

## **Referee report on “Does income inequality affect mortality rates in advanced economies”.**

The paper examines the effect of changes in income inequality on mortality rates in 10 developed countries. It finds that an increase in income inequality results in a (counter intuitive) negative effect on the mortality rate at the age of 65. Overall my feeling is that a relationship between inequality and health status should be considered as a causal relationship that takes time to materialize and thus a cross section framework is more appropriate in dealing with this issue. The present paper however, takes a time- series framework. As such, my feeling is that at best the paper provides in the words of Gravelle (1998), a “statistical artifact”.

The statistical artifact resembles in fact the criticism of Gravelle (1998): even though the mortality rate at age of 65 is considered, the authors use as a measure of inequality, the overall inequality in the economy- and not the inequality among that specific age group. And even though this is a rather modest shortcoming, my understanding- as it is not clearly explained in the text- is that the inequality measure employed is a measure of pre- tax and benefit inequality. This is a rather serious issue: income transfers to the people aged above 65 are a major source of redistribution (see e.g. Eurostat, 2007). Therefore if one needs to consider the effect of reduced income on the health status it must take into account the disposable income of the households rather than the “market” income.

Given the above criticism, I would be very interested in examining whether the estimated effect survives using other measures of inequality and/or health status. As this is missing I am inclined towards believing that this is just a simple artifact of the data and the sample employed in the present study.

In any case my feeling is that the general conclusion of the paper is correct: in this level of analysis one should not expect to find a positive relationship between income inequality and health status. Whatever the channel of this relationship (e.g. increased crime rate, lower social cohesion, higher anxiety, or worse health care system), one should not expect the effect of inequality and health status to be evident in a time series framework, even when the long- run properties of a cointegrated relationship are considered. All these effects will take time to materialize. For example let’s assume that higher inequality results into lower social cohesion (as this is the main theoretical channel considered in the paper). This change in inequality of course must be permanent rather than transitory, in order to have negative effects in this respect. And of course such an effect, besides taking time to materialize on the main channel, is not expected to affect the health status of an otherwise healthy individual, but again will adversely affect health through time. Even 68 years, as in the present sample, may seem a rather small window. Therefore, to my understanding, a cross sectional model is more appropriate.

Despite the methodological concerns raised above, the presentation of the paper is very weak. Even though cointegration is the main method of analysis, the authors do not provide the results of the ADF test. Also they do not explain why a separate time series ADF test is more appropriate than a panel unit root test. On page 10, they discuss the results of a graphical plot which is not available, at least in the version of

the paper which I have received. In the concluding section they discuss the results of a Granger causality test, which is not available neither in the tables, nor as a discussion in the paper.

Last but not least the contribution of the paper is not at all clear. Is it supposed to refute the hypothesis of a positive association between income inequality and health status? Is it supposed to test a hypothesis in a new sample, which is in fact smaller than previous studies? Does it include better measures of inequality and/ or health status? Is there a counter- intuitive relationship established? Whatever is the goal of the authors, the paper fails at communicating a meaningful and convincing message.

## **References**

Gravelle, H. (1998), How much of the relation between population mortality and inequal distribution of income is a statistical artefact? *Brittish Medical Journal* , 316, pp. 382-385.

Eurostat (2007). Living conditions in Europe: data 2002- 2005. Eurostat Pocketbooks, European Communities, Luxemburg.