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Relational Well-being and the Many Dimensions of Poverty in Italy

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Abstract: This study measures the many dimensions of poverty accounting for both the material and non-material dimensions of well-being. We are interested in learning whether an individual who is poor in the monetary dimension is also poor under a relational point of view, an especially relevant aspect in pandemic times. The monetary dimension alone, while often significantly correlated to other non-monetary aspects of well-being, is not sufficient to fully describe the non-material dimensions of need. Not all goods and services that are important to people are obtained from the market, such as relational goods. The use of a unique dataset that integrates the different dimensions contributing to quality of life permits estimating poverty for different types of income by adding wealth (current income), the value of domestic production (extended income) and the value of leisure (full income) to disposable income. These measures have been corrected to account for differences in household composition and in the cost of living and quality of services across regions. The study shows that the ability to produce domestic and relational goods, after taking the monetary dimensions in due account, are very important factors that redraw the map of poverty in Italy, especially in view of the North-South divide. These new traits require a radical rethinking of traditional policies to fight poverty.

Keywords: relational poverty, multidimensional well-being, current income, extended income, full income, quality of services.

JEL codes: I32, I31, E25

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1. Introduction

Poverty in general is a state of deprivation that limits the ability to achieve a minimum standard of living of material well-being associated with a level of income that allows to accomplish and consume market and non-market goods. The monetary dimension alone, while in many cases significantly related to other non-monetary aspects of well-being, is not sufficient to fully describe the non-material dimensions of need (Sumner 2004). Not all goods and services that are important to people are obtained from the market, such as child or elder care, or a peaceful atmosphere and good relationships in the family and in the community where we live. The prices describing the value of these goods and services are not defined by the market but are implicit and differ from person to person. These non-market goods are critical in understanding situations and concerns that influence a person's well-being and affect the ability to be and do what a person most desires (Sen 1983, 1987, 2009).

If we think of the situation of a parent who lives with a child and has an income below the poverty line and little time to devote to the care of the child. Suppose also that the parent is an introvert person and therefore less prone to invest on building social capital based on reliable reciprocity relations, then we obtain the contours of a very complex situation of fragility that would not otherwise be perceptible if we were limited to the monetary dimension alone (Morduch 1994). These relational dimensions are generally important, but dramatically so in times of health and economic emergencies. The primary objective of this study is then to quantify the relevance of both the domestic and relational goods produced by households (Donati and Solci 2011, Donati 2019, Bramanti 2020, Matteazzi et al. 2020).

We also describe how the traditional poverty map based on monetary metrics changes if deprivation is also defined in relation to a set of non-monetary attributes that influence the level of well-being. Who are the new poor? Is the monetary poor also relationally poor? What attributes contribute most to a diagnosis of poverty? How does the poverty map differ across regions when deprivation is examined from a wider perspective? Being able to focus on non-monetary aspects of poverty such as the value of domestic products, social capital and relationships helps public decision makers to design more effective poverty reduction policies.

The multidimensional approach adopted in this study is mainly motivated by the recommendations of the Stiglitz, Sen, and Fitoussi

Commission on the "measurement of economic performance and social progress" (2009) to consider non-monetary dimensions in the assessment of well-being. This approach has also been endorsed by the Italian National Institute of Statistics (ISTAT) in the definition of the Equitable and Sustainable Well-Being indices (ISTAT 2019a, 2019b) and is in line with the United Nations recommendations (Oxford 2019, 2020) in favor of poverty indicators that evaluate the many dimensions of the Sustainable Development Goals (SDGs).

To measure the relevance of an insufficient level of production of household goods and a lack of good relationships, it is important to include in the analysis of the monetary dimension relevant information, often overlooked in the literature, such as regional differences in the cost of living and quality of life, and the value of wealth. This paper devotes particular attention to these aspects that, if neglected, would invalidate the estimates of primary interest in this study concerning the importance of relationships for people's well-being.

The study is organized as follows. The next section describes the methodology of analysis adopted. The subsequent section illustrates the main features of the integrated database on the living standards of Italians that documents the many dimensions of poverty in Italy. The results are organized in three parts. The first part reports monetary poverty measures, extended in the second part to include wealth, the value of household production, and the value of leisure time. The third part measures multidimensional poverty placing special emphasis on relational dimensions.

2. Methodology. How to Measure Well-Being: Not just income

According to the report of the Stiglitz, Sen and Fitoussi Commission on the "measurement of economic performance and social progress" (2009), the approach to be followed in estimating individual well-being must be multidimensional. In this regard, Stiglitz et al. (2009) make some important recommendations to be considered when measuring well-being requiring:

- the joint consideration of consumption, income, and wealth;
- the attribution of a value to unpaid labor, that is the time spent in the production of non-market goods, such as caring for people or preparing food;

- the assessment of the family situation, without disregarding its differences, such as health and education of individual members, its stability and structure;
- the evaluation of the contribution of public goods (landscape, healthiness and safety of the environment);
- the proper account of social capital, including social relations and political clout;
- the correct estimation of subjective perceptions of individuals about their state of health, happiness or relational well-being.

These recommendations, which we implement here, are rooted in the economic theory of the family enterprise (Apps and Rees 2002, 2009, Becker 1965, 1978, Matteazzi et al. 2019). The family maximizes its well-being accounting for employment opportunities in non-business activities remunerated at market values, in business activities, and in household and care activities. The level of employment also depends on the availability of income, assets and inherent household capabilities.

Each member of a family, in the sense of a family enterprise, can allocate his or her time among different activities:

$$T = d + I = (f + o + h + l) + I,$$

where $d = f + o + h + l$ is the total amount of time available, f is the time in hours devoted to work within the family business, such as commercial businesses, small and medium-sized industrial enterprises, family-owned; o is the time devoted to work (paid at market wages) outside the family business including home-work commutes; h is the time devoted to unpaid household activities; l is the time spent on leisure, such as recreational activities; I is the time spent on rest and personal care.

Economists define "unpaid work" as time spent on household chores or producing goods and services for the family, such as caring for children and people in general or time spent on volunteering or producing community goods. Similarly, for household members employed in the family business, their work is paid at an implicit wage, thus "unpaid" at a market wage. The availability of time-use data makes it possible to distinguish work activities paid at a market wage from implicitly paid household activities and from purely recreational activities.

This information allows to estimate several categories of income¹: disposable income (Y^d), extended (Y^e) and full (Y^f) as described in Table 1 (Kizilirmak and Memis 2009, Lustig 2018).

As shown in Table 1, total household income (Y^m), is the sum of the incomes of each of the N members of the family: for activities carried out on the family enterprise (Y^{fb}); for activities outside the family business (Y^o); not related to work activities (Y^{nl}); from social transfers (Y^{tr}). Family disposable income Y^d is obtained by deducting from total family income, t , which includes workers' social contributions, withholding taxes and contributions, and net taxation on taxable income. Next, extended income (Y^e) (Fitzgerald et al. 1996, Harvey 1996, Perali 1999) is derived by adding to household disposable income the value of household domestic productions (food preparation, household chores, personal care) (Y^h). The value of full income (Y^f) is obtained by adding to the extended income the monetized value of leisure time (Y^l). Finally, current income in all its declinations (disposable, extended and full) ($CY^{d,e,f}$) is obtained by adding to disposable, extended, and full income ($Y^{d,e,f}$) the interest relative to net worth, rNW , where r corresponds to the average annual rate of return (Brandolini et al. 2010, Carter 2008, Carter and Barrett 2006, Haveman and Wolff 2004, OECD 2013, Menon et al. 2016, Weisbrod and Hansen 1986).

The net worth (or wealth) of a person expresses the value of the financial and real estate assets of the business or household net of liabilities. This information is relevant if we wish to correctly measure the degree to which a family is exposed to the risk of poverty. Indeed, it is particularly important in prolonged periods of economic crisis or in situations of health emergency, because it allows the most vulnerable households to cope with the precariousness of the labor market and the loss of purchasing power of wages in real terms, by accessing the credit market in the short-term pledging a collateral. A household that is poor in income size and poor in assets, with a lower level of relative well-being often

¹ Consumption, defined as total household expenditure, differs from income because a household can borrow or save money. ISTAT estimates poverty using consumption data from Italian households in light of the fact that consumption should better reflect the standard of living in the long run and the information, especially in the tail of the distribution where the least well-off households are concentrated, is statistically more robust (Blundell and Preston 1996, Brewer and O' Dea 2012, Meyer and Sullivan 2011, Perali 2003, Slesnick 1993). The present study adopts income considered to be a concept that best fits the different meanings used in this study.

struggles to undertake effective exit strategies from crisis situations (Brandolini et al. 2010, Menon et al. 2016).

When making comparisons across individuals or households, it is important to consider also differences in purchasing power between households living in different regions, in the quality of the services offered in each region, and in household composition and other characteristics of family members. For example, two household heads who perform the same job as government employees and thus receive the same income, or two people who receive the same citizenship income, if they live in different regions will have significantly different purchasing powers given the cost of living in their regions of residence. Another relevant aspect when making comparisons between households living in different areas concerns the different quality of services enjoyed by households, which has a significant impact on real incomes. For these reasons, this study uses both the true cost of living index (TCLI) and the quality adjusted true cost of living index (TCLI_{QA}) as income deflators estimated by Menon et al. (2020) described in Table 2. These indexes are used to derive the following measures of real income:

$$\text{Real Income } Y_R = Y/TCLI$$

$$\text{Quality adjusted equivalized real income } Y_{RQA} = Y/TCLI_{QA}$$

which can be adapted to the concepts of disposable, extended, and full income to derive $Y_{RQA}^{d,e,f}$ and the current income CY_{RQA} defined in Table 1. Poverty estimates are based on equivalent adjusted real income Y_{RQA} using the indices shown in Table 2.

The Italian welfare system uses a composite measure of well-being, that is the indicator of the equivalent economic situation (Isee), to take account of differences in composition and needs between families when, in implementing a welfare program, comparisons between families are necessarily made. Let us suppose there are two families with an equal household income, but one is formed by a couple with one child, the other by a couple with four children. It is natural to think that in terms of equivalent individuals, that is, after having attributed a different weight to each member of the family using an equivalence scale (Perali 2003, Menon and Perali 2010a,b,c), the largest family is below the poverty line, while the other less numerous family would not be classified as poor.

In our analysis we construct a well-being indicator very similar to Isee since we adopt the same indicator as the income measure Y but the household equivalence scales are simplified following the standard adopted by Istat (2019a, 2019b), as follows

$$ES = 1 \times (\text{first household member}) + 0.5 \times (\text{each additional adult}) \\ + 0.3 \times (\text{each household member under 14 years old})$$

where ES is the household equivalence scale expressed in terms of equivalent adults, i.e., comparable to each other. Table 3 compares the average regional family size with the average family size expressed in equivalent adults. The equivalent real income corrected for differences in the quality of services available to Italian citizens living in different regions declined in terms of disposable income ($Y_{RQAE}^{d,e,f}$) and current (CY_{RQAE}), both in form of extended and full, is obtained as follows

$$Y_{RQAE}^{d,e,f} = Y_{RQA}^{d,e,f} / ES.$$

The choice of equivalence scale is crucial when it is used to identify who is in real need as in the case of the Italian means testing tool Isee (Menon et al. 2016, Menon et al. 2018). The accuracy of demographic targeting is less important in the present context because it adopts a scale that is uniform to international standards. The use of the equivalence scale assumes that resources within the household are equally distributed across members, which is equivalent to assuming that all members are equally poor or not poor. This assumption is in contrast with empirical evidence (World Bank 2018, Menon and Perali 2019) and with the simple observation that recognizes that perception of well-being is strictly an individual matter.

The aggregated dimensions in the composite indicator of equivalent economic situation expressed in real terms are, in line with the economic definition of the indicator, not considering other relevant socio-economic aspects such as the presence of both parents, the availability of time for the care of children and elderly, the educational level of the household, and employment status (Atkinson 1987, Atkinson and Bourguignon 1982, Bourguignon and Chakravarty 2003). Parents are a common good for children, but as is the case of families with separated parents, children do not have equal access to both parents and relationships are often

asymmetrical both in quantity and quality (Echeverria et al. 2020). The quality of relationships within the family, that is the bonding-type of social capital, or with members of the community in which the family lives, generating the bridging-type of social capital, is at the core of relational well-being. Of course, this is influenced by the time shared with children and elders for the production of common goods for the family or the community that are of special relevance in times of social and health emergencies. Relational well-being is a fundamental dimension of quality of life and is independent of an individual's income and wealth (Menon et al. 2014).

In line with these considerations, we extend the traditional analysis to include these deprivation dimensions in the construction of the Multidimensional Poverty Index (MPI) introduced by Alkire and Foster (2008) and Alkire and Santos (2014). The method initially treats each dimension separately, assigning a specific poverty line to each one, and then aggregates them according to a criterion of union or intersection of the different deprivation dimensions (Appendix 1).

The MPI accounts for both the deprivation of basic services and deprivation related to dimensions of the quality of life such as a good health or a secure job, or more complex aspects such as the level of happiness, or of self-respect. This approach implies a model of poverty that tries to move beyond the traditional definition of poverty based on the income dimension alone. The list of eligible dimensions of deprivation is very long and could also include aspects concerning the quality of family relationships, the presence of situations of domestic violence, different forms of marginalization and exclusion, and other aspects that affect the quality of life and subjective well-being of the family and its members. In the present study we focus on dimensions observable in available surveys that are of interest for the design and implementation of effective welfare policies aimed at correcting situations for which the individual is not responsible.

The MPI adopted in our study is based on a socio-economic subset of 6 dimensions (Zacharias et al. 2014, 2018) and a relational subset of 4 dimensions, all equally weighted, as follows:

Socio-economic Dimensions

- income poverty (equivalent real disposable income adjusted for differences in the quality of services);
- poverty of wealth (household movable and immovable assets);

- poverty of time (time devoted to childcare and housework);
- poverty of parents (number of parents present in the household);
- poverty of education (education level of the household head);
- poverty of job opportunities (presence of unemployed people in the household).

Relational Dimensions

- poverty of social capital - bonding (trust in family members);
- poverty of social capital - bridging (trust in friends);
- relational poverty (satisfaction with relationship with children);
- relational poverty (satisfaction with family time spent together).

The poverty thresholds for each dimension are shown in Table 14. A household is defined as poor according to a multidimensional criterion if in the combination of the 6 economic indicators used, at least 3 simultaneously indicate a state of deprivation. When we also include the 4 relational dimensions, the multidimensional requirement rises to 5, corresponding to half of the dimensions considered. As described in detail in Appendix 1, the MPI is the result of the product of two measures: the percentage of households in a state of poverty and the average intensity of deprivation, which reflects the number of dimensions of household deprivation. In this way, the MPI can be considered an adjusted measure of poverty incidence (M0).

In times of recession and health emergencies, it is particularly important to understand the multidimensional links between income, wealth, consumption, health, and especially relational well-being, and how costs and opportunities are distributed across social classes and territories. The standard of living of a person depends on multidimensional circumstances such as health status, equal access to education, the ability to develop good quality personal relationships, enjoy a positive environment, and to invest in activities that create social capital. The social-ecological approach, which is often used to explain why some groups in society are at higher risk of exposure to public health problems while others are protected, views public "disease" as the result of interactions between factors at four levels: the individual, the relationship, the community, and society (Krug et al. 2002).

3. The Integrated Data Set of the Life Standards of Italians

To implement the multidimensional analysis, we use the integrated database to measure the standard of living in Italy created by Dalla Chiara et al. (2019) following the recommendations of the Commission on the Measurement of Economic Production and Social Progress (Stiglitz et al. 2009) that in order to appropriately measure material well-being encourage to jointly assess production with income, consumption of market goods and non-market activities, and wealth. The Commission argues that "the time is ripe to shift the focus from measuring economic production to measuring people's well-being".

Our integrated database is similar in design to the one built for the United States by the Levy Economics Institute to measure multiple dimensions of well-being (Wolff and Zacharias 2003, Wolff et al. 2012). These integrated sets are highly relevant because well-being is the result of many dimensions that cannot be captured with a single indicator as is normally the case when measuring gross domestic product. Estimation of individual and social well-being, multidimensional poverty, and inequality requires an integrated database of living standards in which information on consumption, income, time use, and subjective well-being are jointly available.

Figure 1 illustrates how consumption, time use, and social capital donor datasets were linked to the income and wealth survey (EUSILC). The donor data sets include additional information missing in the recipient database. The recipient data set contains the most detailed and accurate information on common variables collected in all surveys. Combining these relevant dimensions of well-being yields a "new" database, which we refer to as the Italian Integrated Living Standards Survey (IILS). To respect the temporal correspondence between income and related variables, we used the 2010 cross-sectional wave for the EUSILC survey because the information on income refers to the previous reference period, the 2009 cross-sectional wave for the Household Budget Survey (HBS), the 2008-2009 wave for the Time Use Survey (TUS) and the Household Condition and Social Capital Survey (CISF) carried out in 2009. The integrated

database was created using a statistical matching procedure as described in Dalla Chiara et al. (2019).²

4. Results: The Many Dimensions of Poverty

The results are presented in three parts. The first part deals with monetary aspects of poverty, while the second part is devoted to income measures that include assessments of household production. The third part reports measures of non-monetary multidimensional poverty introducing relational aspects. The choice of dimensions is based on a principle of parsimony and relevance, among all the dimensions available in the integrated database.

4.1. Part I – Monetary Poverty: Disposable, Real and Adjusted for Differences in Quality of Services

Table 4 shows the distribution of equivalent disposable income and the distribution of equivalent consumption valued at prevailing market prices. Income and consumption are highly relevant because they affect the individual's ability to purchase goods and services necessary to meet his or her needs, such as food, housing, and clothing, and because many other non-monetary dimensions of poverty are strongly correlated with income and consumption. A household is normally considered poor when it is below a monetary threshold, the poverty line, which represents, when expressed in absolute terms, the minimum level of money required to purchase a sufficient amount of basic goods and services. Consumption is generally considered a more reliable and stable measure of need because, especially in lower income brackets, measurement error is smaller. In Tables 4 and 5 we report both income and consumption for completeness, but the analysis continues by considering only income since this is a measure that can be more easily extended to other monetary dimensions such as wealth, the value of household production and the value of leisure time. It is interesting to note that the regions that present average monthly incomes significantly greater than consumption are Piedmont, Lombardy, Trentino Alto Adige and Sardinia. The estimate of the relative poverty incidence shown in Table 5 when based on consumption is generally higher

² In this work, information about the Aosta Valley region have been aggregated with data of the Piedmont region because of the exiguous size of the Aosta sample.

both in the North and in the South even though the relative poverty line is about 20 euros lower for consumption. This observation is in line with the distribution of consumption that, as shown in Figure 2, dominates the income distribution below the poverty line.

In Table 6 we compare the distribution of regional averages of disposable, real, equivalent, and real equivalent monthly household disposable income adjusted for differences in quality of services, which is the transformation of disposable income on which we base the poverty measure. The different definitions are obtained using the cost-of-living indices reported in Table 2 and the equivalence scale described in the introduction. For example, given that there is a difference in purchasing power of more than 40% between Veneto and Sicily (Menon et al. 2020) we explain the reversal of the North-South gradient of disposable incomes, both per-capita and equivalent, that is observed when incomes are transformed into real. The regional average of Abruzzo and Molise is higher than Trentino Alto Adige and Veneto. The North-South gradient is partially rearranged if one considers that the quality of public services in the North is higher than in the South of Italy. For example, if we were to consider only the difference in the cost of living, Trentino Alto Adige would show a lower level of real equivalent income ($1841/1.246=1477$) than all the regions of Southern Italy and the islands, but if we also account for the quality of material life ($1841/1.007=1828$) it would be higher again. Veneto, on the other hand, despite having an average income level comparable to that of Trentino Alto Adige, falls further when the quality of life is also considered.

These characteristics of the income distribution are similarly reflected in the incidence of poverty at the regional and national level described in Table 7 also represented in Figures 3 and 4. What is important to observe is the narrowing of the North-South gap when regional differences in the cost of living are considered. The shift from per-capita to equivalent adults leads to an overall reduction in poverty levels because the income of the single individual is generally lower than family income, while in terms of equivalent adult the income of one-person household, divided by a scale of 1, becomes relatively higher and is placed in higher quintiles of the distribution. In Italy almost one family out of three is composed of a single component, so the reduction in the incidence of poverty is more easily interpreted. Taking quality of life into account, as shown in the last column in Table 7, we measure a significant gap between Trentino Alto Adige and

Veneto, while the North-South distance, and the incidence of poverty in general, is reduced.

Table 8 shows the incidence of poverty in terms of quality adjusted equivalent real income in the macro-regions, differentiating between elderly families and families with children. In the entire sample, the incidence of poverty differs between the North and the South about four percentage points. There are no significant differences between the incidence of poverty in elderly families between macro-regions, while among families with children, the exposure to the risk of poverty is much higher in the South than in the North of Italy. Table 9 reports the measure of inequality, computed using the Gini concentration index, for macro-regions and different definitions of income and equivalent expenditure. Comparing the estimates in the first and last column, the income distribution is unequal in terms of disposable income while it is much more equal in terms of equivalent total expenditure except for the South. Inequality is reduced by correcting for differences in household composition (equivalent incomes) and disparities in purchasing power between regions. The introduction of the correction related to quality of life preserves the distributional characteristics of real equivalent income.

The representation of the poverty map is incomplete if we do not consider other monetary dimensions related to the value of assets and household production that are discussed in the second part that follows and the non-monetary dimensions described in the third part.

4.2. Part II - Monetary Poverty Adjusted for the Value of Household Production (Extended and Full Income)

Table 10 reports the distribution of monthly regional averages of disposable income, current income that incorporates the size of wealth (Azzpitarte 2010, Brandolini et al. 2010, Menon, Perali, Sierminska 2016), extended income that includes the value of household production, derived from information on time use of each household member, and full income that also sums the value of leisure.³ Note that these distributions of income are corrected both for difference in household composition and quality of

³ Household production was valued at market prices of 7 euros as per the national contract for domestic workers (Quah 1986, Fitzgerald et al. 1996, Harvey 1996, Perali 1999, Poissonner and Roy 2017). Leisure time, the time spent on sports and cultural activities, was valued at 60% of 7 euros following the estimates of Verbooy et al. (2018). Hours of leisure time refer to both members of the couple.

life. Given that from disposable income the definitions of current, extended, and full income are obtained by summing the annualized value of assets, value of household production and leisure, the level of income is increasing from one category to the other in the described order. However, it is interesting to consider that the distances between regions differ considerably as the type of income considered changes. For example, the distance between the average of real disposable income adjusted for quality of life for an equivalent adult in Trentino Alto Adige and an equivalent adult in Sicily is about 30% higher. This gap rises to 34% in terms of current income but falls to 13% in terms of extended income and almost to zero for full income. Veneto, on the other hand, has both extended and full income markedly lower than Sicily. Table 11 and Figures 4, 5 and 6 show how the incidence of relative poverty changes significantly according to the type of income taken into consideration. The relative poverty of Trentino Alto Adige is in all cases in the lower quintile of the distribution of relative poverty of the single regions, while Sicily moves from the highest quintile with current and extended income to the third quintile if full income is considered.

Indeed, the organization of family time and the ways in which work commitments can be reconciled with family commitments represent an effective "coping strategy" towards the risk of poverty, as clearly shown by the estimates of the incidence of regional poverty reported in Table 11. Figure 7 describes the income portfolio of the average Italian family, which is made up of 48% of disposable income, 7.4% of the current value of wealth, 25% of the value of domestic production and 19.6% of leisure time. In the South, disposable income contributes a lower percentage than in the other territorial divisions, while the value of domestic production and leisure become more important.

It is worthwhile to highlight how the incidence of relative poverty sharply decreases when we move from disposable or current income to current extended or current full income as shown in Table 11 and in Figure 8. Because of the simultaneous shift in the relative poverty line and the change in the shape of the distributions, the comparison of the incidence of poverty based on half of the median, is not meaningful. In our context, the problem is especially noticeable because the shift from extended or full income does not correspond to an addition of a real monetizable amount as in the current income, but it is due to an imputed monetary amount describing a standard of living rather than a spendable money amount. The

relative poverty line of the distribution of extended income would be acceptable if the extended income corresponded to a “real” disposable income.

This situation can be corrected by standardizing the poverty line (Perali, 2003) in order to maintain comparability across measures of the incidence of poverty. The changes in mean and spread of each income distribution can be captured and made comparable by anchoring the poverty line of current, extended and full income to the mean and standard deviation of the original disposable income distribution. Perali (2003) defined the distribution sensitive poverty line z as the following affine transformation:

$$z = \mu_{y^d} + \alpha\sigma_{y^d}$$

where μ_{y^d} and σ_{y^d} are the mean and standard deviation of disposable income and α is the parameter of the original distribution implicitly defines in order to maintain invariant the distance of the comparison poverty line from the comparison income. From this equation we derive $\alpha = (z - \mu_{y^d})/\sigma_{y^d}$ using the known mean, standard deviation and poverty line, computed as half of the median, of the disposable income. It corresponds to the standardized distance of the poverty line from the median income of the original distribution. This distance is maintained constant across distributions to derive the new poverty line

$$z' = \mu_{y'} + \alpha\sigma_{y'} = \mu_{y'} + ((z - \mu_{y^d})/\sigma_{y^d})\sigma_{y'}.$$

An immediate implication is that the standardized poverty line α is the same both for the original and the comparison distribution

$$\alpha = \frac{z - \mu_{y^d}}{\sigma_{y^d}} = \frac{z' - \mu_{y'}}{\sigma_{y'}}.$$

Note that if the distributions to be compared have similar standard deviations, as it is in our case⁴, then the distance between the original and comparison poverty line is well approximated by the difference in the means. We now can compare poverty levels across the current, extended and full distribution of incomes as shown in Figure 8.

⁴ Values of standard deviation of each income are disposable income 999.18, current income 1161.91, current extended income 1205.92, current full income 1269.16.

The lack of comparability across poverty lines, and consequently the associated incidence values, is clearly visible in Table 12. Considering the poverty line as the half of the median, the incidence is particularly low among elderly families, while it is relatively higher among families with children, especially in the Centre of Italy and in the North. The severity of poverty changes significantly in the case of current extended and full income. The equalizing effect of the value of household production is very notable if we compare the Gini indices reported for the different categories of income (Table 13).

4.3. Part III - Multidimensional Socio-economic and Relational Poverty

In a multidimensional framework, individuals or families are considered poor if they are below the poverty line for a subset of dimensions equal, in our context, to the half of the total number of dimensions considered to which equal weight has been assigned⁵ (Aaberge and Brandolini 2015, Atkinson 2003, Alkire 2008, Alkire and Foster 2011, Alkire and Seth 2013, Alkire and Santos 2014, Alkire et al. 2020, Anand and Sen 1997). The multidimensional poverty analysis is limited to families with children because the relational dimensions are less meaningful for individuals living alone. Table 14 describes the selected socio-economic (income, wealth, education, number of parents, caregiving time, employment) and relational (bonding and bridging social capital and relational capital toward children and family) dimensions and the poverty thresholds adopted. Figure 9 presents the adjusted measure of multidimensional poverty incidence (M0) for the 6 socio-economic dimensions that weighs poverty incidence (H0) with the average of the subset of dimensions in which poor households are jointly poor (Appendix 1). Regions in the East of Italy (including Abruzzo, Molise, and Basilicata) are relatively less poor than regions in the West. Adding the relational dimensions reduces the overall poverty level but also changes the map (Figure 10). Northern regions improve their relative position while the situation worsens in Umbria, Molise, Basilicata and Apulia (Table 15).

⁵ Results obtained assigning 1/3 and 1/5 weights to the income variable in the 6- and 10-dimensional analysis, respectively, and equal weights to the remaining dimensions are available upon request. For simplicity, it was preferred to present only results related to an equal income assignment.

It is very informative to analyze the relative contribution of each dimension to multidimensional poverty. Figures 11 and 12 report the contributions by macro-region for the case of 6 and 10 dimensions, respectively. Wealth explains about a quarter of multidimensional poverty, about ten percent more than labor income. Homeownership, which is more common among the elderly, is a strong protective factor against poverty risk. While unemployment, as expected, is a factor more important in the South, the presence of a single parent in the household and less investment of time in caring for children and the elderly are relatively more important risk factors in the North. The education level of the household head is the relatively least relevant dimension, especially in the North. This information is critical for designing effective interventions to mitigate and prevent exposure to poverty risk. Much attention should be paid to the consequences for the well-being of family members associated with single-parent situations or where there are situations in which it is difficult to reconcile work and family time.

Figure 13 reports, for the 6-dimension measure, the proportion of households that are deprived for one or more dimensions jointly. Only in the South the proportion of households deprived for the different sets of dimensions is generally higher. The probability that a household is poor in half of the six dimensions is about 7 percent across all macro-regions, while the probability of a household being poor in all six dimensions is very low. When 10 dimensions are selected (Figure 14), the North and the Center have a higher probability, greater than 25%, than the South of being poor in one or two dimensions. In the South the frequency of poor households becomes the highest when more than two dimensions are considered. The probability of Italian households being poor for three dimensions is about 20 percent; for five dimensions the probability is about 5 percent.

Figure 15 is a summary picture representing the incidence of poverty across macro-regions and at the national level in the monetary dimension, without and with wealth, and with multiple socio-economic and relational dimensions. All these measures are very similar in the North and in the Center and for monetary poverty including wealth also in the South, where however the monetary dimension alone is dominant. Multidimensional poverty at 6 and 10 dimensions is highest in the South where the lower weight of relational and parental poverty is not sufficient to offset the

weight of monetary and employment opportunity poverty, despite the adjustment for quality of life.

5. Conclusions

This study provides an extended measure of poverty for Italy that also includes non-monetary dimensions. The purpose is to highlight the importance of the multiple components contributing to well-being, that in general are not made available through markets, placing special emphasis on the relevance of the production of household goods and relational aspects in the household.

The study shows that the ability to produce household care is a major contributor to reducing the poverty level for both elderly families and households with children and to narrowing the poverty gap between Northern and Southern Italy. In the multidimensional poverty estimation, time spent caring for children contributes to poverty as much as income and it is a risk factor especially in Northern Italy. Among the relational well-being dimensions, trust in friends and satisfaction for the time spent with family members contribute to poverty significantly more than income. In general, relational poverty is independent of monetary poverty.

This evidence illustrates the role that the family plays in Italy (Bramanti 2020, Matteazzi et al. 2020) as a factor in preventing, managing, and treating the risk of poverty, especially in times of health, economic, or environmental emergencies. It also shows the relevance of relational dimensions to improve the efficiency, effectiveness, and cost-effectiveness of public action to fight poverty and improve accuracy of targeting aid to fragile families and private initiatives at the community level strengthening social networks.

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Appendix 1. Uni and Multidimensional Poverty Estimation

Poverty measurement that relies on the information collected in a single dimension, such as in our case income (or consumption), expressed in disposable or real terms with or without adjustment for quality of services, per-capita or equalized, can be summarized in the general formula proposed by Foster-Greer-Thorbecke (FGT, 1984)

$$FGT_{\alpha} = \frac{1}{N} \sum_{i=1}^H \left(\frac{z - x_i}{z} \right)^{\alpha}$$

where z is the relative poverty line equal to 50 percent of the median of income or expenditure. The choice of 50 percent of the median, instead for example of 60 percent, allows to compare poverty estimates using different distributions more consistently. An economically significant proportion of households are concentrated around the poverty line, so the choice of the cut-off point between 50 or 60 percent of the median leads large variability in the estimation and makes comparisons difficult to interpret (Marx and Van den Bosch 2007). The sample size is N , while H is the number of poor households, i.e., those that are below the poverty line z and x_i is the income of each i -th individual in its possible declinations. If the value of $\alpha = 0$, the poverty measure FGT_0 is the incidence measure of one-dimensional poverty corresponding to the proportion of households below the poverty line. If we are interested in measuring the proportion of families with children, or the proportion of the elderly, living below the poverty line, so we obtain a measure of the poverty incidence of children or the elderly, respectively. It is important to keep in mind that these measures do not consider how resources are distributed within the household. As a result, there may be (materially) poor children in rich families and vice versa. In addition, suffering from a state of deprivation is primarily an individual matter, and it is therefore relevant to estimate the well-being (or malaise) function of each household member and the distance of each from the poverty line rather than estimating an aggregate measure that does not distinguish for different intra-household situations (Chavas et al. 2018, Menon and Perali 2019). If $\alpha = 1$, FGT_1 represents the poverty gap that also accounts for the relative distance of households from the poverty line, while if $\alpha = 2$, FGT_2 measures the severity of poverty given by the squared

poverty gap. The latter measure gives greater weight to the poverty status of the poorest households.

The multidimensional methodology proposed by Alkire and Foster (2011) aims to identify poor households and create aggregate measures of poverty by combining the "counting" approach to multidimensional poverty measurement (Atkinson 2003) with axiomatic approaches such as that proposed by Bourguignon and Chakravarty (2003). The multidimensional poverty index (MPI) aggregates the different dimensions of deprivation that a household suffers. A household is defined as multidimensionally poor if it is deprived on a set of dimensions whose weighted sum equals or exceeds 30 percent of all deprivations.

The adjusted measure of incidence M , introduced by Alkire and Foster (2011), is defined by the poverty line specific for each dimension and the parameter k which represents the number of (weighted) deprivations that are below the specific threshold at each dimension. The deprivations among individuals who are poor in at least k dimensions are aggregated for an entire society as follows:

$$M(x; \alpha, k) = \frac{1}{N} \sum_{i=1}^N \left[\sum_{j=1}^D w_j \left(\frac{z_j - x_{ij}}{z_j} \right)^\alpha I_{ij} \right] I(c_i \geq k)$$

where $x_{ij} \geq 0$ is the level of performance (one of the dimensions could also be the level of income) of the individual $i = (1, \dots, N)$ with respect to the dimension $j = (1, \dots, D)$. I_{ij} is a indicator function of the dimension that takes the value 1 if $x_{ij} < z_j$ and 0 otherwise; α is a sensitivity parameter of the depth-of-poverty measure as described above; and $I(c_i \geq k)$ is an indicator function of poverty that is equal to 1 if the number of (weighted) dimensions in which the individual is deprived is at least equal to the parameter k . The measure $M(x; \alpha, k)$ is disaggregable across population groups, which facilitates regional analysis. It also satisfies several desirable properties, including disaggregation by dimension, which is useful for understanding the contribution of each dimension to poverty.

In the present application we only analyze the case of α equal to zero for both uni and multidimensional measures also in view of the fact that some indicators are categorical and thus higher values of α are not appropriate. This special case gives rise to the measure of adjusted poverty incidence

(M) relative to the proportion of multidimensionally poor households. In the context of the present application $k = 0.5D$, where the total number of dimensions is 6 or 10. This measure is the product of the multidimensional incidence measure H multiplied by the average number of deprivations A which describes the intensity of multidimensional poverty.⁶ It follows that for $\alpha = 0$

$$M(x; \alpha, k) = \frac{1}{N} \sum_{i=1}^N \left[\sum_{j=1}^D w_j I_{ij} \right] I(c_i \geq k) = H \times A$$

The adjusted incidence measure is also decomposable by population subgroups and by dimension. It is also monotonic since if a poor person becomes deprived in another dimension as well, A grows and thus also M .

⁶Aaberge and Brandolini (2015) note that the M index coincides with the deprivation measure introduced by Atkinson (2003).

Tables and Figures

Table 1 - Definitions of income

Definitions of income		Sources of Income
1) Total Household Income		$Y^m = Y^{fb} + Y^o + Y^{nl} + Y^{tr}$
	a) Net operating income (before tax)	Family business Y^{fb}
	i) from self-employment in family business	
	(ii) from imputed rents for owner-occupied dwellings	
	(b) Cash wages or salaries derived from employment outside the family	Extra-family activities Y^o
	c) Net self-employment income from non-family activities	
	d) Other income (interest, dividends, rents, pensions, etc.).	Non-labor income Y^{nl}
	(e) Social transfers or other cash receipts	Social Transfers Y^{tr}
2) Self-consumption		Y^a
3) Taxes and contributions (t)		
	(a) social security contributions payable by workers	Disposable Household Income $Y^d = (Y^m + Y^a) - t$
	(b) withholding taxes and contributions at source	
	(c) net taxation on taxable income	
4) Value of household productions Y^h		Extended Income $Y^e = Y^d + Y^h$
	(food preparation, household chores, child and elder care, etc.).	
5) Value of free time Y^l		Full Income $Y^f = Y^d + Y^h + Y^l$
	(recreational activities, entertainment, etc.).	
6) Current Income		Current income: disposable, extended and full $CY^{d,e,f} = Y^{d,e,f} + rNW$
	(income from work and assets, extended and full)	
	NW= net asset value, r= interest rate	

Table 2 - True Cost of Living Index of Purchasing Power Parity and Adjusted for Differences in the Quality of Services

Region	TCLI PPP	TCLI QA
Piedmont	1.073	1.121
Lombardy	1.186	1.174
Trentino Alto Adige	1.246	1.007
Veneto	1.15	1.269
Friuli Venezia Giulia	1.067	1.096
Liguria	1.034	0.937
Emilia Romagna	1.141	1.149
Tuscany	1.082	1.153
Umbria	1.014	0.969
Marche	1.02	1.194
Lazio	1.02	1.069
Abruzzo	0.929	1.022
Molise	0.901	1.042
Campania	0.842	0.907
Apulia	0.843	0.94
Basilicata	0.82	0.85
Calabria	0.739	0.805
Sicily	0.719	0.85
Sardinia	0.823	0.881
Italy	1	1

Table 3 - Family Size and Household Equivalence Scale

Region	Family Size	Household Equivalence Scale (ES) in equivalent adults - OECD-modified Scale
Piedmont	2.27	1.55
Lombardy	2.40	1.61
Trentino Alto Adige	2.52	1.66
Veneto	2.52	1.67
Friuli Venezia Giulia	2.36	1.60
Liguria	2.09	1.49
Emilia Romagna	2.28	1.56
Tuscany	2.43	1.64
Umbria	2.51	1.67
Marche	2.55	1.69
Lazio	2.48	1.65
Abruzzo	2.63	1.73
Molise	2.57	1.70
Campania	2.96	1.87
Apulia	2.73	1.76
Basilicata	2.72	1.77
Calabria	2.74	1.76
Sicily	2.60	1.71
Sardinia	2.72	1.78
Italy	2.50	1.66

Table 4 - Distribution of equivalent disposable income and total equivalent expenditure (monthly average)

Region	Equivalent disposable income (Euro)	Equivalent total expenditure (Euro)
Piedmont	1767	1565
Lombardy	1845	1557
Trentino Alto Adige	1841	1731
Veneto	1660	1643
Friuli Venezia Giulia	1698	1739
Liguria	1675	1650
Emilia Romagna	1853	1808
Tuscany	1712	1804
Umbria	1592	1730
Marche	1614	1779
Lazio	1709	1801
Abruzzo	1378	1379
Molise	1338	1440
Campania	1267	1215
Apulia	1311	1285
Basilicata	1315	1327
Calabria	1252	1391
Sicily	1198	1339
Sardinia	1504	1322
Italy	1606	1584

Table 5 - Incidence of relative poverty: comparison between equivalent disposable income and equivalent total expenditure

Region	Equivalent disposable income	Equivalent total expenditure
Piedmont	6.23	13.62
Lombardy	6.75	14.62
Trentino Alto Adige	4.71	10.85
Veneto	6.42	12.49
Friuli Venezia Giulia	6.33	11.50
Liguria	7.31	11.30
Emilia Romagna	4.98	8.82
Tuscany	6.64	6.32
Umbria	6.98	8.42
Marche	6.44	8.66
Lazio	10.38	8.23
Abruzzo	14.29	22.95
Molise	14.62	19.06
Campania	20.30	28.91
Apulia	18.33	24.76
Basilicata	17.21	23.49
Calabria	21.26	24.25
Sicily	26.44	25.42
Sardinia	11.95	19.73
Italy	10.47	14.87
Poverty line	697.86	670.59

Table 6 - Distribution of regional averages for different definitions of disposable income

Region	Disposable income	Real disposable income	Equivalent disposable income	Equivalent real disposable income	Equivalent real disposable income QA*
Piedmont	2770	2581	1767	1647	1576
Lombardy	2994	2525	1845	1556	1572
Trentino Alto Adige	3083	2474	1841	1477	1828
Veneto	2808	2442	1660	1444	1308
Friuli Venezia Giulia	2758	2585	1698	1592	1549
Liguria	2528	2445	1675	1620	1787
Emilia Romagna	2946	2582	1853	1624	1613
Tuscany	2837	2622	1712	1582	1484
Umbria	2698	2660	1592	1570	1643
Marche	2744	2690	1614	1582	1352
Lazio	2795	2740	1709	1676	1599
Abruzzo	2416	2601	1378	1484	1349
Molise	2264	2513	1338	1485	1284
Campania	2322	2758	1267	1504	1396
Apulia	2283	2709	1311	1555	1395
Basilicata	2305	2811	1315	1604	1547
Calabria	2208	2988	1252	1695	1556
Sicily	2033	2827	1198	1666	1410
Sardinia	2691	3269	1504	1827	1707
Italy	2666	2645	1606	1587	1526

*QA: Adjusted for differences in the quality of services.

Table 7 - Incidence of relative poverty: comparison of different definitions of disposable income

Region	Disposable income	Real disposable income	Equivalent disposable income	Equivalent real disposable income	Equivalent real disposable income QA*
Piedmont	13.55	15.86	6.23	7.58	7.64
Lombardy	12.32	16.66	6.75	10.98	9.53
Trentino Alto Adige	10.72	18.04	4.71	9.54	3.66
Veneto	12.70	16.40	6.42	10.05	12.42
Friuli Venezia Giulia	13.29	15.30	6.33	7.49	7.17
Liguria	15.28	16.72	7.31	7.64	3.77
Emilia Romagna	11.24	14.86	4.98	6.61	6.05
Tuscany	12.72	14.64	6.64	8.24	8.96
Umbria	11.19	11.67	6.98	6.98	4.33
Marche	11.88	12.21	6.44	6.44	9.99
Lazio	14.97	15.42	10.38	10.53	10.75
Abruzzo	17.10	15.69	14.29	10.54	12.65
Molise	20.63	15.93	14.62	9.14	14.10
Campania	19.14	14.00	20.30	12.76	13.59
Apulia	19.08	13.83	18.33	10.83	13.08
Basilicata	19.77	13.72	17.21	9.07	8.84
Calabria	22.09	12.29	21.26	9.47	10.13
Sicily	27.75	14.99	26.44	9.22	14.71
Sardinia	13.66	9.11	11.95	6.07	6.64
Italy	15.10	14.91	10.47	9.02	9.36

*QA: Adjusted for differences in the quality of services.

Table 8 - Incidence of relative poverty: comparison between types of families

Macro Region	Entire sample	Elderly families	Families with children
North	7.77	9.50	8.30
Centre	8.84	10.08	9.29
South	12.29	9.03	16.78
Italy	9.36	9.50	11.31

Note: Values obtained by considering equivalent real disposable income adjusted for differences in the quality of services.

Table 9 - Gini index: comparison across income distributions

Macro-Region	Disposable Income	Real disposable income	Equivalent disposable income	Equivalent real disposable income	Equivalent real disposable income QA*	Equivalent total expenditure
North	0.3446	0.3436	0.2904	0.2905	0.2943	0.3209
Centre	0.3444	0.3443	0.2933	0.2932	0.2952	0.3062
South	0.3571	0.3566	0.3136	0.3140	0.3147	0.3574
Italy	0.3517	0.3487	0.3054	0.2984	0.3011	0.3331

*QA: Adjusted for differences in the quality of services.

Table 10 - Distribution of regional averages of different definitions of adjusted equivalized real income

Quality adjusted equivalent real income				
Region	Disposable income	Current income	Current extended income	Current full income
Piedmont	1576	1895	2580	3091
Lombardy	1572	1819	2471	2955
Trentino Alto Adige	1828	2226	2938	3472
Veneto	1308	1543	2139	2576
Friuli Venezia Giulia	1549	1814	2502	3011
Liguria	1787	2137	2955	3566
Emilia Romagna	1613	1864	2513	3001
Tuscany	1484	1729	2449	2969
Umbria	1643	1916	2806	3440
Marche	1352	1584	2290	2780
Lazio	1599	1856	2599	3146
Abruzzo	1349	1644	2379	3062
Molise	1284	1506	2233	2902
Campania	1396	1583	2411	3090
Apulia	1395	1680	2526	3237
Basilicata	1547	1797	2704	3490
Calabria	1556	1770	2689	3504
Sicily	1410	1661	2592	3370
Sardinia	1707	1928	2799	3503
Italy	1526	1789	2536	3115

Table 11 - Incidence of relative poverty: comparison of different definitions of adjusted equivalent real income

Region	Quality adjusted equivalent real income				
	Disposable income	Current income	Current extended income	Current full income	Total expenditure
Piedmont	7.64	7.90	4.30	3.02	16.06
Lombardy	9.53	8.84	5.20	3.96	18.96
Trentino Alto Adige	3.66	3.01	1.44	0.78	9.67
Veneto	12.42	11.03	6.35	5.44	19.33
Friuli Ven. Giulia	7.17	6.65	2.64	2.11	12.66
Liguria	3.77	4.10	2.10	1.00	7.86
Emilia Romagna	6.05	6.54	3.77	2.84	10.81
Tuscany	8.96	9.20	5.12	4.32	9.04
Umbria	4.33	4.45	1.93	1.93	6.38
Marche	9.99	11.21	5.55	4.77	11.43
Lazio	10.75	10.08	4.60	3.48	8.45
Abruzzo	12.65	11.01	5.85	2.81	22.01
Molise	14.10	13.05	6.53	3.92	18.80
Campania	13.59	16.16	5.39	3.48	21.87
Apulia	13.08	11.90	3.64	1.50	19.83
Basilicata	8.84	9.53	2.56	1.40	16.74
Calabria	10.13	11.13	3.65	1.50	12.62
Sicily	14.71	13.69	4.00	2.05	16.01
Sardinia	6.64	6.64	2.85	1.14	13.66
Italy	9.36	9.27	4.23	2.98	14.30
Poverty Line	660.67	769.51	1156.05	1453.24	634.45

Table 12 - Incidence of relative poverty: comparison between poverty lines and types of families across incomes

Sample	Macro-region	Poverty line half of the median				Standardized poverty line		
		Disposable income	Current income	Current extended income	Current full income	Current income	Current extended income	Current full income
Entire sample	North	7.77	7.44	4.09	3.09	7.88	12.45	15.19
	Centre	8.84	8.98	4.43	3.69	9.47	11.52	14.75
	South	12.29	12.41	4.3	2.26	12.86	11.11	10.19
	Italy	9.36	9.27	4.23	2.98	9.73	11.83	13.61
Families with children	North	8.3	9.16	5.38	5.65	9.89	16.27	25.11
	Centre	9.29	11.11	6.28	5.74	11.66	17.4	24.77
	South	16.78	18.76	3.28	2.91	19.75	11.7	15.54
	Italy	11.31	12.76	4.89	4.77	13.53	15.02	21.89
Elderly families	North	9.5	7.89	2.58	1.32	8.34	11.05	10.6
	Centre	10.08	8.69	1.79	0.99	9.48	5.17	5.24
	South	9.03	7.71	3.06	0.42	7.98	9.35	2.96
	Italy	9.5	8.02	2.54	0.98	8.5	9.19	7.13

Note: Values obtained considering income adjusted for differences in the quality of services

Table 13 - Gini index: comparison across the distributions of adjusted equivalent real income

Macro Region	Adjusted real equivalent income				
	Disposable income	Current income	Current extended income	Current full income	Total expenditure
North	0.2943	0.2962	0.2342	0.2051	0.3249
Centre	0.2952	0.2985	0.2231	0.2004	0.3082
South	0.3147	0.3149	0.2232	0.1920	0.3595
Italy	0.3011	0.3030	0.2284	0.2012	0.3322

Table 14 - Socio-economic and relational dimensions of multidimensional poverty

Poverty Dimension	Description and Threshold (in parenthesis)
Socio-economic dimensions	
Poverty of income	Equivalent real disposable income adjusted for differences in the quality of services (half median)
Poverty of wealth	Movable and immovable family assets (half median)
Poverty of education	Education level – household head (middle school)
Poverty of parents	Number of parents in the household (single parent)
Poverty of jobs	Presence of unemployed in the household (unemployed members)
Poverty of time	Time devoted to child and home care (half median)
Relational dimensions	
Poverty of bonding capital	Trust in family members (7 on scale 0-10)
Poverty of bridging capital	Trust in friends (7 on scale 0-10)
Poverty of relationship 1	Relational satisfaction with children (7 on scale 0-10)
Poverty of relationship 2	Satisfaction with the time spent together (7 on scale 0-10)

Table 15 - Socio-economic and relational multidimensional poverty: comparison between incidence (H0) and adjusted incidence (M0)

Region	Socio-economic (6 Dimensions)		Socio-economic and relational (10 Dimensions)	
	Relative poverty (H0)	Adjusted relative poverty (M0)	Relative poverty (H0)	Adjusted relative poverty (M0)
Piedmont	11.5	6.3	6.9	3.8
Lombardy	8.5	4.7	5.3	2.9
Trentino Alto Adige	6.5	3.4	2.9	1.5
Veneto	7.2	3.9	3.7	1.9
Friuli Venezia Giulia	6.6	3.5	3.1	1.7
Liguria	9.9	5.1	4.8	2.6
Emilia Romagna	9.4	5	4.8	2.5
Tuscany	9.5	5.1	6.7	3.6
Umbria	6	3.3	6.7	3.6
Marche	7.2	3.8	4.9	2.6
Lazio	10.1	5.5	8.8	4.6
Abruzzo	7.8	4.2	5	2.6
Molise	7.5	4.4	5.5	2.9
Campania	14.3	8.2	10.5	5.9
Apulia	8.9	5.1	8.9	4.7
Basilicata	7	3.9	5.9	3.1
Calabria	14.3	8.3	12.2	6.8
Sicily	13.1	7.4	7.1	3.8
Sardinia	10.4	6.2	7.5	4.4
Italy	9.6	5.3	6.5	3.5

Figure 1 - Diagram of the Matching Procedure used to create the Integrated Data Set

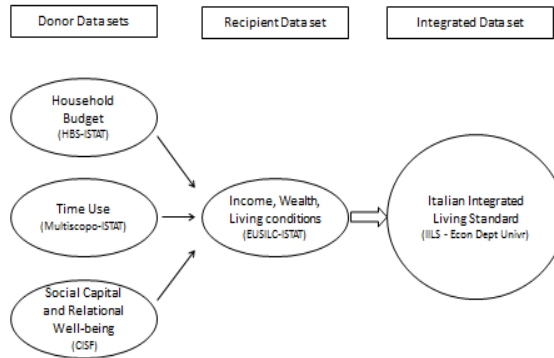
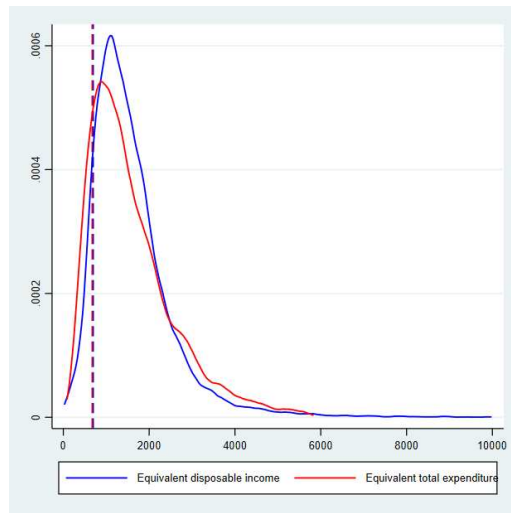


Figure 2 - Distribution of equivalent disposable income and equivalent total expenditure



The dotted lines represent the respective poverty lines.

Figure 3 - Incidence of relative poverty evaluating disposable income

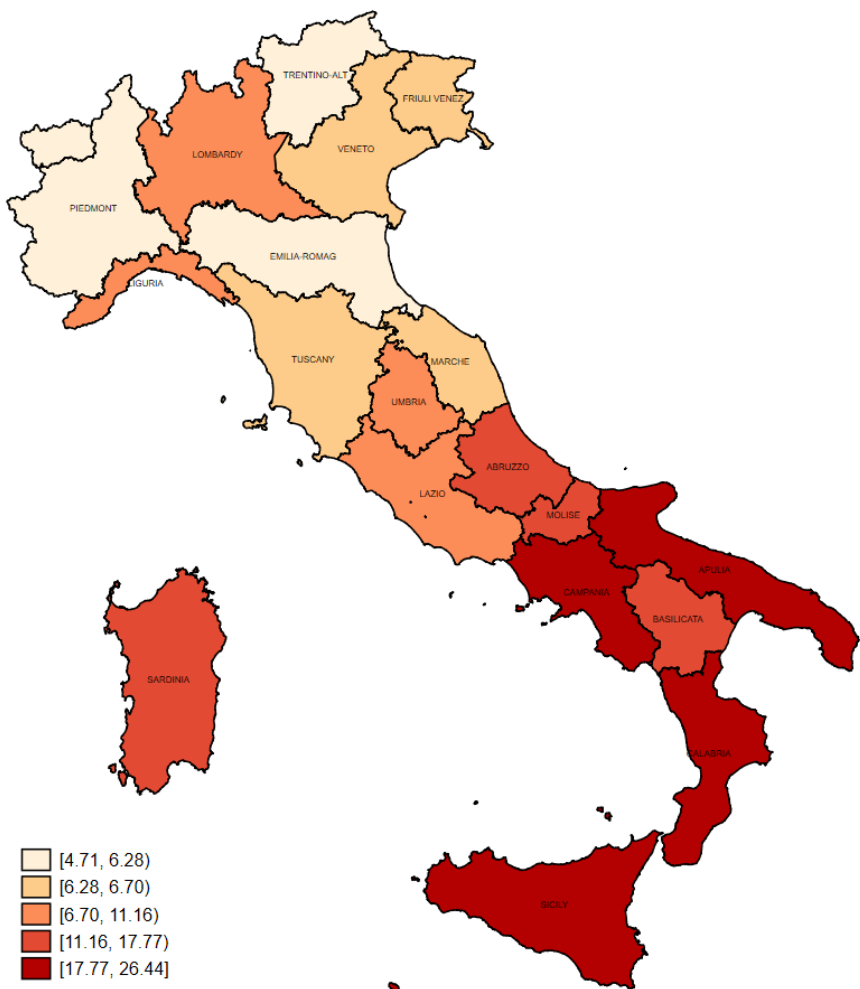


Figure 4 - Incidence of relative poverty evaluating quality adjusted equivalent disposable income

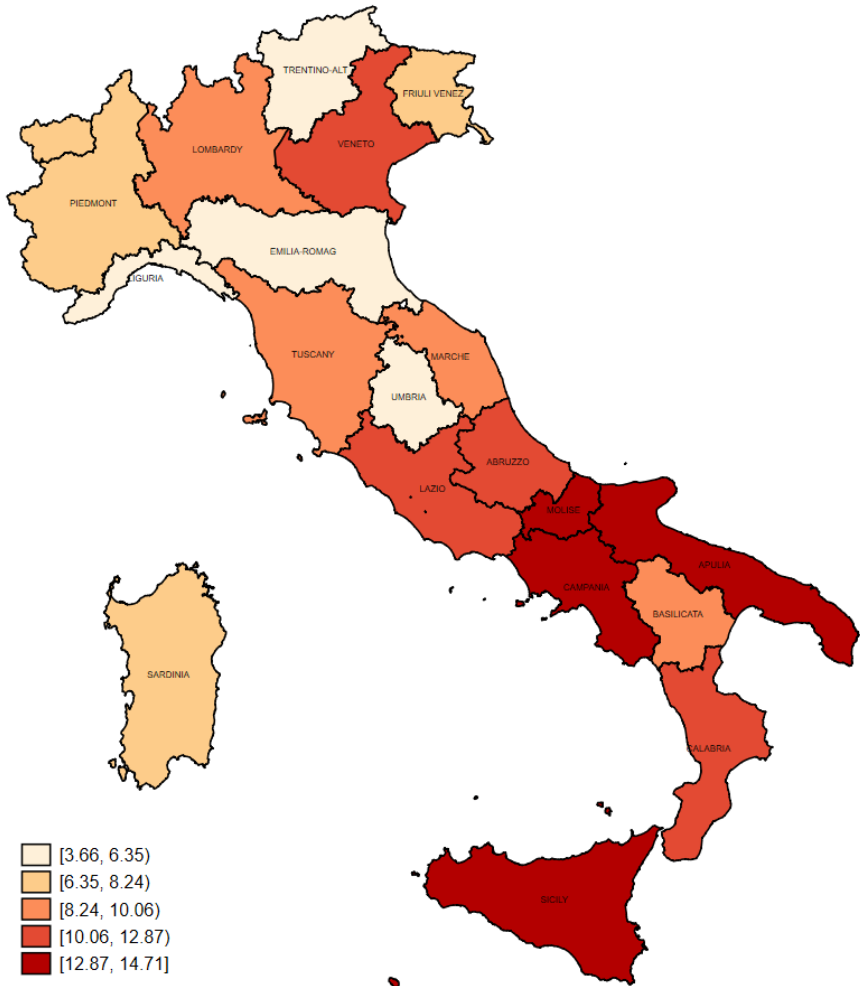


Figure 5 - Incidence of relative poverty evaluating quality adjusted equivalent real current income

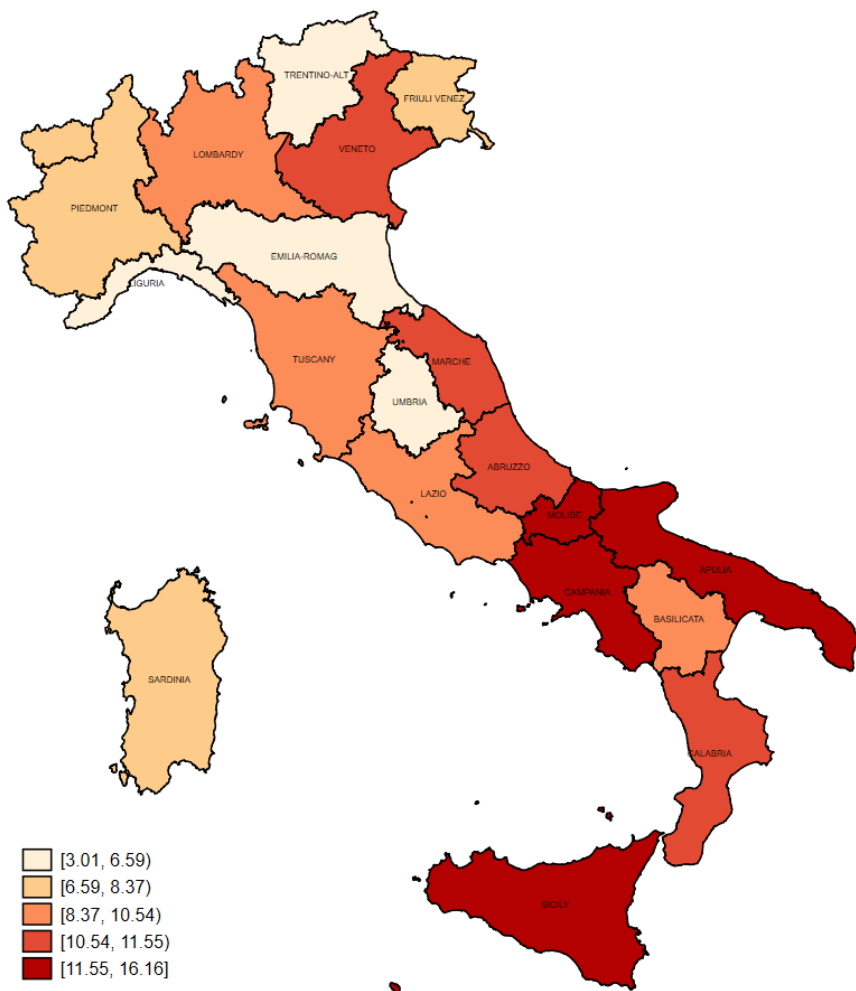


Figure 6 - Incidence of relative poverty evaluating quality adjusted equivalent real current extended income

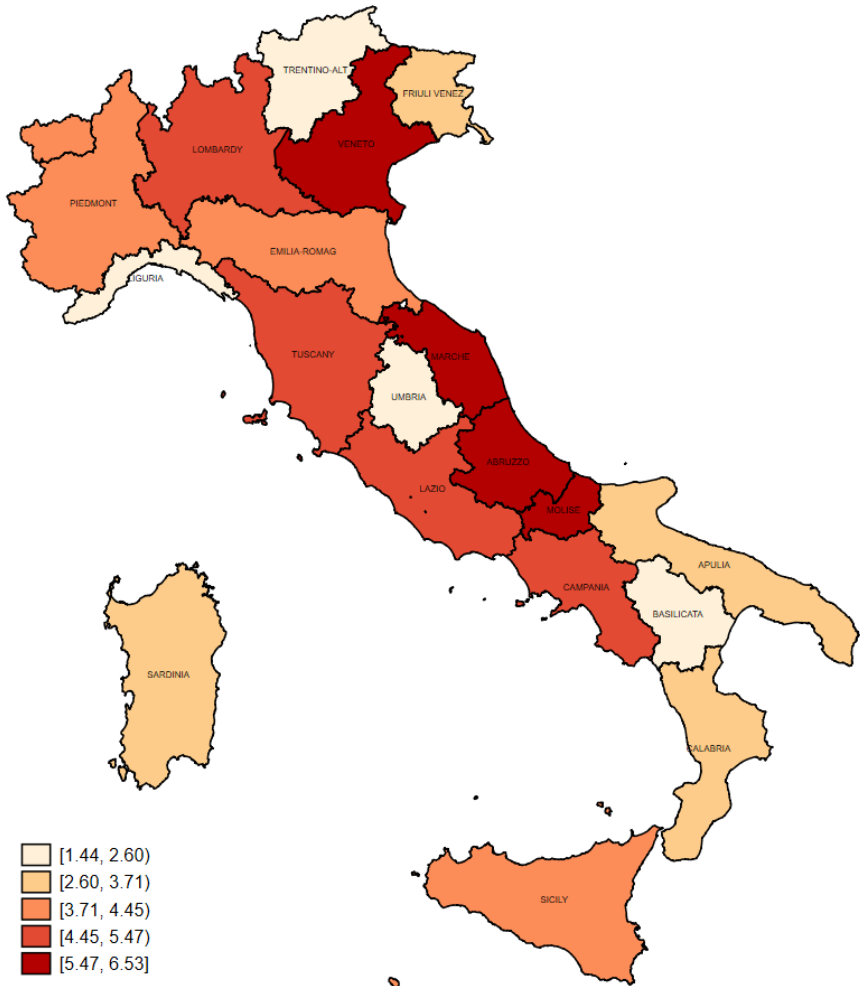


Figure 7 - Proportion of each component of equivalent real current full income adjusted for differences in the quality of services

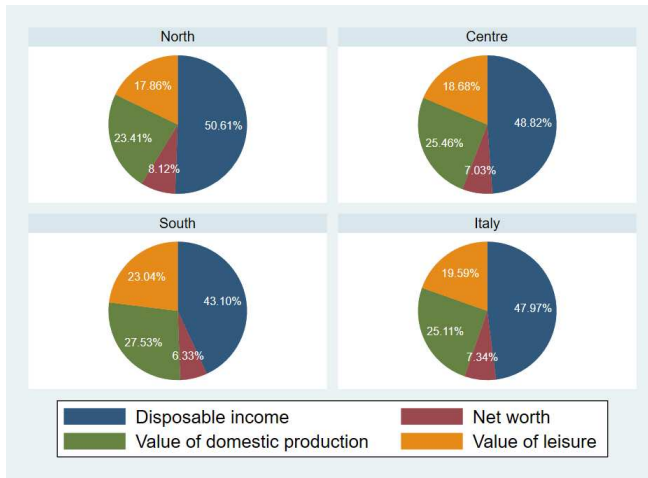


Figure 8 - Distribution of adjusted real equivalent incomes and the corresponding poverty lines and standardized poverty lines

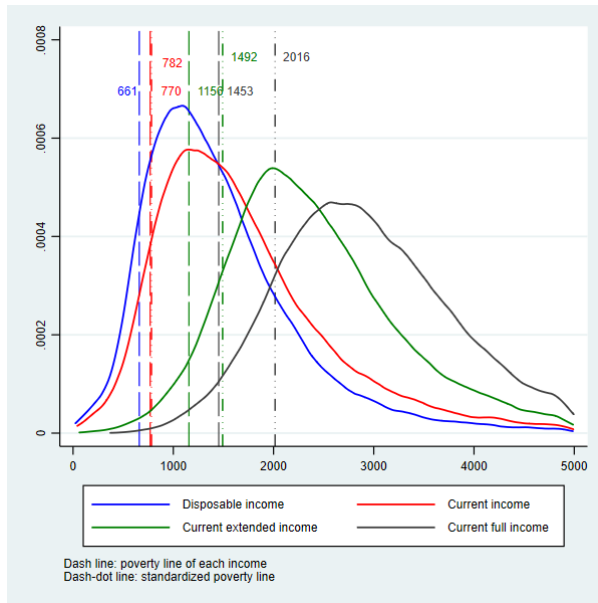


Figure 9 - Adjusted incidence of socio-economic relative poverty (M0) - 6 dimensions

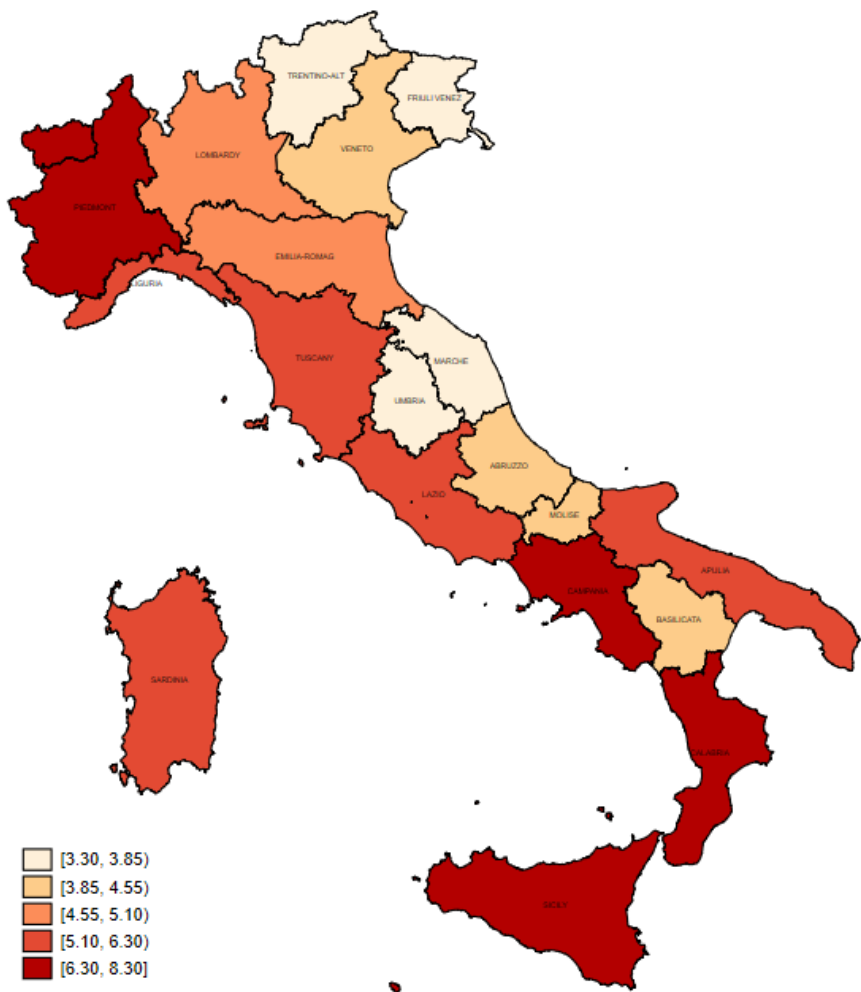


Figure 10 - Adjusted incidence of socio-economic and relational relative poverty (M0) - 10 dimensions

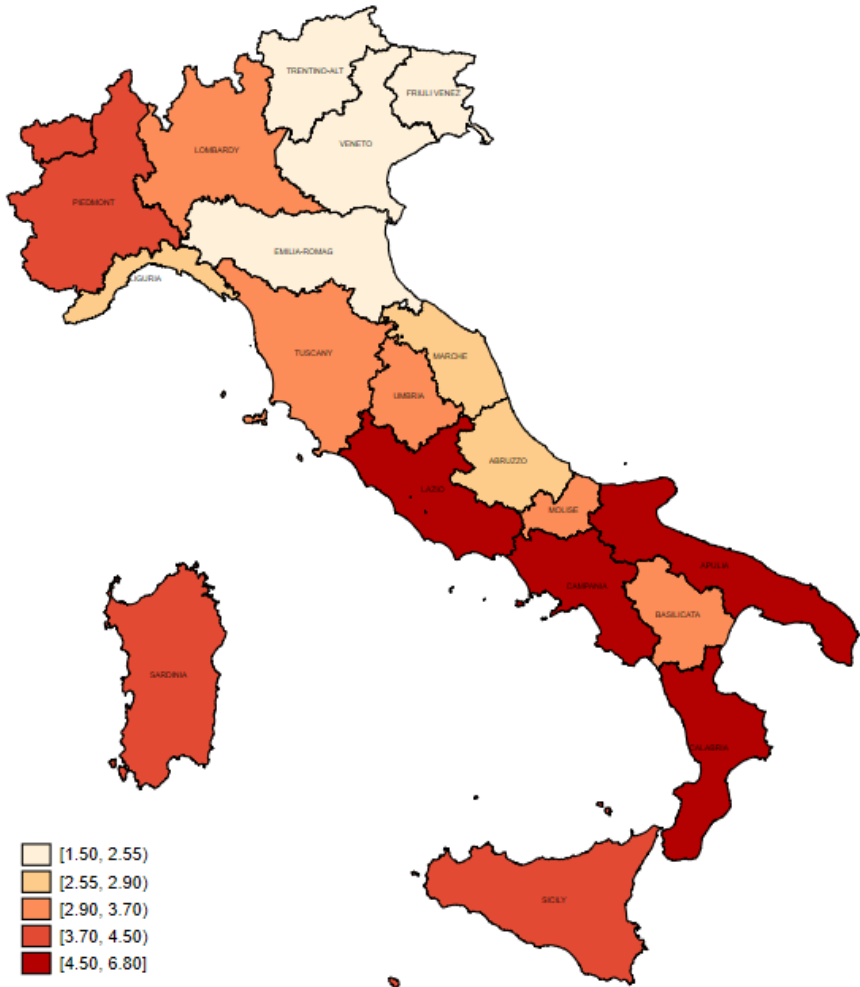


Figure 11 - Contribution to socio-economic multidimensional poverty of each dimension by macro-region - 6 dimensions

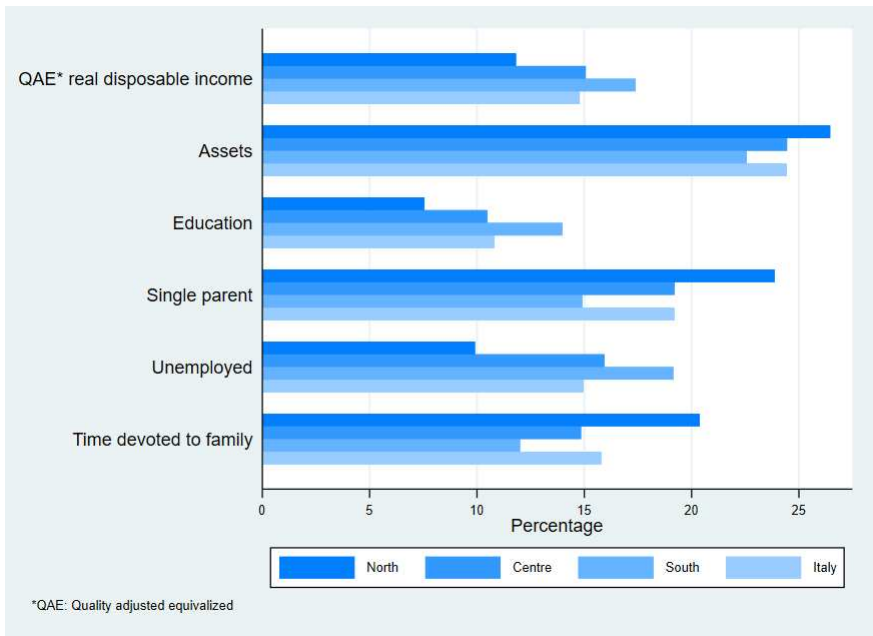


Figure 12 - Contribution to socioeconomic and relational multidimensional poverty of each dimension by macro-region - 10 dimensions

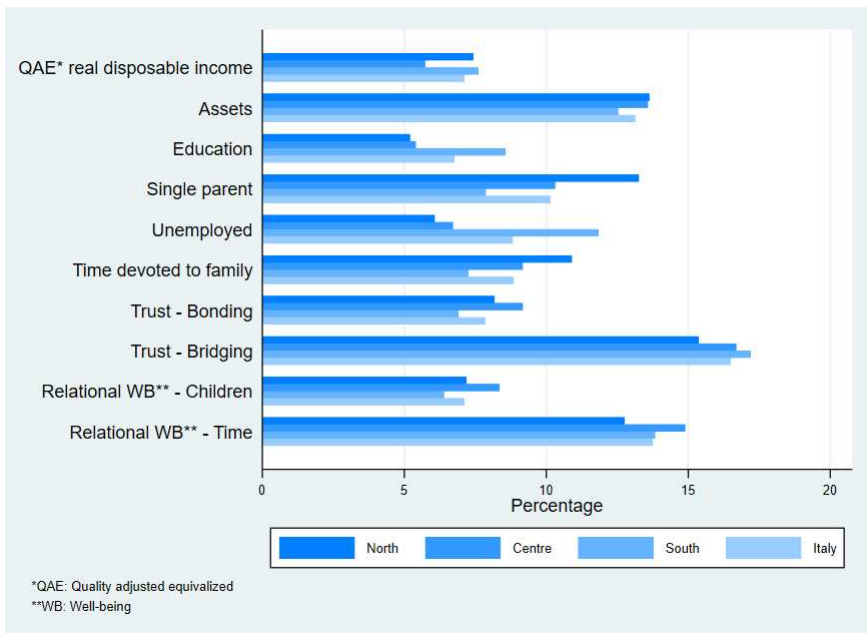


Figure 13 - Percentage of deprived households by number of deprivations-6 dimensions

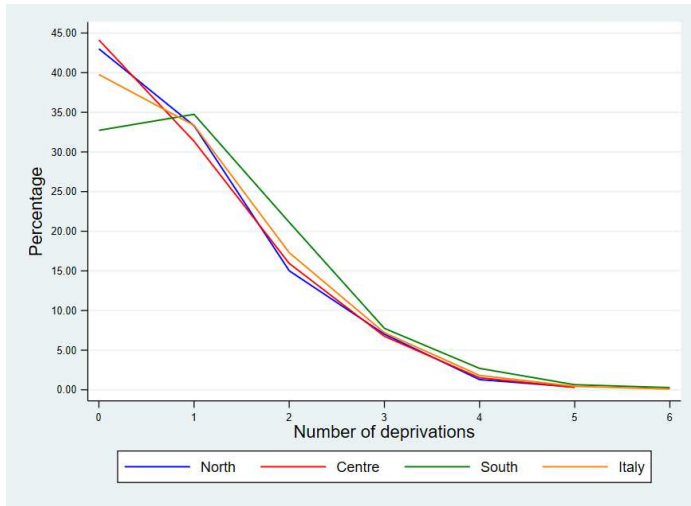


Figure 14 - Percentage of deprived households by number of deprivations-10 dimensions

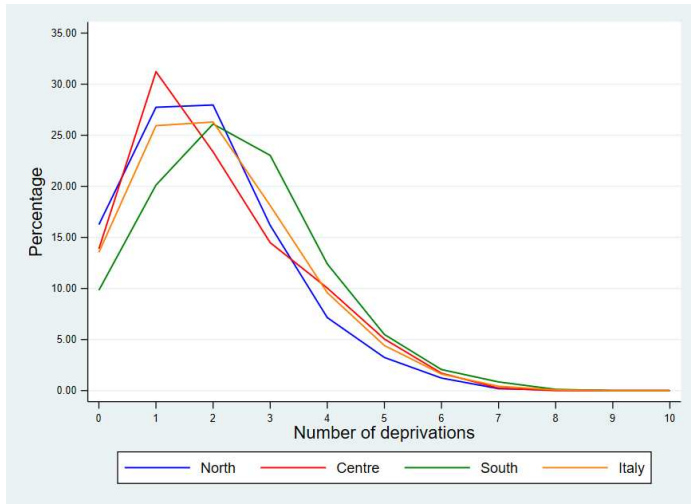


Figure 15 - Comparison of incidences of socioeconomic and relational poverty.

