Measuring Health Inequality with
Realization of Local Potential Life Years (ReLPLY)
Estimated using Stochastic Frontier Methods

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Abstract
Measuring health inequality within a population is much more difficult than measuring its average health status. A key reason is the lack of distributional measures of individual health status. In the case that such measures do exist (e.g. body mass index), data are typically available only for individual countries at sporadic years. This makes comparison of health inequalities across countries or time very difficult. Age-at-death death has been used as a measure of health inequality (Le Grand 1987, 1989) but has its limitations.

A new measure of health status, namely the Realization of Potential Life Years (RePLY) has been introduced by Tang, Petrie and Rao (2007). The RePLY measure is based on the concept of a "frontier country" which, by construction, has the lowest mortality risks for each age-sex group amongst all countries (Tang, Chin and Rao, 2006). The main objective of this paper is to apply stochastic frontier methods to identify the mortality risk profile of the "frontier" for each country instead of the data envelopment method as in our previous study. In doing so, we account for not only the heterogeneous conditions of individual countries but also the natural variation of death rates for a particular year. This allows us to construct another new measure of health status − Realization of Local Potential Life Years (ReLPLY). In this new approach, a country's health inequality performance is measured against its "local frontier" rather than the "global frontier". The paper presents empirical results derived using data on 191 countries. The average ReLPLY measure as well as the resulting health inequality measures based on ReLPLY are presented. The results from the new approach are compared and contrasted with those based on the earlier data envelopment method as well as those based on the commonly used age-at-death measures.

Reference

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