

Wealth Distributions and Power Laws: Evidence from the “Rich Lists

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There is an extensive literature in economics and other social sciences as well as in econophysics on fitting the power-law model to top income and wealth data, dating from Pareto’s work in the beginning of the 20th century (see, for example, Klass et al., 2006, and reviews in Chatterjee et al., 2005, Gabaix, 2009, Yakovenko and Rosser, 2009, and Cowell, 2011). This literature claims that the right tails of income and wealth distributions across countries and time follow power-law model with the shape parameter (Pareto index) confined to a rather narrow range. However, as argued recently by Clauset et al. (2009), in most cases power-law fitting methodology used in these papers is rather unsatisfactory. The Pareto index is often estimated by linear regression or using graphical methods. Estimators with better properties, e.g. the maximum likelihood (ML) or robust estimators, are rarely used. Similarly, the scale parameter of the power-law model is usually not estimated but assumed. Goodness of fit tests are almost never applied. Finally, the question of whether there are any other models that may be equally well or better fitted to data than the power-law model is absent from the literature.

The present paper aims at applying more sophisticated empirical power-law fitting methodology to empirical data in order to verify if the power-law model is indeed the best one describing the distribution of economic advantages and the distribution of wealth in particular. We will use data from the so-called “rich persons lists” published yearly by journals like Forbes. The countries covered will be the USA, the UK, France, China, India, Russia and Poland. In order to estimate the Pareto index we will use ML estimator as well as some robust estimators proposed in economics and statistics (Victoria-Feser and Ronchetti, 1994, Dupuis and Victoria-Feser, 2006). Moreover, goodness of fit tests as well as likelihood ratio tests will be applied in order to discriminate between power-law model and some other simple statistical distributions that potentially can be useful in describing top wealth values.

The paper will also discuss the consequences of achieved results for both theoretical models that aim at explaining how income and wealth distributions are formed and for the practice of measuring wealth distributions.

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