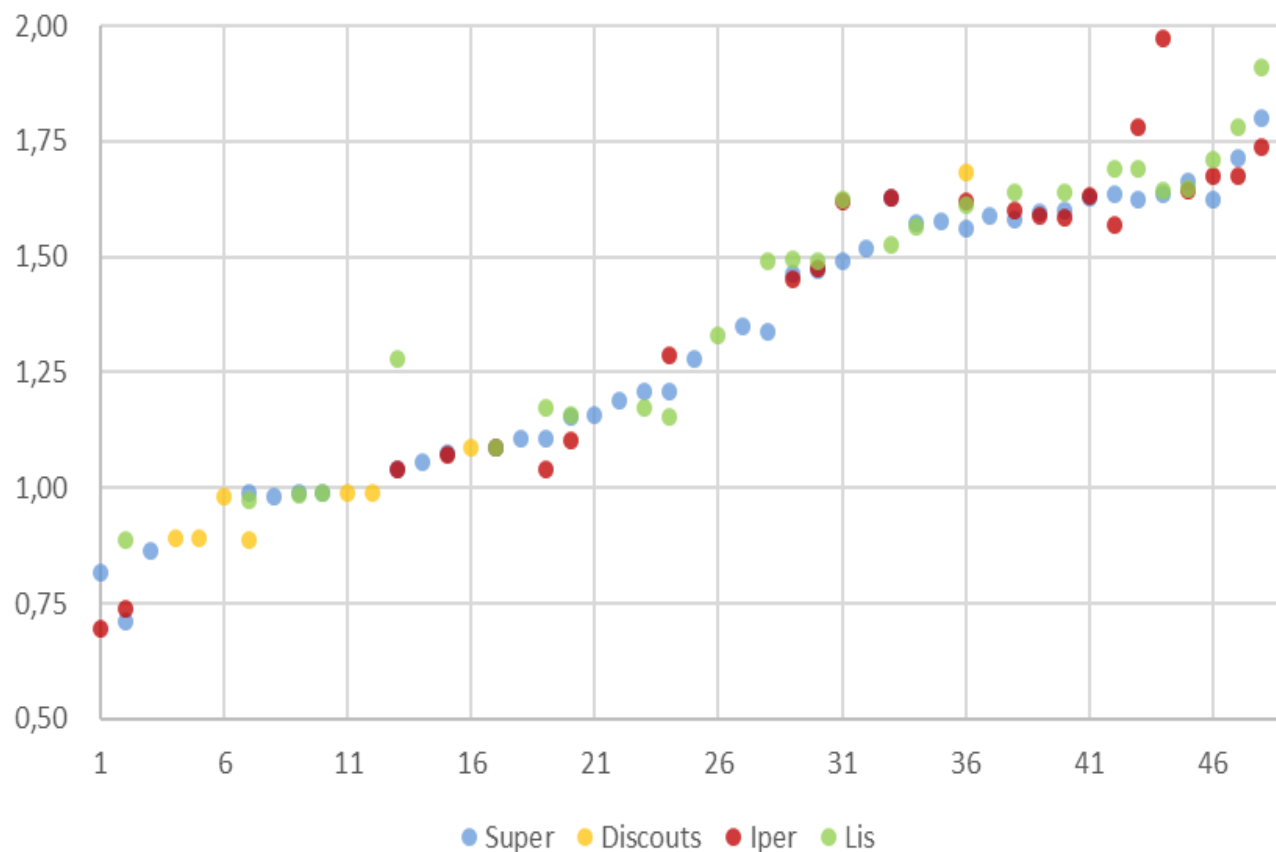
2nd quintile = 1.14;

3rd quintile = 1.47;

4th quintile = 1.59.

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: scanner data

For each of the 48 GTINs (sorted in ascending order on the basis of the corresponding average annual price) of fresh milk, the average annual price by distribution channel is reported (2021)



For the GTINs occupying the lower positions in the ranking, the average annual prices of the outlets distinguished by belonging channel are relatively close to each other

In general, discount sales are mostly GTINs with the lowest average annual price.

Considering the first fifth, GTINs are sold by:

Supermarkets (7 out of 12 GTINs);

Discounts (6/12);

Free Surface (4/12);

Hypermarkets (2/12).

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: administrative data base of rentals for housing

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- Since the beginning of 2022, Istat has the possibility of using the data base of rentals for housing of the Tax Agency which is a census database on all rents registered in Italy at a given time.
- This database has great potentialities, particularly from three points of view:
  - ✓ it is a source completely exogenous to the HBS data
  - ✓ it is a census database, allowing avoid the estimation of an econometric model, thus avoiding the uncertainty arising from the choice of the model and from the model itself in terms of standard error
  - ✓ finally, a more disaggregated territorial classification can be considered.

## The new data sources and their use to estimate the monetary thresholds of absolute poverty: administrative data base of rentals for housing

**Table 4. Rent component of the poverty threshold by Nuts I level, type of municipality and different methodologies – 2019. Euros and percentage differences**

	Type of municipality			Total
	Centre of metropolitan area	Municipalities of metropolitan area suburbs and municipalities with more than 50.000 inhabitants	Other municipalities	
<b>Current methodology</b>				
North	420	382	331	363
Centre	440	401	345	392
South and Islands	290	268	222	244
<b>Italy</b>	<b>402</b>	<b>355</b>	<b>297</b>	<b>331</b>
<b>Nuts I stratification on Omi database</b>				
North	508	380	320	365
Centre	570	381	315	408
South and Islands	302	264	226	245
<b>Italy</b>	<b>482</b>	<b>346</b>	<b>287</b>	<b>336</b>
<b>Percentage difference</b>				
North	20.9	-0.6	-3.4	0.6
Centre	29.5	-4.9	-8.7	4.1
South and Islands	4.3	-1.4	1.7	0.4
<b>Italy</b>	<b>19.9</b>	<b>-2.6</b>	<b>-3.4</b>	<b>1.5</b>

- The overall results are consistent, as the average rent threshold on 2019 HBS data is about the same (331 vs. 334 euros per month).
- Significant differences when looking at the classification by geographic area (e.g., the average value for the Centre is 392 vs. 408 euros) and, even more, by type of municipality. With the current methodology, the average rent threshold for large municipalities is 402 euros, while using the rentals database it is 482 euros (+19.9%). In particular, the average values for large cities in the Centre are revalued by +29.5%.

## Some concluding remarks and lessons for the future

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- The new data sources analysed can improve widely the compilation of the monetary thresholds necessary to evaluate if a household is poor or not.
- The improvements brought by scanner data are due to the granularity of the information available, to their better coverage of time and territory and to the availability of data on the quantities sold that allows have a measure of the importance, in the households' consumption expenditure behaviour, of the products considered.
- The improvements coming from the administrative data set of registered rentals for housing consist of potentialities that are given by a census data base that allow calculate the thresholds of absolute poverty through a source exogenous to HBS data that are considered to evaluate if a household is poor or not.

## Some concluding remarks and lessons for the future

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- Lessons learnt:
  - ✓ the advancements obtained in the field of alternative and new data sources for the estimation of CPIs have a lot of possible side effect on the measurement of absolute poverty meant as monetary measure.
  - ✓ the synergy between CPI, HBS and poverty measures experts is crucial to achieve relevant and growing improvements in the statistical representation of the economic well-being of the households.
  - ✓ the new data sources confirm the importance of considering, in the estimation of the absolute poverty, the territorial breakdown at most granular level it is possible given the differences in price level across Italian territory.
- The results of the scientific commission will be finalized in 2023 and the next meeting of the Group of Experts on Measuring Poverty and Inequality will be the occasion to present them

# Thank you

Federico Polidoro [polidoro@istat.it](mailto:polidoro@istat.it)