1. The income and consumption approach to unidimensional poverty measurement

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INTRODUCTION

Poverty is one of the most important but elusive concepts in economics and social sciences: the meaning of the term broadly refers to a state of deprivation characterized by the lack of the necessities of life and the inability to fully participate in society (Boltvinik 1999; Smeeding 2016). However, the concept of ‘necessity’ is strongly influenced by the cultural and social context and has an unavoidable personal component. Indeed, despite many attempts to define poverty objectively, drawing on its relation to material deprivation, it is easy to notice the crucial importance of value judgements and assumptions in poverty measurement.

To identify the poor, a large set of choices have to be made, mostly concerning the type and the level of the poverty line (absolute, relative or subjective), the single or multiple dimensions to consider when assessing individuals’ economic wellbeing, and the many methodological issues concerning the precise measurement of these dimensions (e.g. how to quantify in-kind services, what equivalence scale to apply). Since individual economic distress is related to household resources and needs, studies about poverty usually focus on a single monetary dimension (e.g. income, consumption, wealth); but, due to its multifaceted nature, multidimensional indexes are also suggested.

Aware of the importance of all these choices, in this chapter we focus on the merits of income-based versus consumption-based unidimensional poverty measures. Although in most empirical analyses the choice between income and consumption is constrained by data availability, this choice presents a host of definitional and conceptual complexities that we explore from both a theoretical and an empirical perspective.

In this chapter we first compare the pros and cons of using income or consumption to measure poverty. We then use an Italian dataset where income and consumption are jointly recorded to assess the implications of the two living standard concepts on the extent of poverty and the characteristics of the poor. The final section concludes.

INCOME- AND CONSUMPTION-BASED POVERTY: PROS AND CONS

Theoretical Considerations

Unidimensional poverty measures connect a money-valued observable space to an unobservable welfare space, with the idea that it is possible to identify a monetary amount of resources corresponding to a minimum acceptable welfare level. Absolute measures
(Rowntree 1901) directly identify a basket of basic needs and determine the poverty threshold as the cost of that basket, while relative measures set the poverty threshold as a function of living standards in a certain population, thus capturing inequality in the bottom tail of the distribution (Townsend 1979). As concerns both absolute and relative measures, the most common choices for the monetary welfare metrics are income and consumption, the latter usually proxied by expenditure.

Income and consumption are closely related concepts, but their distribution may differ at any point in time for a variety of reasons, implying that poverty measurement might not be neutral with respect to the variable chosen. Indeed, both the extent of poverty and the characteristics of the poor heavily depend on the shape of the distributions of income and consumption and on how the two concepts are related at the household level.

The economic literature agrees (Stiglitz et al. 2009; Fisher et al. 2015) that the best proxy of economic wellbeing derives from the suggestions of Haig (1921) and Simons (1938), who defined ‘full income’ with reference to the potential consumption an individual might have in a certain period without reducing the value of his/her assets. More specifically, Simons defined full income as the sum of the rights exercised in consumption and the changes in the value of wealth in a certain time span. Hence, income and consumption differ only by net wealth, which is less of a problem for the poor than for other income groups, especially in low-income countries (Smeeding 2016).

Although it is almost impossible to precisely compute all the sources of full income (Canberra Group 2011), the full income concept has the merit of highlighting that wealth (by dissaving or indebtment) can be used as a tool to smooth out income fluctuations. This key insight is at the heart of the two main theories of the income–consumption relationship: the life-cycle theory (Modigliani and Brumberg 1954) and the permanent income hypothesis (Friedman 1957, pp. 20–37). Both theories recognize the intertemporal nature of consumption choices and claim that consumption is not constrained by current income levels, especially when capital markets allow consumer units to shift resources from one period to another.

The implications of these theories for poverty measurement are clear: consumption is to be preferred to income as a monetary measure of wellbeing – especially when cross-sectional data are used – since temporary income fluctuations may be confused with permanent differences in living standards (Slesnick 1993; Meyer and Sullivan 2012). Not surprisingly, advocates of consumption-based poverty measurement highlight this point. For instance, Meyer and Sullivan (2012 p. 116) argue that “annual income will not capture the standard of living of individuals who smooth consumption by drawing upon savings”, while Ravallion (2016) claims that current consumption is a better indicator than current income of both current and long-term standard of living. These arguments, strengthened by the fact that consumption is the direct generator of utility according to standard microeconomic theory, are compelling.

However, current consumption is a noisy indicator of individual economic wellbeing, and potential theoretical problems with consumption-based poverty measures should be taken into account. For instance, Blundell and Preston (1998) argue that consumption comparisons suffice for welfare comparisons only within birth-year cohorts in a given year. Indeed, unless an unrealistic degree of smoothing is assumed, comparing consumption levels across cohorts in a given year or across time within a given cohort may yield wrong welfare implications because of the different intertemporal
substitution possibilities faced by the households at different stages of their life cycle. Intuitively, since both income and consumption follow an inverted U-shaped trajectory, comparing current consumption levels in cross-sectional data may underestimate the permanent welfare level of young and old households, thus biasing poverty measurement.

Furthermore, consumption is highly dependent on preferences, thus plaguing comparisons across individuals. Limits due to individual preferences seem less serious when one focuses on the very bottom rung of the distribution, since less well-off individuals should mostly satisfy basic needs which should not change according to preferences. Nevertheless, households might satisfy their basic needs with lower levels of consumption or may voluntarily choose to increase their precautionary savings. Accordingly, some households may be counted among the poor only because they choose to have a consumption lower than the poverty line (e.g. because of high risk aversion leading to a high precautionary saving).

In contrast, some non-standard theories on preferences have opposite implications: in specific circumstances, households may overconsume, overstating their permanent welfare level and thus concealing their poverty status. This is the case of the hyperbolic discounting theory (Laibson 1997), according to which discount factors take high values for the near future and low values for the distant future. Moreover, variations in the spending technologies available to households – e.g. the rapid expansion of consumer credit in the US in the 1980s – might favour present consumption and reduce savings rate, thus biasing consumption-based poverty comparisons across time. Likewise, theories that emphasize the interdependence of individual preferences, based on the insights of Duesenberry (1949), imply that households may disproportionally consume to signal high social status or to satisfy needs with superior-quality goods. Within this strand of literature, the relevance of positional goods is highlighted, among others, by Frank (2005), while Clingingsmith and Sheremeta (2018) provide experimental evidence on conspicuous consumption in relation to status-seeking.

Finally, it has to be pointed out that the Covid-19 outbreak might have led to a serious bias in both income and consumption poverty measures. On the one hand, annual income poverty measures might have been seriously plagued by temporary income drops which do not have a persistent effect on permanent income. On the other hand, consumption poverty might have been overstated since social distancing measures engendered a reduction in household spending for some activities (e.g. restaurants, travel) not attributable to a decrease in household purchasing power (as also confirmed by the increase in household savings rate in 2020 in many developed countries).

**Empirical Considerations**

On the empirical side, measurement of both income and consumption is highly problematic.

As concerns consumption, the crucial issue lies in the fact that high-quality data are extremely rare and expenditure is commonly used instead. Since expenditure is the amount of money used in a given period to buy goods and services, the two concepts differ sharply when durable goods are purchased or in the case of infrequent expenses (e.g. marriage). Furthermore, expenditure does not include the value of non-marketed in-kind
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public services (e.g. healthcare, education) and home production, or goods that increase individuals’ utility without being marketed (e.g. the utility from home ownership).

Therefore, any welfare-relevant consumption concept requires expenditure to be corrected by replacing the value of expenses on durables with the value of their period-relevant service flow and estimating the value of non-marketed goods and services available to households, and the best procedure to impute these values is still an open question. Moreover, it is theoretically unclear whether one should include expenditure components not directly linked to individuals’ utility, such as medical expenses, expenses for disabled members, or mortgages. Hence, these procedures require many assumptions that may affect the extent of poverty and the characteristics of the poor. Furthermore, since consumption is highly manipulable by households, means testing conditions for targeted welfare benefits are usually based on income or wealth (Brewer et al. 2017). Therefore, public policies usually do not use consumption to select the individuals deserving anti-poverty support – especially in middle- and high-income countries where the capacity to observe income is rather high (Raitano et al. 2021).

As concerns full income, the key problem relies in its precise measurement. On the one hand, some income sources – such as the value of all components of wealth, capital gains, self-employment or fringe benefits – are often badly measured or underreported. On the other hand, like for consumption, it is extremely complex to impute a monetary value to relevant non-monetary factors that affect an individual’s consumption, such as home-produced food, imputed rent for homeowners or in-kind welfare benefits. Furthermore, survey data may inadequately capture the bottom rung of the income distribution due to non-random non-response and stigma associated with reporting transfer income (Meyer and Sullivan 2011). This issue is clearly less relevant in administrative income data, which, however, are more affected than surveys through income underreporting due to tax avoidance or evasion.

The worse the measurement of these income sources, the less reliable the measures of income poverty, especially in cross-country comparisons. This is why empirical studies usually make use of datasets where the definition of the various income sources is homogeneous across countries – such as the European Union Statistics on Income and Living Conditions (EU-SILC) or the Luxembourg Income Study (LIS) – and almost all possible income sources are recorded (apart from the monetary value of in-kind welfare transfers which, however, might be estimated through various approaches). Therefore, income is often suggested as the best proxy for analysing the income distribution in middle- and high-income countries (where these datasets are available), while consumption is suggested for most developing countries whose income data are less reliable – also because of a lower administrative capacity to record incomes and a higher spread of evasion and income underreporting (Ravallion 2010).4

Summarizing the Pros and Cons of the Two Approaches

The considerations above clarify the theoretical and empirical complexities of the choice between income and consumption as monetary measures of wellbeing. Atkinson (2015) argues that consumption-based poverty measures are better suited to capture the actual living standard of households, while income-based measures better assess the right to a minimum amount of resources. Citro and Michael (1995, p. 37) state that, “in practice,
the availability of high-quality data is often a prime determinant of whether an income- or expenditure-based family resource definition is used”. Meyer and Sullivan (2011), for instance, argue that in the US consumption is better measured than income at the bottom tail of the distribution because of high underreporting of income sources relevant for least advantaged families (such as government transfers), while Brzozowski and Crossley (2011) claim that this issue is less severe in Canada.

Given the impossibility of determining a clear superiority of income or consumption as a monetary measure of wellbeing, Table 1.1 summarizes the major pros and cons of income- versus consumption-based poverty. We thus join Fisher et al. (2015), among others, in claiming that income and consumption should be considered jointly in the context of welfare and poverty measurement.

DIFFERENT OUTCOMES OF INCOME- OR CONSUMPTION-BASED POVERTY: AN EMPIRICAL ILLUSTRATION

Data

Using a unique dataset for Italy that records income and expenditure for the same individuals, in this section we compare two absolute poverty measures based on different definitions of income and consumption.5

The dataset was developed by merging (using individual fiscal codes as the matching key) two sources: i) the 2019 wave of the Italian Household Budget Survey (HBS) carried out by ISTAT (the national statistical institute), which records detailed information on the expenditures of a population-representative sample of 18,718 households; ii)
administrative information on labour income, pensions and cash monetary transfers of all individuals sampled in the HBS, collected in the archives managed by the Italian National Social Security Institute (INPS). INPS archives also record in detail the capital incomes and financial and housing wealth of households that apply for means-tested benefits, while missing income sources (mostly wealth and capital income for ‘non-applying’ households) have been imputed from the Italian branch of the EU-SILC. The resulting dataset, named AD-HBS, therefore records survey information on consumption and administrative information on incomes. According to the discussion below, being based on administrative income data, our data should not be plagued by transfer income underreporting, a crucial issue for households lying in the bottom tail of the distribution; however it might be affected by income underreporting, especially by the self-employed, because of the prevalence of tax evasion in Italy (Raitano and Fantozzi 2015).

Methodology

Italy’s official absolute poverty measure, published by ISTAT since 2005, is a unidimensional expenditure-based measure. Poverty lines are computed as the cost of a basket of goods and services that allows households to satisfy a pre-specified set of basic needs and are compared to monthly household expenditure. If expenditure falls below the threshold, the household is counted among the poor. The assumption that basic needs are uniform across the national territory but that the cost of the combination of goods and services required to satisfy them is not implies that the poverty lines vary across four dimensions: the number and age of household members, the geographical area of residence and the size of the municipality. The basic needs considered in the reference budget refer to food, adequate housing, and the affordability of decent clothing and main social activities. Despite the fact that ISTAT officially measures poverty through expenditures, the absolute poverty lines may theoretically also be applied to incomes (Cutillo et al. 2022).

Although a caveat about the comparability of the two sources of the AD-HBS dataset has to be made, we assess the sensitivity of poverty identification to the indicator of living standards by comparing two alternative definitions of resources to the same (annualized) household-specific thresholds which are independent of both the distribution of income and consumption. The first, called ‘adjusted expenditure’, is constructed, starting from the expenditure definition used in the official poverty measure, by replacing the purchase value of durable goods with a (rough) estimate of their annual service flow and adding the service flow of the durable goods that households own at the time of interview. The second definition is a measure of disposable income, based on all the available information to approximate the extended disposable income measure described by Atkinson (2015), thus also including imputed rents from housing to be consistent with the definition of the poverty thresholds.

Finally, to explore the relation between income- and consumption-based poverty indicators and household characteristics, we exploit the information available in AD-HBS to classify households according to five welfare-relevant criteria: size; presence of at least one non-national member; tenure status; education; and occupational status of the household head. The key idea here is that a more detailed picture of the characteristics of the poor may shed some light on the mechanisms that drive income- and consumption-based indicators.
Results

Table 1.2 summarizes the results of our exercise. It shows the incidence of income and consumption poverty (columns 3 and 4) and the composition of the poor group – according to income only, consumption or both dimensions – by some major characteristics of the household or the household head (columns 5–7); composition shares should then be compared with the composition of the whole population by the same characteristics (last column). For the sake of brevity, we do not comment on all the results shown in the table, but highlight some findings consistent with the discussion reported below.

The first result is that poverty incidence is dramatically higher when expressed through income (11.0%) instead of consumption (6.5%). This is consistent with the expectation of higher income than consumption poverty from cross-sectional data due to consumption smoothing (Cutler and Katz 1992), but it might also depend on factors such as income underreporting or preferences of specific population groups.

Indeed, Table 1.2 shows that, in relative terms, income poverty is much higher than consumption poverty among the self-employed (which are 11.7% of the overall population, but 18.4% and 4.5% among only-income and only-consumption poor, respectively) than among employees (their relative shares in the total population and the various poor groups do not differ greatly). While this evidence could be due to a higher volatility of self-employed incomes that brings about an increase in income poverty when annual income instead of proxies of permanent incomes are used, it could also be related to income underreporting.

Similarly, consumption poverty is much more widespread than income poverty among the retired (32.9% vs 12.1%, respectively). A possible explanation lies in the rather generous Italian pension system combined with the elderly population’s preference for low consumption. This result could also be relevant for the design of absolute poverty lines if one believes that the elderly are more frugal than other age groups, for instance because of higher precautionary saving to deal with health-care or long-term care expenses (Johnson 2004). A similar consideration may apply to large households that might refrain from consumption for different precautionary reasons. Indeed, despite the fact that both income- and consumption-based poverty are increasing with household size, the steepness of the increase is much stronger for the latter (indeed, the share of households with at least four members among consumption-poor households is around 36%, while it is only 20% in the population as a whole). Besides precautional savings, a further issue might be related to inadequate evaluation of household needs and economies of scale when defining poverty lines, resulting in an overestimation of the poverty line.

Finally, and interestingly, we find a very weak crossing between the two poverty measures, since only 2.2% of individuals are poor according to both income and consumption: that is, 80.1% of income poor are not consumption poor; and, similarly, 66.5% of consumption poor are not income poor – a finding which has potentially important implications for the design of anti-poverty policies.
Table 1.2  Household poverty incidence and characteristics of the poor

<table>
<thead>
<tr>
<th>Household characteristic</th>
<th>Poverty incidence</th>
<th>Composition of poor (column %)</th>
<th>Population share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted expenditure (%)</td>
<td>Income + IR (%)</td>
<td>Only income</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>27.8</td>
<td>34.1</td>
<td>36.4</td>
</tr>
<tr>
<td>2</td>
<td>18.9</td>
<td>21.8</td>
<td>22.9</td>
</tr>
<tr>
<td>3</td>
<td>17.5</td>
<td>17.8</td>
<td>17.1</td>
</tr>
<tr>
<td>4+</td>
<td>35.8</td>
<td>26.3</td>
<td>23.6</td>
</tr>
<tr>
<td><strong>Citizenship</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nationals only</td>
<td>68.2</td>
<td>71.1</td>
<td>75.7</td>
</tr>
<tr>
<td>1+ non-national</td>
<td>31.9</td>
<td>28.9</td>
<td>24.3</td>
</tr>
<tr>
<td><strong>Tenure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenants</td>
<td>44.1</td>
<td>50.6</td>
<td>46.4</td>
</tr>
<tr>
<td>Owners</td>
<td>43.0</td>
<td>36.4</td>
<td>41.1</td>
</tr>
<tr>
<td>Rent-free</td>
<td>13.0</td>
<td>13.0</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Education of head</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>31.5</td>
<td>15.0</td>
<td>13.0</td>
</tr>
<tr>
<td>Lower sec.</td>
<td>42.5</td>
<td>41.2</td>
<td>39.0</td>
</tr>
<tr>
<td>Upper sec.</td>
<td>22.4</td>
<td>34.5</td>
<td>37.3</td>
</tr>
<tr>
<td>Tertiary</td>
<td>3.6</td>
<td>9.4</td>
<td>10.8</td>
</tr>
<tr>
<td><strong>Occupational status of head</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee</td>
<td>44.0</td>
<td>41.1</td>
<td>41.3</td>
</tr>
<tr>
<td>Self-empl.</td>
<td>6.4</td>
<td>16.7</td>
<td>18.4</td>
</tr>
<tr>
<td>Unempl.</td>
<td>10.3</td>
<td>17.6</td>
<td>16.1</td>
</tr>
<tr>
<td>Retired</td>
<td>32.9</td>
<td>12.1</td>
<td>11.3</td>
</tr>
<tr>
<td>Other inactive</td>
<td>6.4</td>
<td>12.5</td>
<td>13.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6.5</td>
<td>11.0</td>
<td>8.8</td>
</tr>
</tbody>
</table>

**Source:** Elaborations on AD-HBS data.
CONCLUSIONS

In the first part of this chapter we discussed the theoretical and empirical pros and cons of income- and consumption-based poverty measures. Given the extreme difficulties in measuring full income, consumption has the advantage of being smoother and better linked to lifetime wellbeing than income. However, a set of theoretical and empirical issues also make consumption an imperfect indicator of household living standard. We thus conclude that both income and consumption provide valuable information on different aspects of poverty, and therefore should be used together.

In the second part of the chapter, we used the 2019 wave of a novel dataset for Italy which jointly records income and consumption to compare poverty incidence and the characteristics of the poor according to the two possible dimensions of monetary poverty. Our two main findings are that: i) income poverty is considerably higher than consumption poverty; and ii) that the composition of the group of poor households is highly dependent on the chosen proxy of living standards. On one hand, when consumption is chosen, poverty is, in relative terms, much higher for the elderly and for large households; on the other hand, when income is chosen, poverty is, in relative terms, much higher for households headed by a self-employed worker and for single-member households.

As a consequence, different methodological approaches may significantly alter the composition of the groups identified as a poor and entitled to benefit from targeted public programmes. Unfortunately, these rather technical aspects about poverty measurement and the definition of means-testing eligibility conditions for targeted benefits are usually neglected in public debates.

NOTES

* Disclaimer: This chapter makes use, for the empirical analysis, of the AD-HBS dataset, which was born within a joint research project between the Department of Economics and Law of Sapienza University of Rome and the Direction I of the Treasury Department of the Italian Ministry of Economy and Finance. The authors wish to thank the participants to this project, i.e. Susan Battles, Francesco Bloise, Maurizio Franzini, Giovanni Gallo, Massimo Palombi, Simone Passeri, Eleonora Romano e Pietro Zoppoli, for the extremely useful suggestions. Of course, the views expressed in this chapter are our own as well as the responsibility of any error.

1. Meyer and Sullivan (2012) point out that, for the case of the US – where an official absolute poverty line based on income exists – the consumption-poor have, on average, more disadvantaged characteristics than the income-poor (e.g. in terms of education or tenure status).


4. Accordingly, the ‘at risk of poverty rate’ is officially measured in EU countries through the EU-SILC with reference to equivalized income (but excluding in-kind welfare benefits or imputed rents). Instead, no official poverty measure is based on consumption in the EU since no homogenized household budget survey exists in Europe.
5. No other datasets in Italy jointly record in detail expenditure and incomes from the various sources.

6. Comparing the two resource measures to the same household-specific thresholds – computed by ISTAT explicitly taking into account household needs (e.g. number and age of members) – precludes us from making choices about the most suitable equivalence scale to capture differences in household needs.

7. The greater extent of income poverty is confirmed by the average income gap ratio, which is 41.4% according to income and 19.5% according to consumption.

REFERENCES


