Received: 5 December 2022 | Revised: 3 February 2023 | Accepted: 8 March 2023

DOI: 10.1111/pirs.12722

FULL ARTICLE

Poverty-happiness nexus: Does the use of regional poverty lines matter?

Cristina Bernini | **Silvia Emili** | **Maria Rosaria Ferrante**

Department of Statistical Sciences, University of Bologna, Via Belle Arti, 41, Bologna 40126, Italy

Correspondence
Cristina Bernini, Department of Statistical Sciences, University of Bologna, Via Belle Arti, 41, Bologna, 40126, Italy.
Email: cristina.bernini@unibo.it

Abstract

This analysis aims to provide a comprehensive representation of the role of regional disparities in the nexus between poverty and subjective well-being, by adding the territorial dimension to the definition of poverty conditions. We investigate the nexus using regional poverty lines, including different poverty measures and considering different life domains. The analysis focuses on Italy because of its strong regional socio-economic disparities. Results show that the relevance of being poor on the well-being of citizens is in general higher and significant; the intensity and severity of poverty also change for different life domains. Findings are fundamental in designing local policies against poverty.

KEYWORDS
country - regional perspective, poverty line, poverty metrics, subjective well-being

JEL CLASSIFICATION
I32, D31, R2

1 | INTRODUCTION

The investigation into the degree of economic poverty[1] is a fundamental and non-trivial aspect in the analysis of a country's level of well-being and growth. The complexity that denotes the measurement, the surveillance and the control of the evolutionary patterns of poverty within and between populations, has brought to light questions on the definition and measurement of poverty, which is the foundation of the policies developed to fight poverty. The

[1]In this analysis we will use the word *poverty* meaning exclusively *economic poverty*.

relevance of the poverty measurement is further increased when the focus of the research moves to an analysis of the effect of poverty on an individual's well-being.

In this regard, the reference-dependence theory (Kahneman & Tversky, 1979; Vendrik & Woltjer, 2007) has been largely accepted as a useful framework for discussing the relationship between poverty and subjective well-being (hereinafter, SWB). In particular, this theory supports the idea that poverty can be considered a measure of relative income/consumption. The sensitivity of SWB to relative measures of economic conditions comes from the attitude of individuals of comparing their economic conditions with the conditions of other people or of a reference group[2] (i.e., peers). One of the milestones of this branch of literature is that one's own economic condition has a positive impact on SWB, but SWB is negatively affected by the economic conditions of reference groups (Clark et al., 2008).

The empirical studies on the nexus between economic conditions and SWB offer a mixed set of findings (Clark, 2017). Although a large part of the literature shows that an improved economic status boosts the individual's level of satisfaction (Ferrer-i-Carbonell, 2005), the magnitude of this relationship is not clear and relates to several factors, especially when comparing results for different countries or regional territories (Ayala & Jurado, 2011; Camfield & Esposito, 2014; Madden, 2003).

One of the primary challenges in defining poverty is the spatial/regional level of investigation in the analysis of the distribution of precarious economic conditions within countries (Ballas et al., 2017; Bramley et al., 2000; Fabrizi et al., 2008). Due to the difficulties in developing measurement procedures, governments and international agencies usually disregard within-countries differences, thus leading to unreliable portraits of the distribution and the territorial spread of poverty. Given this, Mogstad et al. (2007, p. 1) stress the role of the regional dimension in the definition of poverty, asserting that using the country level of income to identify the poverty line can omit differences in regional prices and needs, providing mixed results and "a misleading picture of the extent of poverty as well as the geographic and demographic composition of the poor."

It is clear that the choices made when defining the poverty line are, in general, a non-trivial aspect (Foster et al., 2010) and ignoring regional characteristics in the analysis of poverty across national territories may lead to high levels of unexplained variability in the data and a misleading representation of the phenomenon. The literature which attempts to account for regional disparities, cultural features and regional-specific socio-political aspects in the investigation of SWB, relies on different approaches; however, none of these strategies considers the effect of regional disparities in the identification of poverty itself for the analysis of SWB. In other words, these approaches do not account for regional aspects and living environment characteristics in the measurement of poor individuals, and this drawback may have a significant effect on the analysis of the poverty-subjective well-being nexus. This idea is supported by Veneri and Murtin (2019), who focus on the definition of a regional measure of individual living standards as multidimensional metrics obtained from both income and non-income based quantities. One of the main findings is the measurement of the distance between regional disparities in well-being estimated via income-based metrics and the estimates obtained considering the multidimensional measure of living standards.

To improve the understanding of this stream of research, we focus on three novel aspects of the relationship between SWB and poverty. First, our main aim is to investigate to what extent the use of regional specific poverty lines, as opposed to country poverty lines may improve the analysis of the satisfaction–poverty nexus. This approach enables us to refine the measurement of the impact of citizens' poverty on well-being, by directly comparing individuals' conditions with their peers. The rationale is that SWB of people living in poverty conditions may be affected by the comparison with their reference group, defined by socio-cultural and economic features observed at the regional level (Clark, 2018; Ferrer-i-Carbonell, 2005; Veenhoven, 1990). Thus, our approach allows us to stress the effect of regional reference groups for poor citizens in the analysis of the SWB-poverty nexus.

[2]Ferrer-i-Carbonell (2005) describes a reference group as a cluster of people to which the person belongs, in line with socio-demographic characteristics such as age, level of education, occupation, similar economic conditions and region of residence.

Second, the "regional" poverty-happiness relationship can be fruitfully explored by considering other indicators that measure "how much the poor are poor," in addition to the most common poverty indicators. With respect to previous literature, this analysis is also extended to account for different measures of poverty. In particular, we consider not only the condition of being poor but also the intensity and severity of being poor, creating a more complete picture of how regional poverty conditions influence the well-being of citizens.

Third, we enhance the level of investigation by exploiting the multidimensional characteristic of SWB in the nexus with regional poverty (e.g., Van Praag & Ferrer-i-Carbonell, 2004). In this stream of literature, different aspects of life are investigated in the relationship with overall life satisfaction (Bernini & Tampieri, 2022; Diener & Suh, 1997; Stiglitz et al., 2009) and aiming at evaluating various dimensions of the quality of life (Chen & Lin, 2014). The idea that some dimensions of life satisfaction can be involved at different levels of poverty and non-poverty is strongly accepted. Accounting for multidimensionality in the analysis of the impact of an individual's material condition on his/her level of subjective well-being can reveal novel insights on people's feelings (Rama, 2019), especially when a regional heterogeneity in the nexus is assumed (Graham & Felton, 2006). In this study, we investigate the informative power of life domains through the analysis of the impact of poverty conditions on alternative aspects of the lives of individuals.

To sum up, we posit the following three intertwined research hypotheses:

H1. The SWB of people living in poverty condition may be affected by the economic conditions of their peers, that are people living in the same region; thus, the use of regional poverty lines allows to provide new insights on the SWB-poverty nexus.

H2. The relevance of using the regional reference groups in the poverty-SWB nexus is confirmed also when different measurements of poverty aversion of individuals (i.e., incidence, intensity and severity) are used.

H3. The effect of a regional reference group to identify poor people may have a different impact on the satisfaction of citizens with respect to different life domains.

For the purpose of these investigations, Italy represents an interesting case study especially due to the regional disparities (i.e., North vs South) that characterize the country. Since the unification of the country in 1861, Italy has faced a large North–South divide, which persists despite the huge efforts made to determine the reasons for its existence (Capello, 2016). The Southern part of Italy has been constantly lagging behind, despite the attention that this part of the country has always received from policy-makers. Also, the territorial divide can be detected at the finest regional level, with respect to social, demographic and economic aspects. This characteristic makes Italy an effective setting to measure the impact of regional vs country poverty lines on the poverty-SWB relationship.

The analysis takes advantage of a matched database using the Aspect of Daily Life Survey (hereinafter ADL) and the Household Budget Survey (hereinafter HBS), both collected in 2016 by the Italian National Institute of Statistics (ISTAT), which contains useful information on both poverty and life satisfaction. Regional and country lines are calculated following the ISTAT procedure (ISTAT, 2018); SWB-poverty models are then estimated with respect to regional vs country lines for the different poverty measures and the overall life and domains satisfaction.

Model estimates are used to highlight the relevance and accuracy of using regional poverty lines. The debate on the opportunity to use or not a national poverty threshold when the aim is to foster cohesion and support national policies is still open. In most of the OECD countries, economic poverty parameters are estimated based on a national poverty line, assuming identical prices of goods and services and uniform economic habits across regions. Then, in areas with geographical heterogeneity in cost of living, considering households' real purchasing

power by using a regional poverty line could be relevant to gain an accurate picture of the incidence, intensity and severity of poverty. Moreover, the literature on SWB sustains that individuals evaluate their own condition by directly comparing with the closest peers (Clark et al., 2008; Vendrik & Woltjer, 2007) as well as the perception of needs depends on the reference group's circumstances, which presumably are heavily influenced by the local community to which one belongs (i.e., peers). Then, our findings allow local policy-makers to plan accurate strategies against poverty as well as policies to improve the well-being of citizens living in that area.

2 | THE REGIONAL DIMENSION OF POVERTY AND SUBJECTIVE WELLBEING

The relevance of the role that regional factors plays in analysing the poverty-SWB nexus is usually investigated following three mainstream approaches, linked by the idea of studying the ways and channels that allow regional disparities to enter into the relationship.

One of the most widely used approaches in this framework considers regional and territorial dummies to account for disparities across country/countries (Simona-Moussa, 2020; Strotmann & Volkert, 2018). The sources of heterogeneity, in this approach, are completely disregarded and the meaning behind the regional dimension of the SWB-poverty nexus is completely hidden.

A second strand of approaches enhances the model specification for individual SWB, identifying specific sources of regional heterogeneity. When regional factors enter explicitly into explaining the marginal effect of poverty on SWB, several conjectures can be formulated with respect to both a hypothetical reference group and a likely perception of well-being inequality (Luttmer, 2005). Welsh and Biermann (2019) model SWB as a function of individual poverty indicators, individual-level controls and, to account for contextual effects at NUTS 1 level, they consider both dummy variables and macroeconomic quantities (GDP and unemployment), including aggregated poverty indicators. The inclusion of individual and state level poverty degrees allows the authors to find evidence of people's sensitivity to both features.

The main feature of the third class of approaches is the treatment of regional heterogeneity across territories, jointly with the individual level of the SWB-poverty nexus. Reyes-García et al. (2019) utilize data on individuals residing in more than 150 villages in the rural areas of 21 developing countries, to investigate the effect of income inequality (either at the country or village level) on SWB, by means of a multilevel approach to model individual and village/country levels simultaneously. Giarda and Moroni (2018) use multilevel techniques to show that, when not accounting for regional effects within countries, poverty persistence is higher in Italy compared to other European countries, while if regional disparity is considered, the degree of poverty persistence in Italy is similar to the one of some other countries.

In these three sets of approaches for modelling SWB, poverty and regional disparities, the idea that the regional dimensions should enter into the definition of the poverty condition is still missing. Without referring to SWB, Mogstad et al. (2007) investigated income data, showing the limits of using a country reference line in the analysis of poverty. As expected, the authors depicted a negative downward effect in the estimation of poverty rates in urban areas and an overestimation of poverty incidence in rural areas. This provides different insights into the relevance of contextual aspects, norms and consumption habits on the sensitiveness of poor individuals. Similarly, Chauhan et al. (2016) focused on the comparison of money metric poverty and inequality in 81 regions of India, analysing poverty by means of state specific poverty lines. Ayala et al. (2014) stressed the idea of choosing a suitable poverty line aiming to improve the effectiveness of anti-poverty programs. The authors provided general support to the usage of geographically based poverty thresholds, suggesting to address the problem of spatial price differences in the definition of the reference line. Foster et al. (2010, p. 512) described the choice of the poverty line as a critical issue for "a more accurate appraisal of poverty."

Even if these studies highlighted the importance of using regional poverty lines, they did not investigate the effect of regional reference lines on individual satisfaction (see among others: Celidoni, 2015; Marivoet & De Herdt, 2015). A first attempt in the direction of evaluating the role of different reference points measuring poverty on SWB is provided by Clark et al. (2015). The authors showed that a poverty line equal to 40%, 50%, 70%, or 80% instead of 60% of the median of the equivalent income may be relevant in the investigation of the effect of poverty on happiness. However, they completely neglected the role of regions in the definition of these lines, using the changes in the reference points to distinguish the different levels of poverty.

The importance of contextual and national/regional heterogeneity characterization in the happiness-poverty nexus increases when we move to a multidimensional[3] SWB approach. Even though the economics of nappiness literature depicts a general agreement on the idea that richer individuals are more satisfied or happier about their lives, the relationship between economic conditions and satisfaction of individuals appears to change across life domains (Van Praag et al., 2003; Van Praag & Ferrer-i-Carbonell, 2004) as well as across territories (e.g., Aslam & Corrado, 2012; Hand, 2020). In general, there is an overall negative effect of poverty on satisfaction in life domains. However, considering the aspects of life separately, different impacts of poverty have been detected for economic-related domains, such as job satisfaction (Clark & Oswald, 1994), financial satisfaction (Hsieh, 2002), and social-related aspects, e.g. environment (Schleicher et al., 2018), time and leisure activities (Biwas-Diener & Diener, 2001).

In sum, despite the relevant role of regional disparities in poverty and the multidimensionality of SWB, to the best of our knowledge, these two strands of literature are not fully investigated in the same framework. This study aims to fill this gap by deepening the role of regional disparities in the way an individual's material conditions affect his/her life. The availability of detailed information at the regional level of both an individual's economic condition and life domain satisfaction could enrich this analysis, providing a complete representation of regional differences in the poverty-SWB nexus.

3 | MEASURING SWB AND NATIONAL/REGIONAL POVERTY

To estimate the effect of poverty on SWB capturing the regional dimension of the phenomenon, the first step is the definition and measurement of SWB and poverty.

3.1 | Subjective well-being: overall life and life domains

Survey data measuring well-being as self-reported scores of individual satisfaction are commonly employed by researchers. Many studies have empirically demonstrated that surveyed life satisfaction[4] can be considered a reliable measure of well-being (Helliwell et al., 2013).

Scholars and practitioners have placed their confidence in life satisfaction data, which generates an increasing number of surveys used to collect SWB information. In Italy, the national office of statistics (ISTAT) measures life satisfaction of individuals with the ADL survey, including several questions about the overall satisfaction with life as well as satisfaction for a set of different life domains. This approach clearly reflects the multidimensionality concept of SWB as is widely accepted by researchers (Van Praag & Ferrer-i-Carbonell, 2004).

[3]Nowadays it is recognized that well-being is a multidimensional phenomenon (Van Praag & Ferrer-i-Carbonell, 2004). For a comprehensive review of theories and conceptual frameworks developed in this perspective see Ivaldi et al. (2016).

[4]Veenhoven (2012, p. 1) argues that subjective well-being "it is an umbrella term for all that is good. In this meaning, it is often used interchangeably with terms like 'well-being' or 'quality of life' and denotes both individual and social welfare." Accordingly, we will use the terms 'subjective well-being', 'happiness' and 'life satisfaction' interchangeably.

3.2 | Poverty measures

Traditionally, economic poverty is measured based on expenditure or income data (Bavier, 2008; Carver & Grimes, 2019).[5] In Italy, poverty indicators are estimated by ISTAT based on household consumption data collected by the HBS survey. The standard approach employed to identify poor individuals moves from calculating individual equivalent expenditures from the total household expenditures. More specifically the total expenditure is transformed into an individual equivalent expenditure through the Carbonaro equivalence scale (ISTAT, 2018). The objective is to account for different needs and scale economies that can be achieved in households with a different number of components. Then, the poverty line for Italy is obtained based on the following definition: "a household of two components is said to be poor if its total household expenditure is lower than per capita expenditure in Italy in the same period. In 2016 the poverty line for a household of two individuals is equal 1061.35 euros." Relative poverty lines for different household sizes are obtained again using the equivalence scale.

Once the poverty line is defined, a number of poverty measures can be used to capture the different aspects of the phenomenon. In this analysis, we consider the Foster et al. (1984) family of metrics (hereafter, FGT). The FGT indexes are among the most well-known metrics used to measure this economic phenomenon, primarily due to the simplicity of the structure and interpretation in addition to the capacity to go beyond a common poverty status and in particular to capture the inequality component of poverty (Foster et al., 2010).[6]

This family of poverty measures is based on the normalised poverty gap $\left(\frac{z-x_i}{z}\right)$ and it is defined as:

$$FGT(\alpha) = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{z-x_i}{z}\right)^{\alpha} \qquad i = 1,\ldots,q, \quad \alpha \geq 0, \tag{1}$$

where z is the poverty line, x_i is the equivalent consumption of the ith individual, N is the population size, q is the number of persons who are poor (that is with $x_i \leq z$), and $\alpha \geq 0$ is a "poverty aversion" parameter. In particular, the higher the value associated with the aversion parameter, the higher the relevance accounted for in the lower tail of the consumption distribution and the use of this parameter links the analysis of poverty conditions to the inequality among the sample of poor individuals. In literature, when the poverty aversion parameter α is set to zero, we obtain the so-called incidence of poverty also identified as headcount ratio, while poverty intensity (or poverty gap index) and poverty severity (or severe poverty gap index) are obtained referring to $\alpha = 1$ and $\alpha = 2$, respectively. In general, when α goes to infinity the index relates only to the smallest incomes.

As for the definition, this class of poverty measures is based on the individual relative gap:

$$d_i^{\alpha} = \left(\frac{z-x_i}{z}\right)^{\alpha}\mathbf{1}_{x_i \leq z} \qquad i = 1,\ldots,N, \tag{2}$$

where $\mathbf{1}_{x_i \leq z}$ is an indicator function that assumes value equal one if the equivalent expenditure for the ith individual, x_i, is lower than the poverty line z (poor individual), zero otherwise.

The comparison of the SWB-poverty nexus at regional and country levels can be provided by using different solutions, as previously described. In this analysis, we aim to capture regional disparities in the nexus considering

[5]There is a large body of literature discussing on the opportunity to measure poverty based on income or on consumption data. In general, there is agreement that both variables have advantages and disadvantages in measuring poverty, depending on the context (location, type of population, economic framework, and so on). Besides, the literature shows empirical evidence that consumption provides a better measure of well-being than income (Meyer & Sullivan, 2011, 2012). Recently empirical studies have also shown that consumption is largely related to well-being and life satisfaction than income (Brown & Gathergood, 2020). In Italy the estimation of official poverty parameters is based on the Household Budget Survey, that is on consumption, and equivalent consumption is obtained based on the Carbonaro equivalence scale. By considering that, we decided to match HBS and ADL and to measure poverty parameter based on consumption, following the same approach adopted by ISTAT.

[6]See Foster et al. (2010) for an extensive discussion on the properties of the class of decomposable poverty measures and a review of the literature on the uses of FGT indexes for the analysis of poverty, inequality and well-being.

both macroeconomic quantities and region-specific poverty lines. The rationale is to capture possible residual contextual effects not directly related to poverty and mainly caused by aggregate economic conditions, in line with Di Tella et al. (2003).

Formally, the regional counterpart of the national poverty line is obtained by adapting the ISTAT's procedure to the *r* Italian regions, and then calculating the corresponding *r* poverty lines. The regional individual class of poverty measures is thus defined by:

$$d_{ir}^{\alpha} = \left(\frac{z_r - x_{ir}}{z_r}\right)^{\alpha} \mathbf{1}_{x_{ir} \le z_r}, \quad r = 1,\ldots,20,\ i = 1,\ldots,N_r,\ \sum_r N_r = N. \tag{3}$$

This approach provides a set of measures of poverty at the regional level, which can improve the investigation of the SWB-poverty nexus.

4 | MODEL SPECIFICATION

Investigating the relevance of the regional dimension in the SWB-poverty association, the baseline model can be defined by:

$$LS_i = \alpha + \boldsymbol{\beta}' \mathbf{Poverty}_i + \boldsymbol{\theta}' \mathbf{Ind}_i + \boldsymbol{\psi}' \mathbf{Reg}_i + \varepsilon_i, \qquad \varepsilon_i \sim iid\left(0, \sigma^2\right), \tag{4}$$

where $LS_i, i = 1,\ldots,n$, is the level of subjective well-being (self-)reported by individuals, and it can be written as a linear function of $Poverty_i$, defined by different combination of the individual poverty metrics d_i^{α}, when $\alpha = 0,1,2$, and several control variables. d_i^0, d_i^1 and d_i^2 are, respectively, the individual component of the poverty incidence index, of the poverty intensity index (through the gap in individual expenditure from the poverty line), and of the poverty severity, through the squared poverty gap. Using the indicator function that assumes a value of 1 for poor people, these variables are set to zero for non-poor people.

The controls can be grouped in two sets of variables: the first relates to individual and household characteristics, collected through the vector Ind_i, and the second set of indicators, namely, Reg_i, represents regional and contextual features. In the first set of controls, we account for the gender of individual with the dummy variable $Female_i$, with a baseline group of males; Age_i in measured by means of four dummies for age classes; $nComp_i$ is the number of household components; the marital status of the individual is inserted using three dummies representing the conditions of $Married_i$, $Divorced_i$, and $Widower_i$, while we control for high levels of education through a dummy variable equal to one for individuals with university and post-graduate degrees $HighEducation_i$; finally we include a dummy for the economically risky status of the labour-force $Unemployed_i$.

The second set of determinants is inserted in the model to control for the regional dimension of the phenomenon, including disparities in the structure of prices, the production and taxation systems as well as in the administrative regulation and territorial economic development. Therefore, a set of macro-economic variables at NUTS 2 level (in Equation (4) given by Reg_i) completes the model specification. Following Di Tella et al. (2003), the set includes: the logarithm of GDP *per capita* (*lnGdp*), the consumer price index (*lnCpi*), the seniority rate (*Senior*) obtained as the ratio between the number of over-65 s and the number of under-14 s, and the kilometres of routes and highways in the region (*lnInfrastruct*), as a proxy for isolation and underdeveloped areas. We also introduced Italian macro areas (*North*, *South*) and urbanization level (*Metropolis*, *Rural*), to control for the role of other territorial features and urbanization level on SWB (Giacalone et al., 2022).

As discussed earlier, we aim to provide evidence of the happiness-poverty nexus by estimating two different models: the first with incidence and intensity (identified below by Model A) poverty and, the second model considering incidence and severity (below as Model B). Then, the model in Equation (4) can be rewritten as follows:

Model A—country

$$LS_i = \alpha_1 + \beta_{01}\, d_i^0 + \beta_{11} d_i^1 + \theta_1 Ind_i + \psi_1 Reg_i + \varepsilon_{i,1} = \alpha_1 + \beta_{01}\left(\frac{z - x_i}{z}\right)^0 \mathbf{1}_{x_i \le z} + \beta_{11}\left(\frac{z - x_i}{z}\right)\mathbf{1}_{x_i \le z} + \theta_1 Ind_i + \psi_1 Reg_i + \varepsilon_{i,1}, \tag{5a}$$

Model B—country

$$LS_i = \alpha_2 + \beta_{02}\, d_i^0 + \beta_{22} d_i^2 + \theta_2 Ind_i + \psi_2 Reg_i + \varepsilon_{i,2} = \alpha_2 + \beta_{02}\left(\frac{z - x_i}{z}\right)^0 \mathbf{1}_{x_i \le z} + \beta_{22}\left(\frac{z - x_i}{z}\right)^2 \mathbf{1}_{x_i \le z} + \theta_2 Ind_i + \psi_2 Reg_i + \varepsilon_{i,2}, \tag{5b}$$

where d_i^0, d_i^1, d_i^2 are the poverty indicators of the ith individual below the country reference line. The two alternative combinations of poverty metrics allow us to capture the effects of alternative poverty aversion degrees (i.e., loss aversion) on the well-being of the population (Vendrik & Woltjer, 2007).

Similarly, we can rewrite Equation (4) to account for regional lines by substituting the (national) reference point z with z_r. Then, regional poverty enters the two specifications as

Model A—regional

$$LS_i = \alpha_{1r} + \beta_{01r}\, d_{i,r}^0 + \beta_{11r} d_{i,r}^1 + \theta_{1r} Ind_i + \psi_{1r} Reg_i + \varepsilon_{i,1r}, \tag{6a}$$

Model B—regional

$$LS_i = \alpha_{2r} + \beta_{02r}\, d_{i,r}^0 + \beta_{22r} d_{i,r}^2 + \theta_{2r} Ind_i + \psi_{2r} Reg_i + \varepsilon_{i,2r}. \tag{6b}$$

The proposed specifications investigate the poverty-SWB nexus, by considering the comparing attitude of people with their closest peers as proxied by the use of regional poverty lines as reference points. With respect to previous literature, this approach allows a finer detail of reference (regional than national) in the measurement of the impact of poverty condition on individual well-being. Models in Equations (5) and (6) are then estimated for overall life satisfaction and with respect to the different life domains.

5 | THE DATA

In Italy, data about life satisfaction and a large spectrum of aspects of life and living habits of residents is collected yearly by ISTAT through the "Multipurpose Survey on Households: Aspects of Daily Life", which provides information related to the satisfaction of individuals both for overall life (i.e., life satisfaction, hereinafter *LS*) and for specific domains. In particular, the ADL asks people to answer the question "How much are you currently satisfied with your life as a whole?" on an 11 point-scale, from 0 to 10, where 10 is the highest level of satisfaction; while the life domains investigated are own economic condition (*Deco*), relationship with relatives (*Drel*) as well as with friends (*Dfri*), health status (*Dhea*), living environment (*Denv*) and leisure time and activities (*Dlei*). In this frame, people are asked to provide a score about their satisfaction levels from 1 to 4 (in the survey: 1 is completely satisfied; 4 completely dissatisfied; here appropriately inverted to improve coherence with the life satisfaction scale) to each domain, with the question: "Think about the past 12 months. How much are you satisfied with the following aspects that have affected your life?"

Data collection on household expenditure and the definition of poverty conditions in Italy is also conducted by ISTAT. However, the office of statistics gathers this information in a different survey, the Household of Budget

Survey. The final dataset is mainly a collection of disaggregated expenditures showing the monthly spending habits of Italian households. This amount of information is used by ISTAT to provide the level of poverty observed at country level, via the identification of the national poverty line.

To evaluate the effect of poverty conditions on SWB controlling for regional disparities, in this analysis we combine the data of HSB and ADL by using statistical matching techniques (D'Orazio et al., 2006).[7] The matching procedure is allowed by the homogeneity of the methodological aspects characterizing the two surveys. A detailed description of the comparability of the surveys, the statistical matching procedure used in this study and the main results of the fusion are reported in Appendix A in the Supporting Information.

5.1 | The descriptive statistics

Two thirds of the Italian population living below the national poverty line are residents in the South (and Islands) of Italy (Table 1). The remaining 34% is living in the North (20%) and in Central Italy 14%. Substantial differences across macro-areas can also be seen in the satisfaction scores, showing a gradual decrease from the Northern to the Southern territories. This decreasing pattern (jointly with slightly higher levels of variability) is found not only in overall life satisfaction but in all six domains considered in the analysis (Table 1 and Figure 1).

The North–South divide is confirmed, apart from Lazio, also in the comparison of the distribution of poverty across the territory when FGT metrics are calculated with both country and regional poverty lines (Figure 2).[8] In particular, the Northern regions reveal a general increase in the averages of poverty indicators when calculated with regional lines, while opposite paths are observed for regions of the South for all the three values of aversion. Furthermore, several insights about the relevance of adopting a regional poverty perspective in the analysis of SWB can be detected by focusing on the comparison of the poverty measures across regions. First, the variability of the FGT values decreases strongly, reinforcing the idea that a regional perspective may be useful in weakening the effect of the North–South divide in favour of greater attention to regional disparities. Second, the ranking of regions in terms of poverty changes drastically. Rich regions such as Emilia-Romagna with the lowest level of poverty incidence (2.28%) using the poverty country line, display regional FGT(0) that are in line with or higher than those observed for Southern regions. Similar patterns are observed for higher levels of poverty aversion, confirming the relevance of a regional perspective in the analysis of the poverty-SWB relationship.

6 | RESULTS

6.1 | Country vs regional poverty line: overall life satisfaction

The estimates of parameters in Equation (4) are carried out on the whole Italian sample; the national poverty line for 2016 is provided by ISTAT. Focusing on our first research question (H1), we estimate two types of models, Model A and Model B (see Equation (5) and (6)), by considering both a national and regional line. Correlations between

[7]The use of the matching dataset instead of using data coming from the EU-SILC survey is supported by some reasons. First, for the year 2016, the questionnaire did not include items related to possible satisfaction scores. Second, aiming at furnishing interesting insights to Italian regional and national governments for the development of relevant policies for poverty, we consider the standard approach of the Italian Institute of Statistics to measure poverty, that is, the use of the Carbonaro equivalence scale to make household expenditures (and not income) comparable in accordance to the number of household members. In line with this consideration and due to the absence of information about expenditures in the EU-SILC dataset, we decide for the HBS-ADL fusion. Moreover, the stability over time of the Italian surveys in term of questionnaire structure and answers makes the results of the investigation also comparable over time. This leads policy-makers to the development of possible monitoring strategies for poverty and well-being in the medium-long run.

[8]Differently from the FGT(1), ISTAT calculates the poverty intensity by averaging gaps on the number of poor people (ISTAT, 2018).

TABLE 1 Descriptive statistics.

	Italy	
	n = 22,816	
	Mean	Sd
HouseholdComp	2.44	1.13
Age	49.41	22.18
Gender (1 = Female)	0.64	0.48
Single	0.50	0.50
Married	0.32	0.47
Divorced	0.07	0.25
Widower	0.11	0.32
Primary school	0.16	0.37
Secondary school	0.25	0.44
High school	0.41	0.49
High Education	0.14	0.35
Unemployed	0.13	0.34
Retired	0.23	0.42
LS	7.03	1.58
Deco	2.43	0.74
DRel	3.24	0.64
DFri	3.05	0.70
DHea	2.93	0.69
DEnv	2.81	0.75
DLei	2.79	0.76
FGT(0)	0.10	0.30
FGT(1)	0.02	0.09
FGT(2)	0.01	0.04

Notes: ClassAge: 1 = 18–24 years old; 2 = 25–29; 3 = 30–35; 4 = 25–29; 5 = 30–35; 6 = 35–39; 7 = 40–45; 8 = 45–49; 9 = 50–55; 10 = 55–59; 11 = 60–65; 12 = 65–74; 13 = over 75. LS: Life Satisfaction, 1–10, from "Very Dissatisfied" to "Very Satisfied." DEco: domain economic condition; DRel: relationships with relatives; DFri: friendships; DHea: health condition; DEnv: living environment; DLei: leisure time and activities: 1–4, from "Very Dissatisfied" to "Very Satisfied."

variables included in the model and LR tests have been used to support our model specifications (see Appendix B in the Supporting Information).

Results, in line with the literature (see Clark, 2018 for a recent review), confirm a negative association between poverty status, intensity, severity and SWB (Table 2). When we adopt the conventional country poverty line, the effect of living below the poverty line is negative, causing a decrease in satisfaction towards life of 0.107 points. When we focus on the relative distance to the Italian poverty line (left side of the "National" columns in Table 2) a similar result emerge: the higher the poverty gap, identified by the intensity parameter[9] d^1, the lower the level of an individual's life satisfaction. An aggravation in the poverty condition of one unit in the gap is associated with an average lower level of life satisfaction of 0.517 points. This worsening effect is stronger when more weight is given to

[9]For sake of simplicity here we use the terms *incidence*, *intensity* and *severity* with reference to the d_i^{α} variables, whereas in the poverty literature they are used for the FGT(α) index, respectively with α =0,1,2.

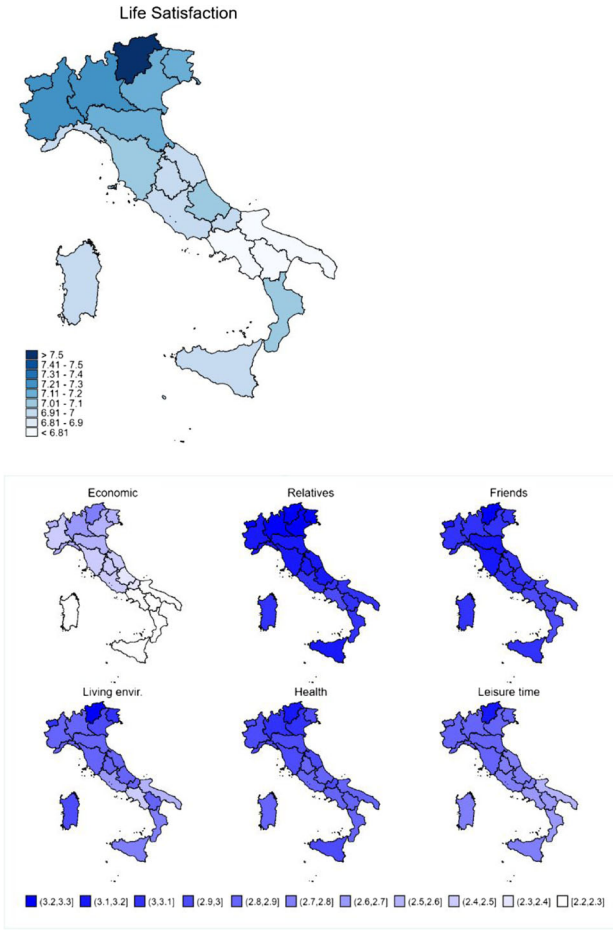

FIGURE 1 Satisfaction for life domains distribution across Italian regions.

the lower tail of the distribution of poverty: the focus on the role of poverty severity (Model B under the "National" column in Table 2) reveals a higher sensitivity of SWB to poverty. Specifically, the effect of living below the poverty line rises, in absolute value, until −0.147, while the impact of the squared gap almost doubles the individual component of the incidence parameter (−0.954). This last result highlights that increasing inequality among poor people causes a larger reduction in satisfaction with respect to a satisfaction reduction by poverty intensity.

Using the regional lines (Equation (6)), several differences, especially in the magnitudes of the estimated coefficients, can be found, supporting our first research hypothesis H1. Focusing on the regional incidence and intensity, the estimates show that the incidence parameters are not significatively different from zero. Although the country is characterized by an economic divide, the empirical evidence confirms the substantial inability to detect the poverty status (of being under the line) when the reference territory is constrained to the region of residence. On the other hand, the coefficient associated with regional poverty intensity substantially increases (−0.982) with respect to the same estimated coefficient referred to the national line Model A; when a regional line is used, as the gaps increase, the reduction of satisfaction is larger than that measured with a national line. Poor people, comparing their own economic conditions with that of their nearest neighbours, acquire more awareness of their own disadvantage.

This increase in the sensitivity of SWB is also notable in Model B where we simultaneously consider the incidence and severity of poverty: here the coefficient related to the incidence remains about the same (−0.126 with

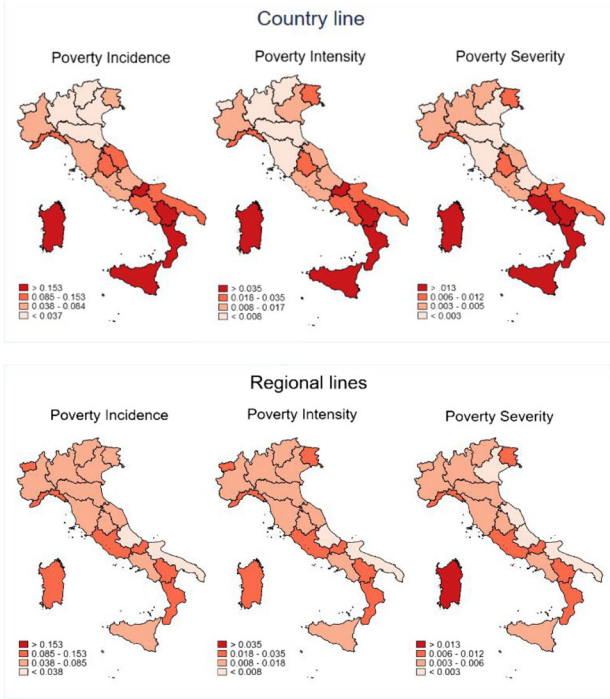

FIGURE 2 FGT(α=0,1,2) distribution across Italian regions: country vs regional lines.

the regional and −0.147 with the national line), whereas the coefficient associated to the squared gap substantially rises until −1.769, almost double the former. This result gives us a further indication about the importance of considering a regional reference point to measure poverty: the reduction of happiness in poor people when poverty increases is larger for poorer people and this reduction is larger when a regional line is used. Even in this case, the reference to a closer environment (to people living in one's own region) seems to lead the poor to suffer their condition more, with an increased sensitivity to poverty. These findings support our research hypothesis H2, and highlight the need of considering different measures of poverty at the regional level to fully understand the relationship among SWB and poverty conditions.

To complete the analysis of the determinants of SWB, we examine the role of the individual socio-demographic characteristics and the macro-economic variables included in the specification. The two sets of controls do not depict substantial differences when regional and country lines are compared. Being divorced or widowed decreases the level of SWB when compared to the marital status of being single (Lenzi & Perucca, 2018). A similar result is obtained considering the unemployment conditions of individuals. Although being employed initially appears closely related to the economic conditions of people, it contributes to life satisfaction by allowing individuals to be included in social networks and supportive settings (Stansfeld et al., 2013). Age is the last aspect that depicts a significant negative sign. The role of this variable is central in characterising both SWB as a well-known U-shape function (Blanchflower & Oswald, 2008), and the level and the composition of expenditures as varying along the life cycle (Fernandez-Villaverde & Krueger, 2007). In this study, excluding the first dummy, all age classes of age are associated to negative coefficients, suggesting a standard U-shape profile. Still in line with empirical findings in the literature (Deeming, 2013), both a high level of education and living with a partner (*Married* for brevity in Table 2) have positive effects on the level of life satisfaction of individuals as is commonly found (Guillen-Royo, 2008).

Moving to the contextual characteristics included in the model, all macroeconomic variables are significant in the definition of individual SWB, as representative of the development and growth level of the surrounding territory

TABLE 2 Estimates of the impact of the poverty indexes on overall life SWB, with national and regional lines.

	National				Regional			
	Model A		Model B		Model A		Model B	
Poverty variables								
d^0- incidence	−0.107	*	−0.147	***	−0.046		−0.126	**
d^1- intensity	−0.517	**	-		−0.982	***	-	
d^2- severity	-		−0.954	***	-		−1.769	***
Socio-demographic variables								
Female	0.024		0.023		0.022		0.022	
Ncomp	0.023	**	0.024	**	0.025	**	0.025	**
Age30–39	−0.048		−0.049		−0.047		−0.047	
Age40–49	−0.159	***	−0.159	***	−0.155	***	−0.154	***
Age50–59	−0.229	***	−0.229	***	−0.231	***	−0.230	***
Age60+	−0.157	***	−0.158	***	−0.158	***	−0.159	***
Unemployed	−0.169	***	−0.168	***	−0.171	***	−0.169	***
High Education	0.241	***	0.241	***	0.242	***	0.242	***
Married	0.130	***	0.130	***	0.132	***	0.132	***
Divorced	−0.121	**	−0.121	**	−0.119	**	−0.117	**
Widower	−0.349	***	−0.348	***	−0.343	***	−0.342	***
Contextual variables								
lnGDP	0.451	***	0.449	***	0.511	***	0.512	***
lnCPI	−0.641	*	−0.639	**	−0.718	**	−0.719	**
lnInfrast	0.019		0.019		0.022		0.023	
North	0.126	***	0.126	***	0.123	***	0.123	***
South	0.069		0.068		0.069		0.069	
Metropolis	−0.047		−0.048		−0.045		−0.044	
Rural	0.039	*	0.039	*	0.038		0.039	
Const	5.213	***	5.218	***	4.923	***	4.933	***

Note: *** 1% significance level; ** 5% significance level; * 10% significance level.

where people live. Then, the use of dummy variables to differentiate among rich and poor regions is narrow in terms of informative power and does not capture all the heterogeneity in SWB data. The effect of both GDP and infrastructure is positive (Table 2): the two variables together can be considered representative of a general level of "richness" and development of the territory. Moreover, the presence of an adequate transportation system that connects all areas in the region can generate improvements to life satisfaction, for instance, by reducing the average distance travelled, facilitating access to economic and social services and other features (e.g., work, friends and family, or health care system). Conversely, the effect of the consumer price index, inserted in the model to account for price differentials on goods across regions, shows a negative effect on individual SWB, when, as expected, prices increase. Finally, aiming to account for the part of regional variability in the data not explained by economic variables aggregated at the NUTS 2 level, macro areas and urbanization degree dummies confirm the expected divergence between North, Central and Southern territories (with a significant positive coefficient estimated for the richest Italian regions, that is, Northern areas, with respect to the Centre of Italy) and a statistically significant negative effect associated to living in metropolitan areas when compared to urban territories.

6.2 | Country vs regional poverty line: life domains satisfaction

The impact of poverty metrics on life domains is used to provide further evidence on the fundamental role of regional dimensions in explaining SWB, as underlined in our research hypothesis H3. The life-domain models are estimated using an ordered logit approach, adopting the same specifications of equations (5) and (6) for the deterministic part (Table 3).

In general, consistent with Rama (2019), the results related to poverty variables obtained for the life domains are not always in line with findings related to overall life satisfaction, showing non-negligible differences both in terms of estimated coefficient and statistical significance (Table 3[10]).

Being poor, regardless of the distance from the country's poverty line, has a negative and significant effect on satisfaction with one's own economic condition, health status and leisure time. These effects are higher than that observed for overall life satisfaction; in particular, satisfaction with the economic condition as well as health condition are both strongly affected by the condition of being poor (−0.326 and −0.298, respectively), while the impacts on remaining domains are negligible and not significant. The relationship between poverty and economic and health

TABLE 3 Estimates of the impact of the poverty indexes on life domains SWB, with national and regional lines.

		National					Regional			
		Model A		Model B			Model A		Model B	
DEco	d^0	−0.326	***	−0.421	***	d_r^0	−0.257	***	−0.419	***
	d^1	−1.107	***			d_r^1	−1.817	***		
	d^2			−1.912	***	d_r^2			−3.074	***
DRel	d^0	−0.062		−0.089		d_r^0	−0.008		−0.057	
	d^1	−0.262				d_r^1	−0.477			
	d^2			−0.395		d_r^2			−0.714	
DFri	d^0	−0.111		−0.145	***	d_r^0	−0.120		−0.139	**
	d^1	−0.258				d_r^1	−0.162			
	d^2			−0.298		d_r^2			−0.201	
DHea	d^0	−0.298	***	−0.331	***	d_r^0	−0.228	***	−0.292	***
	d^1	−0.309				d_r^1	−0.645	**		
	d^2			−0.452		d_r^2			−0.991	**
DEnv	d^0	−0.009		−0.067		d_r^0	−0.001		−0.069	
	d^1	−0.449	**			d_r^1	−0.678	**		
	d^2			−0.538		d_r^2			−1.035	**
DLei	d^0	−0.126	*	−0.141	***	d_r^0	−0.177	**	−0.177	***
	d^1	0.085				d_r^1	0.106			
	d^2			0.401		d_r^2			0.317	

Notes: *** 1% significance level; ** 5% significance level; * 10% significance level. All the estimated models include the socio-demographic and the contextual variables.

[10]The estimates for the whole set of models are available on request from the Authors.

conditions is well known in the literature; these two aspects are two of the main dimensions of the multidimensional poverty concept (Zhou et al., 2021), representing basic needs in individuals' lives. Being poor has also a strong effect on leisure aspects such as the possibility of recreational and leisure activities, or time to pursue hobbies and interests (Rojas, 2008). Besides the impact observed on the economic domain, the individual component of poverty intensity (i.e., d_i^1) negatively affects only living environment conditions, supporting the idea that, when individuals are far from the poverty line, their satisfaction with their living environment diminishes. This evidence suggests a potential link between poverty intensity and exposure to negative environmental conditions. People at risk of poverty often live in areas characterized by environmental issues (Payne-Sturges & Gee, 2006) and these issues may, in turn, impact their quality of life (for example, by affecting their health or by decreasing the value of their residential property).

When different regional lines are considered in the estimation of Equation (6), improvements in the significance levels as well as changes in the magnitudes of the coefficients associated to poverty variables can be observed, while the results for the controls remain largely stable. Among the main differences, the most affected life domain is economic condition. Here, while the impact of the poverty dummy reduces slightly, the estimated coefficient associated to individual intensity moves from −1.107 to −1.817. Even the domain related to health conditions shows a difference when regional lines are considered. Specifically, a context-related perspective of the poverty phenomenon leads to a slight decrease in the absolute value of the estimated coefficient associated to poverty incidence (from −0.298 to −0.228), while the individual component of intensity d_r^1 becomes significant in explaining satisfaction (−0.645). A possible motivation behind the relevance of the impact of individual gap may be found in the regional nature of the public and private healthcare system in Italy. The description provided by the World Health Organization defines the Italian public system as covering a large number of healthcare treatments (e.g., tests, medications, surgeries during hospitalization, family doctor visits) mostly free of charge (or with a small co-payment). However, "Health care facilities vary in terms of quality in different regions of Italy," with some hospitals falling below the standard. In addition to the public system, the private health sector in Italy has a considerable presence. As stated by Cavalieri and Guccio (2006), some of the 20 regions have greater than 50% of the overall health care supplied by private services. In this sense, the gap from the poverty line becomes fundamental for accessing many healthcare procedures and therefore, satisfaction with health conditions.

When the attention moves to considering the poverty severity, the nexus between life domain SWB and poverty reveals further insights on the role of regional lines. Accounting for a country line, the inclusion of a squared term instead of the baseline gap from poverty assesses the primary role of the individual component of poverty incidence, or in other words, the role of poverty as the main important feature in helping basic human needs (Diener & Oishi, 2000). Specifically, the estimates confirm previous findings related to the estimates obtained for SWB with economic status, health condition and leisure activity life domains. Importantly, the relationship with friends also becomes significant at the 1% significance level, showing a reduction of satisfaction for social aspects in lives of poor people. This association, together with the one observed for leisure time and activities, is supported by the well-known relation that characterizes poverty conditions and topical concepts of social domains such as social exclusion, marginalization and precarity (Böhnke, 2001). Indeed, poverty status naturally imposes economic constraints as well as psychological restrictions, leading to repercussions such as increased alcohol abuse, a growing inability to deal with stress or create helpful social networks (Khan et al., 2002). This result is even more evident when regional poverty lines are considered. In this case, in fact, the distance to the poverty reference also becomes statistically significant, confirming the role of the regional lines.

The effect of the country line to mask the impact of poverty on SWB is observed not only for the relationships with friends but also for the domain of life related to health conditions. Indeed, when we account for region-specific poverty lines, the estimate associated to d_i^0 (i.e., living below the poverty line) diminishes, and the relationship between health domain and poverty appears to be driven by both d_r^0 and d_r^2. Moreover, also the analysis of SWB on economic aspects of individuals' lives shows the impact of region-specific lines: in particular the estimated coefficient that relates to the individual component of the poverty severity parameter keeps decreasing, moving from −1.912 for d^2 to −3.074 of the region-specific counterparts d_r^2.

6.3 | Robustness checks

To further support our results, we provide some robustness checks. First, we focus on the hypothesis of cardinality in the measurement of satisfaction. The concept of SWB is based on the questions posed with respect to either life's domains or overall life. The answers to such questions are generally collected on a numerical scale (i.e., in our case life satisfaction is measured on a 10-point scale). In this manner we are assuming that respondents have a conception of a worst and a best situation and posit their situation between those points. There is now a growing consensus that such answers have both cardinal and ordinal significance. Ferrer-i-Carbonell and Frijters (2004) and Frey and Stutzer (2002) show that the assumption of cardinality or ordinality of the answers to general satisfaction questions is relatively unimportant to results, because their scores are similar. This issue is verified by the estimation of the model for life satisfaction through ordered logit regression technique. The rationale is that, if cardinality and ordinality offer similar measures, the use of ordered logit models or linear models is expected to provide qualitatively similar findings. Results presented in Table C1 of Appendix C in the Supporting Information, largely confirm those obtained by using a linear model.

Second, as for life domain scores (Deco – Dlei), they are measured on a 4-point scale and ordered logit estimation approach is used in the empirical analysis. An alternative approach for the analysis of the SWB-poverty nexus might be to collapse these variables into dummies (e.g., 1 = satisfied; 0 = dissatisfied). This strategy allows us to evaluate differences in estimates due to the measurement scale. Again, estimates reported in Table C2 of Appendix C in the Supporting Information, largely confirm those obtained by means of the ordinal logit model.

7 | CONCLUSIONS AND FURTHER DEVELOPMENTS

Over the last decades, the economics of happiness literature has increasingly attempted to account for regional, cultural and socio-political disparities in the investigation the of SWB-poverty nexus (Clark, 2017), utilizing a (wide) set of instruments and statistical approaches. However, the effect of regional disparities in the identification of poverty still remains undervalued (Mogstad et al., 2007), and the sensitivity of the definition of poor individuals to regional disparities for the analysis of subjective wellbeing has not been thoroughly analysed. Our analysis aimed to provide a comprehensive representation of the role that regional disparities play across the Italian territories, at NUTS 2 level, on the nexus between poverty and SWB with overall life and with several life domains, when the territorial dimension is included in the definition of poverty conditions.

Regardless of the level of poverty aversion, the findings showed an increase in the sensitivity of SWB to worsening poverty conditions when the regional disparities are considered (H1). In other words, the reference to peers as given by a closer environment (that is with people living in one's own region) seems to lead poor individuals to suffer more from their condition. Specifically, when poverty conditions are measured with a regional reference point to specify individual measures of poverty incidence and intensity, the statistical significance level and the estimates of the coefficients both increase. On the other hand, the relevance of a regional perspective in measuring the effect of living below the poverty line appears to improve when greater attention is paid to the poorest individuals. In particular, when individual measures of poverty incidence and severity are included in the analysis, several coefficients associated to severity become significant only when a regional line is considered (H2). This is the case of health, living environment and friendships, where the effects of the squared distance from the poverty lines are empirically confirmed only when poverty is considered as a regional phenomenon (H3).

Policies against poverty are responsibility of both the national government and local policy-makers (Jung et al., 2015); thus, the analysis based on regional lines, combined with the information obtained by the use of standard country lines, can be used to provide a more effective and specific measurement of the poverty-SWB nexus. Our results can be useful in supporting local policies against poverty and devoted to improving happiness for all residents. In line with Welsh and Biermann (2019), poverty does not only affect poor people by definition, but it also provides

negative effects on the non-poor counterpart of the population, which is linked to preventing social unrest (Acemoglu & Robinson, 2000). Since the significant relationship that characterizes economic conditions of people, their level of satisfaction and the regional context, policy-makers should be strongly aware of the possible misleading results caused by disregarding the contextual feature from the measurement of poverty. When government agents focus planning efforts on an adequate assignment of public resources to the poorest households, on developing poverty alleviation programs, this allocative efficiency problem has to be considered as a local concept. This is the case with the cohesion policy supported by the EU, which provides funds to regions lagging behind with the aim of reducing poverty and social exclusion. Measurement tools enabling a better identification of regions are required to obtain the highest impact from investments (Annoni & Weziak-Bialowolska, 2016). In this context, poverty is shown to be a local concept, with high levels of within-country variability. Findings support the need for policy agents to consider poverty as a regional phenomenon, due to high levels of within-country variability, since neglecting regional or national differences in the measurement of poverty indices may provide misleading results in term of poverty diffusion patterns, policies against poverty (Niemietz, 2010) and therefore, in terms of individual satisfaction.

While a standard approach in the analysis of SWB-poverty disregard possible causality issues in the relationship, further developments and extensions of the work would empirically investigate structural features in the nexus, aiming at shedding new light on the regional behaviour of the phenomenon.

ACKNOWLEDGEMENTS

Open Access Funding provided by Universita degli Studi di Bologna within the CRUI-CARE Agreement.

ORCID

Cristina Bernini https://orcid.org/0000-0001-9465-8492

REFERENCES

Acemoglu, D., & Robinson, J. A. (2000). Why did the West extend the franchise? Democracy, inequality and growth in historical perspective. *Quarterly Journal of Economics*, *115*, 1167–2000. https://doi.org/10.1162/003355300555042

Annoni, P., & Weziak-Bialowolska, D. A. (2016). Measure to target antipoverty policies in the European Union regions. *Applied Research in Quality of Life*, *11*, 181–207. https://doi.org/10.1007/s11482-014-9361-z

Aslam, A., & Corrado, L. (2012). The geography of well-being. *Journal of Economic Geography*, *12*(3), 627–649. https://doi.org/10.1093/jeg/lbr041

Ayala, L., & Jurado, A. (2011). Pro-poor economic growth, inequality and fiscal policy: The case of Spanish regions. *Regional Studies*, *45*(1), 103–121. https://doi.org/10.1080/00343400903173209

Ayala, L., Jurado, A., & Pérez-Mayo, J. (2014). Drawing the poverty line: Do regional thresholds and prices make a difference? *Applied Economic Perspectives and Policy*, *36*(2), 309–332. https://doi.org/10.1093/aepp/ppt053

Ballas, D., Dorling, D., & Hennig, B. (2017). Analysing the regional geography of poverty, austerity and inequality in Europe: a human cartographic perspective. *Regional Studies*, *51*(1), 174–185. https://doi.org/10.1080/00343404.2016.1262019

Bavier, R. (2008). Reconciliation of income and consumption data in poverty measurement. *Journal of Policy Analysis and Management*, *27*(1), 40–62. https://doi.org/10.1002/pam.20306

Bernini, C., & Tampieri, A. (2022). The mediating role of urbanization on the composition of happiness. *Papers in Regional Science*, *101*(3), 639–657. https://doi.org/10.1111/pirs.12671

Biwas-Diener, R., & Diener, E. (2001). Making the best of a bad situation: Satisfaction in the slums of Calcutta. *Social Indicators Research*, *55*, 329–352. https://doi.org/10.1023/A:1010905029386

Blanchflower, D. G., & Oswald, A. J. (2008). Is wellbeing U-shaped over the life cycle? *Social Science and Medicine*, *66*, 1733–1749. https://doi.org/10.1016/j.socscimed.2008.01.030

Böhnke, P. (2001). Nothing left to lose? Poverty and social exclusion in comparison. In *Empirical evidence on Germany*. Social Science Research Center Berlin (WZB). Discussion Papers: Social Structure and Social Reporting FSIII 01–402, WZB Berlin Social Science Center.

Bramley, G., Lancaster, S., & Gordon, D. (2000). Benefit take-up and the geography of poverty in Scotland. *Regional Studies*, *34*(6), 507–519. https://doi.org/10.1080/00343400050085639

Brown, G. D. A., & Gathergood, J. (2020). Consumption changes, not income changes, predict changes in subjective well-being. *Social Psychological and Personality Science*, *11*(1), 64–73. https://doi.org/10.1177/1948550619835215

Camfield, L., & Esposito, L. (2014). A cross-country analysis of perceived economic status and life satisfaction in high- and low-income countries. *World Development*, *59*, 212–223. https://doi.org/10.1016/j.worlddev.2014.01.018

Capello, R. (2016). What makes Southern Italy still lagging behind? A diachronic perspective of theories and approaches. *European Planning Studies*, *24*(4), 668–686. https://doi.org/10.1080/09654313.2015.1128402

Carver, T., & Grimes, A. (2019). Income or consumption: Which better predicts subjective well-being? *Review of Income and Wealth*, *65*(S1), 256–280. https://doi.org/10.1111/roiw.12414

Cavalieri, C., & Guccio, C. (2006). *Health expenditure in Italy: A regional analysis of the public-private mix*. Political Science, Medicine. www-3.unipv.it/websiep/wp/573.pdf

Celidoni, M. (2015). Decomposing vulnerability to poverty. *Review of Income and Wealth*, *61*(1), 59–74. https://doi.org/10.1111/roiw.12074

Chauhan, R. K., Mohanty, S. K., Subramanian, S., et al. (2016). Regional estimates of poverty and inequality in India, 1993–2012. *Social Indicators Research*, *127*, 1249–1296. https://doi.org/10.1007/s11205-015-1006-6

Chen, S.-K., & Lin, S. S. J. (2014). The latent profiles of life domain importance and satisfaction in a quality of life scale. *Social Indicators Research*, *116*, 429–445. https://doi.org/10.1007/s11205-013-0309-8

Clark, A. E. (2017). Happiness, income and poverty. *International Review of Economics*, *64*, 145–158. https://doi.org/10.1007/s12232-017-0274-7

Clark, A. E. (2018). Four decades of the economics of happiness: Where next? *Review of Income and Wealth*, *64*(2), 245–269. https://doi.org/10.1111/roiw.12369

Clark, A. E., D'Ambrosio, C., & Ghislandi, S. (2015). Poverty profiles and well-being: Panel evidence from Germany. In *Measurement of Poverty, Deprivation, and Economic Mobility* (Vol. 23, pp. 1–22). Emerald Group Publishing Limited, Bingley. https://doi.org/10.1108/S1049-258520150000023001

Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature*, *46*(1), 95–144. https://doi.org/10.1257/jel.46.1.95

Clark, A. E., & Oswald, A. J. (1994). Unhappiness and unemployment. *Economic Journal*, *104*(424), 648–659. https://doi.org/10.2307/2234639

Deeming, C. (2013). Addressing the social determinants of subjective well-being: The latest challenge for social policy. *Journal of Social Policy*, *42*, 541–565. https://doi.org/10.1017/S0047279413000202

Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics and Statistics*, *85*(4), 809–827. https://doi.org/10.1162/003465303772815745

Diener, E., & Oishi, S. (2000). Money and happiness: Income and subjective well-being across nations. In E. Diener & E. M. Suh (Eds.), *Culture and subjective well-being* (pp. 185–218). The MIT Press.

Diener, E., & Suh, E. (1997). Measuring quality of life: Economic, social, and subjective indicators. *Social Indicators Research*, *40*(1/2), 189–216. https://doi.org/10.1023/A:1006859511756

D'Orazio, M., Di Zio, M., & Scanu, M. (2006). *Statistical matching, theory and practice*. Wiley. https://doi.org/10.1002/0470023554

Fabrizi, E., Ferrante, R., & Pacei, S. (2008). Measuring sub-national income poverty by using small area multivariate approach. *Review of Income and Wealth*, *54*(4), 597–615. https://doi.org/10.1111/j.1475-4991.2008.00291.x

Fernandez-Villaverde, J., & Krueger, D. (2007). Consumption over the life cycle: Facts from consumer expenditure survey data. *Review of Economics and Statistics*, *89*(3), 552–565. https://doi.org/10.1162/rest.89.3.552

Ferrer-i-Carbonell, A. (2005). Income and well-being: An empirical analysis of the comparison income effect. *Journal of Public Economics*, *89*, 997–1019. https://doi.org/10.1016/j.jpubeco.2004.06.003

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *Economic Journal*, *114*, 641–659. https://doi.org/10.1111/j.1468-0297.2004.00235.x

Foster, J., Greer, J., & Thorbecke, E. (1984). A class of decomposable poverty measures. *Econometrica*, *52*(3), 761–765. https://doi.org/10.2307/1913475

Foster, J., Greer, J., & Thorbecke, E. (2010). The Foster-Greer-Thorbecke (FGT) poverty measures: 25 years later. *Journal of Economic Inequality*, *8*(4), 491–524. https://doi.org/10.1007/s10888-010-9136-1

Frey, B. S., & Stutzer, A. (2002). *Happiness and economics: How the economy and institutions affect human well-Being*. Princeton University Press. https://doi.org/10.1515/9781400829262

Giacalone, M., Mattera, R., & Nissi, E. (2022). *Well-being analysis of Italian provinces with spatial principal components*. Socio-Economic Planning Sciences.

Giarda, E., & Moroni, G. (2018). The degree of poverty persistence and the role of regional disparities in Italy in comparison with France, Spain and the UK. *Social Indicators Research*, *136*(1), 163–202.

Graham, C., & Felton, A. (2006). Inequality and happiness: Insights from Latin America. *Journal of Economic Inequality*, *4*, 107–122. https://doi.org/10.1007/s10888-005-9009-1

Guillen-Royo, M. (2008). Consumption and subjective wellbeing: Exploring basic needs, social comparison, social integration and Hedonism in Peru. *Social Indicators Research*, *89*, 535–555. https://doi.org/10.1007/s11205-008-9248-1

Hand, C. (2020). Spatial influences on domains of life satisfaction in the UK. *Regional Studies*, *54*(6), 802–813. https://doi.org/10.1080/00343404.2019.1645953

Helliwell, J. F., Layard, R., & Sachs, J. (2013). *World happiness report*. The Earth Institute, Columbia University.

Hsieh, C. M. (2002). Trends in financial satisfaction: Does poverty make a difference? *International Journal of Aging and Human Development*, *54*, 15–30.

ISTAT. (2018). *La povertà in italia – Anno 2017*, Statistiche Report. https://www.istat.it/it/files/2019/06/La-povert%C3%A0-in-Italia-2018.pdf

Ivaldi, E., Bonatti, G., & Soliani, R. (2016). The construction of a synthetic index comparing multidimensional well-being in the European Union. *Social Indicators Research*, *125*, 397–430. https://doi.org/10.1007/s11205-014-0855-8

Jung, S., Cho, S.-H., & Roberts, R. K. (2015). The impact of government funding of poverty reduction programmes. *Papers in Regional Science*, *94*, 653–675. https://doi.org/10.1111/pirs.12089

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263–291.

Khan, S., Murray, R. P., & Barnes, G. E. (2002). A structural equation model of the effect of poverty and unemployment on alcohol abuse. *Addictive Behaviors*, *27*(3), 405–423. https://doi.org/10.1016/S0306-4603(01)00181-2

Lenzi, C., & Perucca, G. (2018). Are urbanized areas source of life satisfaction? Evidence from EU regions. *Papers in Regional Science*, *97*, S105–S122. https://doi.org/10.1111/pirs.12232

Luttmer, E. P. F. (2005). Neighbours as negatives: Relative earnings and well-being. *Quarterly Journal of Economics*, *120*, 963–1002.

Madden, J. F. (2003). Has the concentration of income and poverty among subsurbs of large US metropolitan areas changed over time? *Papers in Regional Science*, *82*(2), 249–275. https://doi.org/10.1007/s101100300151

Marivoet, W., & De Herdt, T. (2015). Poverty lines as context deflators: A method to account for regional diversity with application to The Democratic Republic of Congo. *Review of Income and Wealth*, *61*(2), 329–352. https://doi.org/10.1111/roiw.12091

Meyer, B. D., & Sullivan, J. X. (2011). Further results on measuring the well being of the poor using income and consumption. *Canadian Journal of Economics*, *44*(1), 52–87. https://doi.org/10.1111/j.1540-5982.2010.01623.x

Meyer, B. D., & Sullivan, J. X. (2012). Identifying the disadvantaged: Official poverty, consumption poverty, and the new supplemental poverty measure. *Journal of Economic Perspectives*, *26*(3), 111–136. https://doi.org/10.1257/jep.26.3.111

Mogstad, M., Langørgen, A., & Aaberge, R. (2007). Region-specific versus country-specific poverty lines in analysis of poverty. *Journal of Economic Inequality*, *5*, 115–122. https://doi.org/10.1007/s10888-006-9024-x

Niemietz, K. (2010). Measuring poverty: Context-specific but not relative. *Journal of Public Policy*, *30*(3), 241–262. https://doi.org/10.1017/S0143814X10000103

Payne-Sturges, D., & Gee, G. C. (2006). National environmental health measures for minority and low-income populations: Tracking social disparities in environmental health. *Environmental Research*, *102*(2), 154–171. https://doi.org/10.1016/j.envres.2006.05.014

Rama, M. (2019). Challenges in measuring poverty and understanding its dynamics: A South Asian perspective. *Review of Income and Wealth*, *65*(S1), S2–S32. https://doi.org/10.1111/roiw.12438

Reyes-García, V., Angelsen, A., & Minkin, D. (2019). Does income inequality influence subjective wellbeing? Evidence from 21 developing countries. *Journal of Happiness Studies*, *20*, 1197–1215. https://doi.org/10.1007/s10902-018-9992-0

Rojas, M. (2008). Experienced poverty and income poverty in Mexico: A subjective well-being approach. *World Development*, *36*(6), 1078–1093. https://doi.org/10.1016/j.worlddev.2007.10.005

Schleicher, J., Schaafsma, M., Burgess, N. D., Sandbrook, C., Danks, F., Cowie, C., & Vira, B. (2018). Poorer without it? The neglected role of the natural environment in poverty and wellbeing. *Sustainable Development*, *26*(1), 83–98. https://doi.org/10.1002/sd.1692

Simona-Moussa, J. (2020). The subjective well-being of those vulnerable to poverty in Switzerland. *Journal of Happiness Studies*, *21*, 1561–1580. https://doi.org/10.1007/s10902-019-00143-5

Stansfeld, S. A., Shipley, M. J., Head, J., Fuhrer, R., & Kivimaki, M. (2013). Work characteristics and personal social support as determinants of subjective wellBeing. *PLoS ONE*, *8*, 11. https://doi.org/10.1371/journal.pone.0081115

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2009). Report by the commission on the measurement of economic performance and social progress. *Sustainable Development*, *12*, 292.

Strotmann, H., & Volkert, J. (2018). Multidimensional poverty index and happiness. *Journal of Happiness Studies*, *19*, 167–189. https://doi.org/10.1007/s10902-016-9807-0

Van Praag, B. M. S., & Ferrer-i-Carbonell, A. (2004). *Happiness quantified—a satisfaction calculus approach*. Oxford University Press. https://doi.org/10.1093/0198286546.001.0001

Van Praag, B. M. S., Frijters, P., & Ferrer-i-Carbonell, A. (2003). The anatomy of subjective well-being. *Journal of Economic Behavior and Organization*, *51*(1), 29–49. https://doi.org/10.1016/S0167-2681(02)00140-3

Veenhoven, R. (1990). *Inequality in happiness, inequality in countries compared between countries*. Working Group Social Indicators and Quality of Life. Session 7, Social Trends and Inequality.

Veenhoven, R. (2012). Happiness: Also known as 'life-satisfaction' and 'subjective well-being'. In *Handbook of Social Indicators and Quality of Life Research* (pp. 63–77). Springer Publishers. https://doi.org/10.1007/978-94-007-2421-1_3

Vendrik, M., & Woltjer, G. (2007). Happiness and loss aversion: Is utility concave or convex in relative income? *Journal of Public Economics*, *91*(7–8), 1423–1448. https://doi.org/10.1016/j.jpubeco.2007.02.008

Veneri, P., & Murtin, F. (2019). Where are the highest living standards? Measuring well-being and inclusiveness in OECD regions. *Regional Studies*, *53*(5), 657–666. https://doi.org/10.1080/00343404.2018.1463091

Welsh, H., & Biermann, P. (2019). Poverty is a public bad: Panel evidence form subjective well-being data. *Review of Income and Wealth*, *65*(1), 187–200. https://doi.org/10.1111/roiw.12350

Zhou, D., Cai, K., & Zhong, S. (2021). A statistical measurement of poverty reduction effectiveness: Using China as an example. *Social Indicators Research*, *153*, 39–64. https://doi.org/10.1007/s11205-020-02474-w

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Bernini, C., Emili, S., & Ferrante, M. R. (2023). Poverty-happiness nexus: Does the use of regional poverty lines matter? *Papers in Regional Science*, 1–20. https://doi.org/10.1111/pirs.12722