CONFERENCE "DEALING WITH COMPLEXITY IN SOCIETY: FROM PLURALITY OF DATA TO SYNTHETIC INDICATORS"

University of Padua
Thursday 17th and Friday 18th of September 2015

ABSTRACT

Away from dissatisfaction, closer to well-being: a multidimensional synthetic measure

Maria Rita Sebastiani

Sapienza Università di Roma, Rome, Italy
mariarita.sebastiani@uniroma1.it

Giuseppina Guagnano

Sapienza Università di Roma, Rome, Italy
giuseppina.guagnano@uniroma1.it

Background: As part of the debate about methods for measuring social progress of population, there has been increasing interest in individual subjective opinions about quality of life. In the literature, many methods have been introduced for constructing synthetic measures of subjective well-being. Casacci and Pareto (Casacci and Pareto, 2015) recently proposed an interesting method, in which they applied a normalized quadratic index of dissimilarity for ordinal data (Leti, 1983), to data from Istat's *Multipurpose survey on households - aspects of daily life* regarding people's opinions about the level of satisfaction for some aspects of daily life. This method seems preferable compared to other ones already known in the literature, since it does not need to quantify the values of ordinal variables, as other methods do (Băltătescu, 2002); moreover, it makes it possible to take into account the different levels of satisfaction that

have been declared by the satisfied people, without aggregating them in one category (as other methods do).

However, the index can be applied to one aspect (variable) at a time, thus focusing on a one-dimensional perspective of well-being, while subjective well-being concerns simultaneously all the different aspects that affect the quality of life and interact with one other. As a consequence, an index devoted to measuring subjective well-being in terms of an overall degree of satisfaction should take into account all the most important aspects of quality of life simultaneously.

Objectives: Starting from Istat *Multipurpose survey on households - aspects of daily life*, regarding the opinions about the level of satisfaction for some aspects of daily life, first of all the analysis aims at measuring the subjective well-being of the Italian population. To pursue this aim, we then propose a method for constructing a global satisfaction index, which allows us to consider several aspects simultaneously. The first step concerns the choice of the aspects (variables) to be used. In this regard, we implemented recommendation n.6 of the final Report by the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz *et al.,* 2009), according to which "quality of life depends on people's health and education, their everyday activities (which include the right to a decent job and housing), their participation in the political process, the social and natural environment in which they live, and the factors shaping their personal and economic security". Consequently, we considered the following seven aspects (with reference to the last 12 months preceding the interview): economic conditions, health, family relations, relationships with friends, free time, environmental conditions and work. Unfortunately, this survey does not provide data on satisfaction with other non-economic aspects.

Method: The analysis is based on the Istat survey microdata, from 2003 to 2014. For each year, the multivariate distribution of the Italian population according to the seven variables is compared to the analogous distribution referring to a hypothetical population where all people were not at all satisfied for all variables. The multidimensional distance between the two distributions is measured by the average Minkowski distance of the order p among N individuals of the observed population and the corresponding ones belonging to the hypothetical population (Cormack, 1971), by using a formula that seems adequate for ordinal variables. We propose to use this multidimensional distance as an absolute index of overall subjective well-being. In order to better evaluate how high the degree of well-being is, the absolute index can be normalized, after its minimum and maximum values have been defined. A simulation study, aimed at studying the distributional characteristics of the index, is also implemented.

Results: At the moment, we are developing the simulation study, using different values for p (p = 1, 2 or other) and comparing the corresponding results; successively we will apply it to Istat survey microdata. We expect some differences in its values according to gender and region, so we will take into account these aspects too.

Conclusions: We propose a method for measuring the overall subjective well-being of a population that takes into account several variables simultaneously, by means of a global satisfaction index. We adopted an approach that differs from the classical methodology of composite indicators (OECD, 2008; Saltelli, 2007), based on a multidimensional distance. In defining this distance, we assumed that variables are independent to each other and have equal weight in determining overall well-being; future work could focus on the use of different kinds of distance, in order to account for the correlation among variables and for different weights too.

Main references

Băltătescu, S. (2002). Problems of transforming scales of life satisfaction. Euromodule Workshop Wissensfchaft Zentrum, Berlin, October 18-19, 2002.

Casacci, S., & Pareto, A. (2015). La costruzione di indicatori soggettivi mediante indici di dissomiglianza: un'applicazione all'indagine sugli aspetti della vita quotidiana.

Cormack, R. M. (1971). A review of classification. *Journal of the Royal Statistical Society. Series A*, 134(3): 321-367.

Leti, G. (1983). *Statistica descrittiva*. Bologna: il Mulino.

OECD (2008). Handbook on Constructing Composite Indicators.

R Core Team (2012) R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna.

Saltelli, A. (2007). Composite indicators between analysis and advocacy. *Social Indicators Research*, 81: 65-77.

Stiglitz, J.E., Sen, A., Fitoussi, J.P. (2009). Report by the Commission on the Measurement of Economic Performance and Social Progress.