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NEW ESTIMATION METHODOLOGY OF ABSOLUTE POVERTY IN ITALY: A GOOD EXAMPLE OF INTEGRATED USE OF DIFFERENT DATA SOURCES

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Index

- Absolute poverty: definition, data sources, theoretical assumptions
- The methodological revision in 2022
- The absolute poverty basket and its components
- Annual revaluation and revalorization of absolute poverty thresholds
- Official poverty estimates: 2005 and 2022 methodology
- Conclusions

The official estimate of absolute poverty in Italy

Absolute poverty is the economic condition of inability to purchase a given set of goods and services.

Since 2005, Istat calculates different **absolute poverty thresholds** defined, in general, as the **monetary value**, at **current prices**, of a **fixed basket of goods and services** considered **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 serious forms of social exclusion**.

Absolute poverty is defined **regardless of** the **average living standard** of the reference population.

Households with a **monthly consumption expenditure** equal to or less than the value of their absolute poverty threshold are classified as **absolutely poor**.

Official poverty estimates: data sources and theoretical assumptions

The Italian **Household Budget Survey** is the informative base for the **official poverty estimates** in Italy (both **relative** and **absolute**).

Both **relative and absolute poverty** are **defined at the household level** under the implicit hypothesis that resources are equally distributed among household members.

Individuals living in **poor households** are **poor**, under the hypothesis that **all** household members have the same chance of accessing household economic resources.

Main absolute poverty basket components

Basket components

(as defined in 2005 and confirmed in 2022)



In 2005, Istat main work was oriented to:

- identify **individual and household essential requirements** in terms of goods and services to be included into the absolute poverty basket and sources for evaluating their costs;
- define the minimum value of economic resources necessary to purchase the absolute poverty basket;
- define the annual revaluation of the threshold over time

Essential requirements: theoretical assumptions

Essential requirements refer to the idea of **acceptable minimum standard of living**, defined as:

- **adequate nutrition**
- availability of a **dwelling** of adequate size according to household size and equipped with heating and main services, durable goods and accessories
- **minimum necessary to** furnish and maintain housing, dress, communicate, inform oneself, move about the area, educate oneself and maintain good health

Basic needs are considered **homogeneous across the country**.

Costs to meet basic needs may **differ in different geographical areas** of the country, since they reflect variability of prices of goods and services in the basket.

Individual needs have been defined **at household level**; they have been aggregated according to demographic characteristics of individuals (age) and taking into account both potential economies of scale and saving forms when purchasing that can be realized in different household typologies.

The methodological revision 2022

In 2021 a **national inter-Institutional study Committee**, chaired by the President of Istat and with the participation of representatives of the Academia, Bank of Italy and experts from various government bodies, was built up **to revise and update** the **methodology for estimating absolute poverty**, taking into account innovations introduced in the IT-HBS in 2022 (that is, the most recent version of COICOP Classification (COICOP 2018)) and the new populations released on the basis of the results of the Istat Permanent Population Census.

The **Committee** validated the **overall methodological framework** (in terms of: main theoretical assumptions and basket components) **but introduced**:

- some **methodological changes** in the **estimation** of the three **sub-components** of the reference basket (i.e., food, housing, residual) and in the **annual revaluation** of the basket;
- the **use of new available data sources** in the estimating methodology.

According to the new estimation methodology, the **absolute poverty thresholds** vary by size (number) and composition (age group) of the household (as in the past), region of residence (by geographical areas, in 2005 methodology) and demographic size of the municipality of residence (as in the past).

Food component

Needs

It is an additive component, based on the nutritional needs of the individual, identified as those officially synthesized in Recommended Nutrient Intake Levels (RNIL); these requirements vary by age group.

Based on the food consumption of resident households (source: Council for Agricultural Research and Economics), **96 products** were identified as the types of food needed to build the appropriate food diets according to the new RNIL (34 in 2005 methodology).

The **quantities** in grams of each product was reshaped following the new nutritional principles, resulting in a balance of nutrients.

A matrix was defined in which the average grams of daily needs were reported for each food and for each age group, up to the calculation of a standard diet in grams, following the dictates of the new guidelines. This operation allowed the new nutritional requirements to be met.

The **age groups** considered in the calculation of the appropriate food diets were **7** (6 in 2005 methodology).

Comparisons of the average grams by food groups in 2005 and 2022, together with the comparison of portions, needs and energy intake, **recommended to limit** the portions of **meat, cereals, fruits, potatoes and vegetables**, in favour of dairy products, legumes, eggs.

These **differences** are **remarkable** for **younger** (minor) **and older** age groups (65+).

Food component/2

Monetary evaluation

33 foods were priced using the traditional source of the Survey on consumer prices, that is **traditional price collection**.

These include: fresh products such as fruits, vegetables, meat and foods usually sold in packages of variable weight, such as dairy products.

63 foods were priced using the new source of the Survey on consumer prices, that is **scanner data**.

These include mostly packaged products.

Scanner data is a wide source with greater coverage of the stores (both from the point of view of channels and the number of outlets (about 4.000)) and offers granular information about the products actually sold.

The **minimum price** obtained for each food is **at regional level**.

Saving scales (Food component)

In order to take into account household composition, the **final value of the household food component** is obtained by applying to the value of the additive food component some **multiplicative coefficients** that synthesize the **effect of the forms of savings/not savings when purchase**.

In 2022 the general system followed for the calculation of savings is similar to that adopted for the previous version, but the **phenomenon has been studied more in depth**.

The coefficients have been reformulated through the processing of survey data, taking advantage of the availability of a wider database.

Variables have been used to exclude households that would have made the analysis less accurate (for examples, households receiving important help from relatives or friends).

Household components	Coefficient 2022
1	1.504
2	1.162
3	1.000
4	0.899
5	0.827
6	0.773
7	0.730

The rent component

Needs for rent component (no changes in 2022)

Adequate size of the dwelling according to the household size, as defined by the Ministry of Health Decree of July 5, 1975 as a parameter for housing concessions (i.e. for household of 1 person 32.5 sqm, until household of 4 people). Additional 10 squared meters for each additional member.

Monetary evaluation

In **2005**, the monetary value of the rent component was obtained through a nonlinear regression model estimated on HBS data.

In **2022**, the monetary value of the rent component is estimated exogenously **through an external census database (the Real Estate Lease Database - the database of 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.

The electrical energy component

Needs for electrical energy component

In **2005**, methodological choices were based on a study concerning the requirements regulation prepared in 1993 by the Electricity and Gas Authority; that study was not replicated again.

In **2022**, the electrical energy component includes expenditures on hot water production and cooking gas (considered with heating in 2005); it has been estimated through a model on HBS data. The model is calculated excluding households with high electrical energy expenditure identified by the possession of energy-intensive household appliances.

Monetary evaluation

In **2005**, the value of the electrical energy component was obtained using national electricity tariffs.

In **2022**, the value of the electrical energy component is estimated through a model for the base year 2019. The model relates household expenditure on electrical energy to household characteristics: number of members for each age group, geographical area of residence, municipality demographic size and dwelling size.

The heating component

Needs

In **2005**, needs were not defined.

In **2022**, we refer to European standard UNI-EN 15251, that states the temperature threshold for minimum acceptable comfort (following WHO guidelines). The unit heating demand in terms of physical energy is expressed as Kwh per square meter for 140 types of buildings.

Monetary evaluation

In **2005**, the value of the heating component was obtained through a linear regression model estimated on household expenditure on all heating fuels for households living in a dwelling with a self-contained heating system.

In **2022**, starting from the needs, the value of the heating component is obtained applying unit prices from the integrated database Istat-Regulatory Authority for Energy, Networks and Environment.

The durable goods component

Needs

They include washing machine, fridge, television and built-in oven (in 2005, non electrical stoves).

Monetary evaluation

The value of the durable goods component is obtained as the sum of the “depreciated values” of each good considered: the depreciation rate is calculated as the ratio between the minimum price of the good and its duration (10 years for television and fridge, 15 years for the other goods).

The prices considered are the minimum prices applied in 2022 in four geographical areas: North-West, North-East, Centre, Southern regions (in 2005, 3: North, Centre, Southern regions).

The residual component

The **residual component** of the absolute poverty basket 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*».

Needs

The goods and services to be included in the residual component take into account the needs and behaviors of households **without defining specific quantities**. The major changes included in 2022 are:

- introduction of expenditures on fees, tuition and textbooks for public secondary school and expenditures on textbooks for middle school;
- exclusion of specific expenditures such as lotto and other games with cash winnings and exclusion of expenditures that are now outdated.

Monetary evaluation

The value of the residual component is obtained as a function of the monetary value of the food basket to which multiplicative coefficients are applied (these are estimated on the basis of the observed association between residual expenditure and food expenditure in the HBS also taking into account household structure).

The residual component/2

In the process of methodological revision started in 2022, **the linear regression model for estimating coefficients** was **updated**, with particular reference to:

- the basket of **goods and services** that make up **residual expenditure**;
- the number of **age groups** considered, that **increased** from 6 to 7, in analogy with the food component.

Moreover, the revised linear regression model now provides the estimate of the intercept.

To properly consider the different characteristics of residual goods, the **food basket used to estimate the monetary value of the residual component** was "**adjusted**", that is obtained as the sum of:

- monetary value of the "scaled-up" food basket weighted by the weight of nondurable goods on residual expenditure (18.6%), all included in grocery, and that is the set of non-food goods sold at the large-scale retail trade;
- monetary value of the additive food basket weighted by the weight of all other goods and services on the residual expenditure (81.4%).

As for the food component, the value of the residual component is estimated is at the regional level (in 2005, by geographical area).

Annual revaluation and revalorization of absolute poverty thresholds

Since 2022, **all the basket components** of the absolute poverty basket are **annually revaluated** using **specific consumer price indices** calculated mainly **at regional level**.

The **annual revaluation of food component** is carried out with **regional consumer price indices** calculated by **homogeneous food groups**: this enables to take into account in detail the consumer prices trend.

The **revalorization of all the basket components** will be carried out **every 5 years**.

Official poverty estimates: 2005 and 2022 methodology

ABSOLUTE POVERTY: KEY FIGURES

Year 2021 - 2005 methodology and years 2021&2022 – 2022 methodology (absolute values in thousands of units and percentage values)

Indicator	Geographical area									Italy		
	North			Centre			Southern regions			2021 2005 meth.	2021 2022 meth.	2022
	2021 2005 meth.	2021 2022 meth.	2022	2021 2005 meth.	2021 2022 meth.	2022	2021 2005 meth.	2021 2022 meth.	2022			
Poor households (abs. v.)	835	861	939	299	318	342	826	843	906	1,960	2,022	2,187
Poor individuals (abs. v.)	2,255	2,107	2,298	861	857	874	2,455	2,353	2,502	5,571	5,317	5,674
Poor household incidence (%)	6.7	6.9	7.5	5.6	6	6.4	10	10.1	10.7	7.5	7.7	8.3
Poor individuals incidence (%)	8.2	7.7	8.5	7.3	7.3	7.5	12.1	11.8	12.7	9.4	9.1	9.7
Absolute poverty intensity (%)	18.1	17.3	17.6	17.3	18.2	17.1	19.9	20.7	19.3	18.7	18.9	18.2

For further details: <https://www.istat.it/it/archivio/289724>

Conclusions

According to the new estimation methodology, the **absolute poverty thresholds** vary by (number) and composition (age group) of the household, region of residence and demographic size of the municipality of residence.

The **integrated use of different data sources** allowed the new methodology to benefit from **two major improvements** in the estimation of absolute poverty thresholds:

- **more exogenous** thresholds

in the **2005** methodology, 61.1% of the "average" threshold was obtained from endogenous sources and 38.9% from exogenous sources; under the **2022** methodology, 26.9% is endogenous and 73.1% exogenous;

- thresholds with a **finer territorial breakdown**

in the **2005** methodology, the prevailing territorial reference was the 3 geographical areas (North, Centre, Southern regions) (65,5%); under the **2022** methodology, it is the region (88,9%).

Thank you

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