

Assessment of Subjective Economic Well-being in Italy

Maria Francesca Cracolici, Francesca Giambona¹

Abstract Using the European Survey on Income and Living Conditions for the year 2005, we analyze the subjective economic well-being and its determinants relating to some sub-groups of Italian households by means of an Ordered Logit Model (OLM), whose dependent variable is represented by a perception variable, that is the ability of households to make ends meet. The empirical results highlight that the main determinants of subjective economic well-being are the same for the four typologies of households. The subjective economic well-being is not only related to the economic status, but it is mostly influenced by socio-demographic variables, as work and education conditions. Furthermore, the level of subjective well-being of Italian households changes passing from a specific status of socio-demographic variable to another one.

1 Introduction

In the last two decades the concept of well-being and its measurement have become a relevant and actual topic in the social, economic and psychological literature, that led to a proliferation of theoretical and empirical articles on this issue. In spite of that, it is not clear what does well-being exactly mean? How many dimensions does it include? How to measure it? Of course, in the social and economic literature the Sen's theory represents a mainstay; according to this theory well-being is conceived in terms of what individual is able to do or to be along his/her life (i.e. achieved functionings) [10].

¹ Cracolici Maria Francesca, Dipartimento di Contabilità Nazionale e Analisi dei Processi Sociali, Università degli Studi di Palermo; email: cracolici@unipa.it
Giambona Francesca, Dipartimento di Contabilità Nazionale e Analisi dei Processi Sociali, Università degli Studi di Palermo; email: francesca.giambona@unipa.it

On the one hand, if the Sen's theory is the most accepted, on the other one it appears a conceptual definition very wide and complex to translate in empirical terms.

Recently, a new strand of literature has developed with specific attention to social and non-economic aspects of well-being, quality of life and feeling of people.

À raison d'être well-being is a complex and multidimensional concept involving different aspects or dimensions of people life; and these dimensions are different regarding to the level of analysis; i.e. country, region, household and individual. The complexity of well-being has led the empirical studies to shift attention from an overall measure of well-being to specific aspects of it – like health, education, and labour – or to focus on some groups of people as children, women, older adults, etc. (see e.g., [1,7]). The analysis of one or more dimensions of well-being or some clusters of people permits to better explore and examine in depth a concept that for its nature is complex and multi-faceted.

In the light of these considerations, in our paper we focus on feeling of Italian people relating to their economic satisfaction in terms of their ability to make ends meet. We call it *subjective economic well-being* (SEW). In particular, we analyze the subjective economic well-being of four typologies of households; viz. households with only one component; households with no children; households with one child, and households with two or more children.

Using the European Survey on Income and Living Conditions (EU-SILC) for the year 2005, we analyze the subjective economic well-being and its determinants relating to some sub-groups of Italian households by means of an Ordered Logit Model (OLM), whose dependent variable is represented by a perception variable, that is the ability of households to make ends meet. As explanatory variables, we consider different economic and non-economic aspects of living conditions of households (viz. housing, financial distress, possession of durables), some socio-demographic characteristics of households, and environmental and urban context variables. By using OLM, we can evaluate a latent concept as subjective economic well-being, and we link simultaneously subjective and objective aspects of well-being.

The paper is organized as follows. Section 2 presents a short review on well-being concept. In Section 3 the data and the empirical model will be presented. Finally, in Section 4 the empirical findings and some relevant concluding remarks have been reported.

2 A Short Review on Well-being

As said above, in the last years the study of well-being has received an increasing interest, and the different results achieved in the empirical analyses have drew out the need to shift attention from income or consumption measures to social and environmental ones able to catch the different aspects and the multi-faceted characteristics of well-being.

The economic debate on well-being has been recently renewed by numerous contributions on several components of it; in particular the literature has focused on aspects of people's life like health, longevity, education, job environment, subjective feelings, that in addition to access to resources, should not be ignored in assessing and evaluating of living standards and well-being.

Income and consumption are not able to capture all these constituent elements of well-being; in particular, income is often a biased measure due to the reticence of respondents (especially in Italy), and to systematic errors on fluctuations of self-employed incomes. This leads to consider a variety of non-monetary indicators of living conditions for measuring well-being. Yet today, an open matter is the absence of an objective criteria in order to identify the different dimensions of well-being and its connected variables that permit researchers to measure empirically well-being.

Generally, well-being may be described along at least three distinct dimensions: material, immaterial and emotional attributes. In the literature on development, the first dimension is often referred to as access to resources; relating to the second one, the literature usually refers to objective social aspects of life, such as health, education and vocational training, labour market conditions, public safety and crime, social security, environment, equal justice etc. The emotional dimension refers to the subjective well-being in terms of individual feelings about satisfaction with the life as a whole or some specific aspects of life (i.e. financial, job and health satisfaction).

In synthesis, the analysis of well-being follows two different and complementary approaches, viz. the objective and subjective approach. Within the objective approach, the problem relating to the identification of relevant dimensions has been resolved by many authors according to Sen's theory, along which well-being is conceived in terms of what individual is able to do or to be. Within this approach the concerning measuring issues follows two different paths, viz. the *non-aggregative strategy* and the *aggregative strategy*.

The *non-aggregative* strategy considers the entire vector of dimensions, and in order to manage the multiple information different traditional techniques – based on the idea of latent variable – are used (see e.g., [8]). Along the *aggregative strategy*, all information is collapsed to derive an aggregate indicator of overall well-being or poverty, according for example to Fuzzy Set Approach (see e.g., [2]), to Information Theory Approach (see e.g., [6]), and to Axiomatic Approach (see e.g., [3]).

The subjective approach to the analysis of well-being refers to the evaluation of people regarding to the life as a whole or to specific aspects of it, like financial condition, health, working condition, life environment, crime and security, social cohesion, etc. (see e.g. [11]).

According to these mainstreams, in our paper using an Ordered Logit Model we combine a perception variable of well-being and some material and immaterial aspects or determinants of well-being, i.e. the subjective and objective approach is used simultaneously and not in alternative way. Furthermore, in order to develop a more in depth analysis and to lower the degree of complexity characterizing the well-being concept, a study for typologies of households has been made. Finally, the use of a perception financial variable lets us to overcome the limits and criticisms connected to objective economic measures; e.g. income or consumption.

In Section 3 the model and the data used will be presented.

3 Model and Data

In the study of the dependence of a response variable on a set of explanatory variables, the choice of a model is determined by the scale of measurement of the response variable. In this paper, we use an Ordered Logit Model as the dependent

variable, Y – in our case the ability to make ends meet – takes j ordered values (i.e. with great difficulty, with some difficulty, easily). In particular, as the parallel-lines assumption for some explanatory variables has been violated, for each typology of household a Partial Proportional Ordered Logit Model (PPOLM) has been estimated.

We use the Gamma parameterization that is an equivalent parameterization of the Generalized Ordered Model (see e.g. [5,9]). Under the Peterson–Harrell parameterization, each explanatory variable has one β coefficient concerning the first category of dependent variable contrasted to the all other ones; $M-2$ γ coefficients that represent the deviation from proportionality; and $M-1$ α coefficients reflecting the cut-points:

$$P(Y_i > m) = g(X\beta_m) = \frac{\exp(\alpha_m + X_i\beta + \Delta_i\gamma_m)}{1 + \{\exp(\alpha_m + X_i\beta + \Delta_i\gamma_m)\}}, \quad m = 1, 2, \dots, M-1 \quad (1)$$

where Δ_i is a matrix containing the values of a subset of q explanatory variables ($q < p$, where p are all the variables) for which proportional assumption is violated, and γ_m is a vector of regression coefficients. The test of the proportional assumption, for the q -covariates, is based on the null hypothesis $H_0: \gamma_m = 0$ for all m categories.

In our analysis, a PPOLM for each typology of household has been used to investigate the main aspects of life affecting subjective economic well-being of Italian households. By using EU-SILC dataset for the year 2005, we analyse the main determinants of SEW relating to four sub-groups of Italian households. The choice of household groups mirrors the changing path of Italian household structure; viz. the average number of components has decreased and it is equal to 2.5 components; moreover, the number of households with only one component, and couples with no children have increased [4]. In the light of this path, we would like to differentiate households with only one component to households with no children, and within the households with children we consider the couples with only one child, and those with two or more children.

The following PPOLM has been estimated:

$$P(Y_i > m) = \frac{\exp(\alpha_m + \beta FE_i + \beta HC_i + \beta DUR_i + \beta SD_i + \beta RP_i + \beta AREA_i + \Delta_i\gamma_m)}{1 + \{\exp(\alpha_m + \beta FE_i + \beta HC_i + \beta DUR_i + \beta SD_i + \beta RP_i + \beta AREA_i + \Delta_i\gamma_m)\}} \quad (2)$$

The dependent variable is the household respondent's assessment of the level of difficulty experienced by the household in making ends meet; it has been assumed as a proxy of the subjective economic well-being. The evaluation of respondents was based on an ordinal 3-point scale: 1 (with great difficulty), 2 (with some difficulty), 3 (easily).

We hypothesize that these three different point scale correspond to three different levels of subjective economic well-being; viz. point scale 1, 2 and 3 represent a very unsatisfying, an unsatisfying, and a very satisfying level of SEW, respectively. The explanatory variables are related to some relevant domains of daily life affecting the perceived economic well-being (i.e. financial equilibrium (FE), housing conditions (HC), possession of durable goods (DUR)), socio-demographic variables (SD), and variables relating to the environmental quality of the residence place of household (RP).

As proxies of financial equilibrium (FE) the following variables have been included: arrears on utility bills, financial burden of the total housing cost, capacity to afford a meal with meat, chicken, fish every second day, capacity to afford paying for one week annual holiday away from home, incapacity to afford clothes' expenditures in

the last 12 months, incapacity to afford health expenditures in the last 12 months, incapacity to afford educational expenditures in the last 12 months, incapacity to pay taxes in the last 12 months, payment of rubbish tax, taking out a short-term loan.

The housing conditions domain (HC) involves: number of rooms available to the household; ability to keep home adequately warm, total housing cost, tenure status of accommodation, problems with the dwelling regarding leaking roof, damp ceilings, dampness in the walls, floors or foundation or rot in window frames and doors, problems with the dwelling (i.e. too dark, not enough light, etc).

The possession of durable goods (DUR) concerns the availability of some durable goods like connection to internet, video recorder, parabolic aerial.

As proxies of the socio-demographic factors (SD) there were included: gender, age, level of education and work status of respondent.

Furthermore, we have considered as proxies of environmental quality of residence place of household (RP): the respondent feeling of noise from neighbours or from street, pollution, grime or other environmental problems, and crime violence or vandalism in the area. Finally, a dummy variable on geographic clusters (AREA), viz. the cluster of North and Middle-south regions, has been used. In the next Section the results of our empirical models will be illustrated.

4 Empirical Findings and Concluding Remarks

For each typology of household a Partial Proportional Ordered Logit Model was estimated². The estimated models achieved a good fit, and the coefficients of the variables – estimated by the Maximum Likelihood method – possessed the expected signs and effects on the explanation of SEW³.

Generally, the estimated models show territorial differences, viz. the households living in the Northern regions have a different perception of SEW with respect to households living in the Centre-southern ones; the households resident in the North of the country have more chances to experiment a higher level of subjective economic well-being than the households resident in the Centre-southern area. The β coefficients of AREA are not significant for households with only one component and households with two children at least.

For all groups of households, estimates show that households with no financial burden of the total housing cost, with a good capacity to afford paying for one week annual holiday away from home, without problems to afford clothes' expenditures in the last 12 months, with a own house, with a capacity to afford a meal with meat

² To check the parallel-lines constraint the *autofit* option of *gologit* procedure of STATA software was followed. This STATA procedure does a series of Wald tests on each variable to see whether its coefficients differ across equations, e.g., whether the variable meets the parallel-lines assumption. If the Wald test is statistically insignificant for one or more variables, the variable with the least significant value on the Wald test is constrained to have equal effects across equations. A global Wald test is also done of the final model with constraints versus the original unconstrained model; a statistically insignificant test indicates that the final model does not violate the parallel-lines assumption.

³ It is noticed that the estimates related to the four models have been not reported only for space reasons, but they are available on request from the authors.

chicken, fish every second day, and without arrears on utility bills have more chances to experiment a higher level of SEW; that is they are satisfied of their economic situation.

Among the socio-demographic variables the relevant influence of both education level and work status has to be outlined. In particular, the highest level of education and the condition of self-employed worker represent the most important conditions to have a very satisfying SEW. Finally, the different models for household typology do not present significant gender differences; while β coefficients of AGE are, generally, significant for the third and fourth age-class (i.e. 51-65 years old, and equal to or more 65 years old)⁴.

In synthesis, the aforementioned results appear mostly evident if we focus on the estimates relating to the households with only one child. In fact, this group of households presents β coefficients of the variables no-financial burden of the total housing cost, good capacity to afford paying for one week annual holiday away from home, work status, and level of education greater than β coefficients obtained for the other models relating to the different groups of households. Furthermore, for this type of households SEW appears strongly supported by the level of education, in fact β coefficients of this variable are greater than 1; in particular, education variable respects the parallel-lines assumption except to the last two categories. The intensity of β coefficients related to the categories Degree, and Master or PhD increases passing from the lower category of the dependent (with some difficulty) to the highest one (easily) (i.e. $\gamma_{EDUL_4_2}=0.41$ and $\gamma_{EDUL_5,3}=0.58$).

It is worth noticed that the coefficients of environmental and context variables are for all models not statistical significant, with the exception of the variable related to the presence of crime violence or vandalism in the resident area, that appears statistically significant for the households with only one child. Likely, this typology of household is more sensible to the environment where child grows.

In synthesis, if we do a comparison among groups of households we will notice a similar intensity of β coefficients relating to the main domains of daily life of households, viz. financial equilibrium, housing conditions, and possession of durable goods. While, the households present a different behaviour regarding to some socio-demographic variables as work and education conditions.

In order to better explore these results, by means of predicted values two different average probabilities for each typology of household have been calculated: a) the average probability relating to the three level of SEW; b) the average probability conditioned to the socio-demographic characteristics.

Regarding a), we notice that the probability to achieve the three levels of subjective well-being is not different among groups. In other words, within each group exists probably an endogenous dynamics that is not related to the typology of household and determines, for each level of SEW, similar average values of subjective economic well-being among the different household groups.

With respect to b), in Table 1 we have synthesized the relationship between SEW and socio-demographic variables reporting the type of shape of the average probability conditioned to work status, level of education, and age. As strongly evident, within each level of SEW we observe, generally, all households present with respect to each

⁴ The education variable presents five categories: 1=Elementary school leaving certificate, 2=Lower secondary education certificate, 3=Secondary education certificate, 4=Degree, 5= Master, PhD. The work status presents five categories: 1=Unemployed, 2=Employee, 3=Self-employed, 4=Retired, 5=Other. Finally, age presents four categories: 1= less 35 years old; 2= 36-50 years old; 3= 51-65 years old; and 4= equal to or more 65 years old.

socio-demographic variable the same shape. The only exception concerns age variable, in particular with respect to Household 2. While, there exist – as expected – different shapes of predicted average probabilities with respect to the three different levels of SEW.

Regarding to work status, the average probability, for all groups of households, is U-shaped for low level of SEW (i.e. very unsatisfying). In particular, the self-employed status is a breaking-point; i.e. for all typology of households the probability to make ends meet with greater difficulty decreases when the household respondent passes from the unemployed status to the self-employed one; the probability increases again when the household respondent retires from market labour. While, for the other levels of SEW (i.e. unsatisfying and very satisfying), the average probability for all groups of households is inverted U-shaped; viz. the probability to achieve higher level of SEW increases when one passes from unemployed to the self-employed status; while retired people have a lower probability to have a satisfying level of SEW.

Table 1 Relationship between Level of SEW and Socio-demographic Variables

<i>Very Unsatisfying Level of SEW</i>				
	Household 1	Household 2	Household 3	Household 4
Work Status	U-shaped	U-shaped	U-shaped	U-shaped
Level of education	Descending Line	Descending Line	Descending Line	Descending Line
Age	U-shaped	Ascending line	U-shaped	U-shaped
<i>Unsatisfying Level of SEW</i>				
	Household 1	Household 2	Household 3	Household 4
Work Status	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped
Level of education	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped
Age	U-shaped	U-shaped	inverted U-shaped	inverted U-shaped
<i>Very Satisfying Level of SEW</i>				
	Household 1	Household 2	Household 3	Household 4
Work Status	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped	Inverted U-shaped
Level of education	Ascending Line	Ascending line	Ascending line	Ascending line
Age	Inverted U-shaped	Descending Line	Inverted U-shaped	Inverted U-shaped

Household 1: Households with only one component; Household 2: Households with no children; Household 3: Households with one child; Household 4: Households with two or more children.

Relating to the level of education, the average probability shows the expected trend for the first and third levels of SEW. In other words, for all typologies of households the average probability to achieve a very unsatisfying level of subjective economic well-being decreases for higher level of education. *Vice versa*, the average probability of a very satisfying well-being increases for higher level of education (i.e. Degree, and Master or PhD). Regarding to the second level of SEW (i.e. unsatisfying SEW), the average probability linked to the level of education presents an inverted U-shaped with a breaking-point for the category of secondary education certificate.

Finally, the average probability of SEW for age-classes, generally, underlines a negative relationship between age and low level of SEW; viz. for all households the probability to achieve a very unsatisfying subjective economic well-being decreases when the respondent household becomes older; but this probability increases for households whose respondents are 65 or more years old. As expected, the relationship between age and the third level of SEW is inverted U-shaped. It is worth noticed that the relationship between age and subjective economic well-being – respect to the other socio-demographic variables – does not have a clear shape; in fact, generally the

average probability of SEW conditioned to age is U-shaped for low level of satisfying economic well-being, but some differences among households come out.

Summarizing, all households give similar weights to the variables related to the main domains of daily life (viz. financial equilibrium, housing conditions, and possession of durable goods); this result was expected because the life domains mirror the economic status of households (i.e. the level of income). Whilst, the socio-demographic variables appear better differentiate the different household groups as they likely reflect the individual expectations or aspirations. In the light of that, feasible policies should be defined in order to permit people to achieve a good level of education and work status, because these aspects represent a pre-condition to access to resources leading people to achieve higher levels of subjective well-being. In fact, the analysis highlights that subjective economic well-being is not only related to the economic status, but it is mostly influenced by socio-demographic variables, as work and education conditions. The relevant influence of the latter leads out that subjective economic well-being it is mostly related to what individual is able to be along his/her life and not only what he/she is able to do.

References

1. Addabbo, T., Di Tommaso, M.L., Facchinetti G.: To what Extent Fuzzy Set Theory and Structural Equation Modelling can Measure Functionings? An Application to Child Well Being. www.child-centre.it, Working Papers 30 (2004)
2. Betti, G., Cheli, B., Lemmi, A., Verma, V.: The Fuzzy Set Approach to Multidimensional Poverty: the Case of Italy in the 1990s. In Kakwani, N., Silber, J. (Eds.) *Quantitative Approaches to Multidimensional Poverty Measurement*, pp. 30–48. Palgrave Macmillan, London (2008)
3. Chakravarty, S. R., Silber, J.: Measuring Multidimensional Poverty: The Axiomatic Approach. In Kakwani, N., Silber, J. (Eds.) *Quantitative Approaches to Multidimensional Poverty Measurement*, pp. 192–209. Palgrave Macmillan, London (2008)
4. ISTAT: *La Vita Quotidiana nel 2008. Indagine Multiscopo Annuale sulle Famiglie*. Istat, Roma (2009)
5. Lall, R., Campbell, M.J., Walters, S.J., Morgan, K., MRC CFAS Co-operative Institute of Public Health: A Review of Ordinal Regression Models Applied on Health-related Quality of Life Assessments. *Stat. Methods Med. Res.* 11, 49–67 (2002)
6. Lugo, M. A., Maasoumi E.: Multidimensional Poverty Measures from an Information Theory Perspective. ECINEQ Working Papers, Society for the Study of Economic Inequality (2008)
7. Malone, K., Stewart, S. D., Wilson, J., Korsching, P. F.: Perceptions of Financial Well-Being among American Women in Diverse Families. *J. Fam. Econ. Iss.* 31, 63–81 (2009)
8. Naga, R.A., Bolzani, E.: Income, Consumption and Permanent Income: a MIMIC Approach to Multidimensional Poverty Measurement. In Kakwani, N., Silber, J. (Eds.) *Quantitative Approaches to Multidimensional Poverty Measurement*, pp. 104–117. Palgrave Macmillan, London (2008)
9. Peterson, B., Harrell, F. E. Jr.: Partial Proportional Odds Models for Ordinal Response Variables. *Appl. Statist.* 39, 205–217 (1990)
10. Sen, A.: *Standard of living*. Cambridge University Press, New York (1987)
11. Van Praag, B. M. S., Ferrer-i-Carbonell, A.: The Subjective Approach to Multidimensional Poverty Measurement. In Kakwani, N., Silber, J. (Eds.) *Quantitative Approaches to Multidimensional Poverty Measurement*, pp. 135–154. Palgrave Macmillan, London (2008)