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Modeling income distribution as a sum of additive and multiplicative stochastic processes ANAND BANERJEE, VICTOR YAKOVENKO, University of Maryland — We obtained an analytical stationary solution of the Fokker-Planck equation for a stochastic process that is a sum of the additive and multiplicative processes. The stationary probability distribution function smoothly interpolates between an exponential distribution at the low end and a power law at the high end. It may have different applications in physics. Here we apply it to income distribution in a society by modeling income as a stochastic process. We analyze the personal income distribution data in USA from the Internal Revenue Service. Using just three fitting parameters (the average income in the exponential part, the power-law exponent, and the crossover point between the exponential and the power laws), we obtain very good fits of the IRS data for a range of years.

Anand Banerjee
University of Maryland

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