

# The Role of Probability Weighting in Optimal Insurance Demand

## A Double-Edged Sword \*

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### Abstract

There are several empirically reported phenomena in insurance decisions which conflict with classical expected utility theory (EU). To explain such discrepancies, researchers often refer to alternative decision models. Models incorporating probability weighting and in particular Rank Dependent Expected Utility (RDEU) are cited as better descriptors of individual behavior. In this paper, we summarize some results on insurance demand under the behavioral assumptions of RDEU and illustrate them numerically with experimentally calibrated preference parameters. We show that there is a strong substitution between utility curvature and probability weighting such that RDEU is particularly useful for explaining high levels of insurance demand. This makes RDEU a good candidate for explaining insurance demand in situations where overinsurance is often observed. However, the high demand for insurance also extends to some situations in which little demand is observed empirically. Specifically, we show it to hold for insurance demand under mean preserving spreads and in markets subject to nonperformance risk. Our analysis shows that probability weighting alone cannot explain empirically observed behavior in these markets and may even exacerbate the gap between theory and evidence in some cases.

*Keywords:* Insurance Demand · Rank Dependent Expected Utility · Probability Weighting

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