

## Abstract

Probability discounting is defined as the devaluation of monetary amount as the probability of receiving or paying that decreases. Several models have been proposed for probability discounting; an exponential discounting model, a hyperbolic discounting model, a q-exponential discounting model based on Tsallis' statistics. In order to examine the fitness of the models to behavioral data of probability discounting of gain and loss, we estimated the parameters and AIC (Akaike Information Criterion) of the social discounting models by assessing the points of subjective equality (indifference points) at seven probabilities. Our results demonstrated that, for probability discounting of gain and loss, the orders of the goodness-of-fit were [q-exponential discounting > Exponential discounting > Hyperbolic discounting] and [Exponential discounting > q-exponential discounting > hyperbolic discounting], respectively. Furthermore, gain was more steeply discounted than loss. Indications of the results for social physics, econophysics, and cultural neuroeconomics are discussed.

Keywords: Probability discounting, Neuroeconomics, Econophysics;