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Why the most risk-averse take the biggest risks: a quantitative reanalysis of Atkinson's and Litwin's "hoop-the-peg" experiments. Part 1: Simulation and model validation

ABSTRACT. Psychologists Atkinson and Litwin designed an experiment based on the hoop-the-peg game to explore the tendency for anxious people to set their aspirations either very low or else, in an apparent contradiction, extremely high. This article derives a model based on risk-aversion to simulate the exercise. This is tested and validated against the probability distribution for selecting a task of given degree of difficulty developed in Part 2 of the paper. The model is able to explain in terms of the mathematically defined parameter, risk-aversion, why the most risk-averse people are prone to taking the biggest risks. Cautious people may not display a risk-aversion that is consistently positive, but can instead exhibit a mixture of positive and negative risk-aversions. What distinguishes the risk-confident from the more cautious is simply that the latter have a higher propensity to demonstrate a positive value of risk-aversion. Interpreting the empirical work of Atkinson and Litwin using the risk-aversion-based model has demonstrated that becoming ever more risk-averse should not be regarded as an unalloyed good. In particular, high levels of risk-aversion can lead to high likelihoods of failure.

Keywords: psychological experiment, psychological measurement

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