Wealth distribution in societies - models and empirical studies

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Abstract

Recent economic data confirm earlier studies, initiated by Pareto, on the form of the distribution of income/wealth (of individuals, firms, countries): the high argument side of the cumulative distribution is a decreasing power law with an exponent (Pareto index) which varies between 1 and 3. A variety of agent-based models have been proposed in order to explain the form of the dependence and the non-universal character of the exponent. The influence of the structure of the network of agent interactions has also been examined. Personal wealth data for a modern society (U.K., 2000/2001) and for a medieval one (Hungary, mid XVI century) will be analyzed. While the former results are found to agree with the predictions of a wealth-exchange model on an evolving network [Physica A 353, 515 (2005)], the medieval data yields a very low Pareto exponent (about 1), which is incompatible with that model. An exponent near 1 is also found in the distribution of firm sizes (measured in capital, sales, employees,...). On the modeling side, this value is predicted both by models where trade is the essential mechanism for wealth dynamics and by independent agents dynamics (of a random multiplicative type). We argue that the independent agents mechanism is more adequate for the feudal society case, while exchange dynamics is expected to matter for firms. The universality of the exponent with respect to the variable used to rank the firms is still an open problem.