

Please see responses to the reviewer's comments.

Contributions

The paper has been revised to highlight and clarify the main incremental contributions to the income inequality and health literature. (i) The paper focusses only on a sample of economically advanced economies with a long history of economic growth, democracy and underlying social welfare programs. By focussing on similar countries, it removes some of the heterogeneity that is found in studies that used a wide range of countries at different stages of development. (ii) It focusses on income inequality at the top of the distribution. This is made possible by using a recently released and excellent source of income inequality data that has never been used before to study this question. The data is available every year for the past six decades for all the countries in the study sample and (iii) the outcome variable used incorporates a degree of quality of life gained from the social policies in these countries. The two novel findings are that (1) for these advanced economies, income inequality at the top end of the distribution does not appear to have a negative impact on mortality rates over the study time period (six decades) (2) the difference in effect of slow-rising versus fast-rising income inequality in these economies. As income inequality rapidly increases in the latter part of the study period, it appears to have a detrimental effect on mortality rates. Possible reasons for these findings have been included in the discussion piece. Additionally, a minor finding is that the effect of income inequality is similar for males and females despite the difference in mortality rate trajectory over time. However, males appear to show slightly more resilience (in terms of mortality rate reductions) with all results remaining statistically significant.

Study Design

The reviewer noted that a cross-sectional study may be preferable to study this question. Since the purpose of the study is to investigate the effect of changing income inequality over time, we think that a time-series design may be better suited to answer the question. We recognize that though the study uses a reasonably long-time period (six decades), it is always preferable to have a longer time period for such a study.

Additionally, there can be other issues using cross-sectional study. For example, in a later publication, Gravelle (2002) found conceptual issues in using cross-sectional data to test the

hypothesis on the effect of income inequality on the health. Deaton (2003) also noted that with respect to Gravelle's statistical artefact, that 'it is unfortunate in suggesting that there is no real link between income inequality and health and that redistributive policy cannot improve average population health.'

Methodology

Since we are interested to find the effect of income inequality (IE) occurring at the top end of the distribution, the choice of the measure is appropriate. Further, the source of data for the inverted Pareto-Lorenz coefficient is highly reliable, available for each year for the past six decades in these countries. This enabled us to use the panel cointegration method which requires a balanced dataset with complete data for each year throughout the study time period of six decades. Other income inequality measures noted are not available consistently every year across this extended period of time for all these countries.

A summary of the method used to calculate the IE data is now included in the updated manuscript. IE uses taxation data from individual incomes. IE was calculated using total returnable income if there were no exemptions. As noted by Atkinson, this method 'corresponds to their Gross Tax Income, with the qualification that we do not at this stage exclude realized capital gains'. In order to estimate the share of top income groups, information on total number of individuals and total personal income was needed. To estimate income shares, control total for income was required and the methods used to calculate this vary slightly by countries. For example, Atkinson noted that the method used in Australia "exclude non-household elements, such as charities, life assurance funds, and universities. We have to exclude items not included in the tax base, such as employers' social security contributions, and non-taxable transfer payments...transfers have been taxed to a significant degree since 1944. We therefore switch our personal income denominator to include transfers from this point onwards" (References on the detailed methods used are listed below for some of the countries).

With the combination of the choice of study design, the empirical methods including panel cointegration, the focus on the top end of the income distribution (where individuals are unlikely to be beneficiaries of any form of government redistribution) and the choice of data (which uses

very reliable individual tax income records), we think we have minimized the possibility of statistical artefact as noted by the reviewer.

Additional materials

ADF and panel test results are now included in the Supplemental piece.

The graphical plot has been added to the manuscript.

Granger causality test results are now included in the Supplemental piece.

References

Gravelle, H., Wildman, J., & Sutton, M. (2002). Income, income inequality and health: what can we learn from aggregate data? *Social science & medicine*, 54(4), 577-589.

References - Methodology

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