MANAGING THE COMPLEXITY TO MEASURE SOCIAL-HEALTH INEQUALITIES: A COMPOSITE INDEX APPROACH RELATED TO INDIVIDUAL DATA IN ITALY.

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Background: In many countries there are wide disparities in the health status of different social groups. Many evidences have been shown that when people have a lower socioeconomic position they have a higher risk of poor health (O’Donnell et al., 2007). Inequalities in health are thought to result from a complex interaction of several factors. The WHO Commission on Social Determinants of Health recognized that social inequalities skew the distribution of health (WHO, 2008). The European Commission evaluated that in Europe the 90% of the variation in health can be ascribed to the individual level, while only the 10% is associated with national state characteristics. In Italy, the ongoing process of devolution of the health system could be expected to highlight inequalities in social and health care among and within the Italian regions (Marinacci et al., 2013).
Methods based on concentration indices have been largely used: they are an easy way to compare inequalities among populations (Wagstaff et al., 1991). In the literature exist several methods to measure health inequality, although they not are suitable for reflecting the whole impact of socioeconomic dimension on health.

**Objectives:** The aim of this study is to measure socio economic inequalities in health and changes in inequalities over time within and among the Italian regions. It has been evaluated which concentration of socio economic status contributes more to widening levels of inequality in health.

**Methods:** The analysis is based on the Multipurpose Household Survey (Istat, 2008-2011), which provides information on the health status and daily living aspects of the population living in Italy.

The concentration index is a synthetic measure of inequality useful to evaluate the distribution of health in a population ordered to Socio Economic Status; it ranges from minus one (-1) to one (1). A negative value of the concentration index means ill health is higher among the disadvantages people, when it is positive ill health is higher among the advantages people.

The concentration index presents the advantages of being referred to the whole distribution of data and having a sensitivity measure of overall changes due to individual variations in socio economic status. Moreover the concentration index is easily comparable with other international studies.

To appraise the differences between regions and over time of the concentration index it is necessary to assign a measure of accuracy of the concentration index, for this reason the resampling method has been applied.

Several steps have been applied before having the concentration index: the Ordered Probit Model to scale the responses on the self perceived health as a function of chronic conditions and limitations in daily life activities and the Multi Correspondence Analysis to synthetize the Socio Economic Status, considering the education attainment, working conditions, housing conditions, household composition and income conditions.

**Results:** The Ordered Probit Model shows suffering from a chronic illness or having limitations in daily life activities because of health problems, has a strong negative effect in terms of self-perceived health.

Applying the Multi Correspondence Analysis we select the two first components that covert he around 40% of the explained variance. The three most representative variables are: working condition, household composition and economic condition.

Significant inequalities in health affect the lower SES people whether at national level or within some regions (– ten out of twenty-one: 48% of the nineteen regions and two
autonomous provinces), both in 2008 and in 2011. The differences among regions are not statistically significant.

The selection of variables using in the elaboration of individual indicators is a very important and critical point of the analysis (Dalstra et al., 2006) especially for the perception of health that depend on subjective expectations about health. Several methods of scaling this perception has been used for the purpose of inequality measurement (Harper et al., 2007). Then even to measure socio-economic class index is important the selection of variable: the status can be measured at different levels of aggregation: the individual, the household and the area of residence. Both these levels of aggregation are important to determining the individual's access to resources.

**Conclusions:** The results could have important implications to select the right approach for analyzing health and welfare state policies in Italian regions and provide evidence concerning the relationship between health and many socioeconomic factors, through regional and individual data.

The observed pattern of health and socioeconomic factors in the Italian regions show and confirm the complexity of measuring the causes of inequalities in health. There are some limits to overcome: the using of self-perception like a measure of individual health and the selection of the more adapt technique to measure the socio economic status. Concerning the lack of overall longitudinal analysis and the availability of surveys which differ slightly in their methodology or in their collection of information. When the sample units are small, like in many of regions, the bias grows (so this measure not explain significant variations).

Having a composite index is interesting as first indicator of ‘global’ health inequalities by SES and as a synthetic tool to point out the situation to policy makers. Debate will continue about how best to measure equity in health: this process involves several complex steps to depth.

**Main references**


