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Gini coefficient as a life table function Computation from discrete data, decomposition of differences and empirical examples

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Abstract

This paper presents a toolkit for measuring and analyzing inter-individual inequality in length of life by Gini coefficient. Gini coefficient and four other inequality measures are defined on the length-of-life distribution. Properties of these measures and their empirical testing on mortality data suggest a possibility for different judgements about the direction of changes in the degree of inequality by using different measures. A new computational procedure for the estimation of Gini coefficient from life tables is developed and tested on about four hundred real life tables. The estimates of Gini coefficient are precise enough even for abridged life tables with the final age group of 85+. New formulae have been developed for the decomposition of differences between Gini coefficients by age and cause of death. A new method for decomposition of age-components into effects of mortality and composition of population by group is developed. Temporal changes in the effects of elimination of causes of death on Gini coefficient are analyzed. Numerous empirical examples show: Lorenz curves for Sweden, Russia and Bangladesh in 1995, proportional changes in Gini coefficient and four other measures of inequality for the USA in 1950-1995 and for Russia in 1959-2000. Further shown are errors of estimates of Gini coefficient when computed from various types of mortality data of France, Japan, Sweden and the USA in 1900-95, decompositions of the USA-UK difference in life expectancies and Gini coefficients by age and cause of death in 1997. As well, effects of elimination of major causes of death in the UK in 1951-96 on Gini coefficient, age-specific effects of mortality and educational composition of the Russian population on changes in life expectancy and Gini coefficient between 1979 and 1989. Illustrated as well are variations in life expectancy and Gini coefficient across 32 countries in 1996-1999 and associated changes in life expectancy and Gini coefficient in Japan, Russia, Spain, the USA, and the UK in 1950-1999. Variations in Gini coefficient, with time and across

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countries, are driven by historical compression of mortality, but also by varying health and social patterns.

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

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