

The gain-loss asymmetry and single-self preferences

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Abstract. Kahneman and Tversky asserted a fundamental asymmetry between gains and losses, namely a “reflection effect” which occurs when an individual prefers a sure gain of $\$pZ$ to an uncertain gain of $\$Z$ with probability p , while preferring an uncertain loss of $\$Z$ with probability p to a certain loss of $\$pZ$.

We focus on this class of choices (actuarially fair), and explore the extent to which the reflection effect, understood as occurring at a range of wealth levels, is compatible with single-self preferences.

We decompose the reflection effect into two components, a “probability switch” effect, which is compatible with single-self preferences, and a “translation effect,” which is not. To argue the first point, we analyze two classes of single-self, nonexpected utility preferences, which we label “homothetic” and “weakly homothetic.” In both cases, we characterize the switch effect as well as the dependence of risk attitudes on wealth.

We also discuss two types of utility functions of a form reminiscent of expected utility but with distorted probabilities. Type I always distorts the probability of the worst outcome downwards, yielding attraction to small risks for all probabilities. Type II distorts low probabilities upwards, and high probabilities downwards, implying risk aversion when the probability of the worst outcome is low. By combining homothetic or weak homothetic preferences with Type I or Type II distortion functions, we present four explicit examples: All four display a switch effect and, hence, a form of reflection effect consistent single self-preferences.