Estimating and Combining National Income Distributions using Limited Data

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Abstract

Recently, there has been a resurgence of studies on the distribution of income and inequality at regional and global levels, largely driven by the concerns of economists, international development organizations and the general public about the overall effects of globalization on growth and inequality. A major data problem encountered in these studies is the nature of income distribution data that are available mainly in a summary form that includes mean (average) income and income shares of quintile or decile groups of the population. Past studies have either ignored distributional characteristics within each population sub-group, implying that all individuals in a quintile or decile group have the same income, or used simple distributions like the lognormal or Pareto to model income distribution within each country.

The aim of the paper is to estimate national and regional income distributions within a more general framework that relaxes the assumption of constant-income-within-groups and is based on a general and versatile class of income distributions. A technique to estimate parameters of a class of generalized beta distributions using grouped data is proposed. Regional income distribution is modelled using a mixture of country-specific distributions and its properties are examined. The techniques are used to analyse national and regional inequality trends for eight East Asian countries and two benchmark years 1988 and 1993.

Keywords: Gini coefficient; Generalized beta distribution