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Comparing preference reversal for general lotteries and income distributions

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Abstract

This paper investigates preference reversals both for lotteries and income distributions as well as their interrelationship. In doing so, it offers several new features: Firstly, it provides a joint analysis of lotteries and income distributions. Secondly, the stimulus material used is considerably more general than used so far in the analysis of preference reversal. Instead of relying on binary lotteries and income distributions, we used ten multiple-outcome lotteries and ten *n*-dimensional income distributions which corresponded exactly to the lotteries. The lotteries and income distributions were chosen so as to model generalized P-bets (negatively skewed distributions) and generalized $-bets (positively skewed distributions), but we also used other shapes (uniform, symmetrical, and bimodal distributions). Thirdly, we applied material incentives to our subjects which were recruited from students of the Universities of Bari, Italy, and Castellón, Spain. Subjects were asked both to rate and evaluate the ten lotteries or the ten income distributions, respectively. We found heavy response-mode effects which confirm classical preference reversal, and revealed new patterns of preference reversal. Further, the transfer principle was largely violated.

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1. Introduction

Many scholars have recognized the close relationship between lotteries and income distributions. For instance, Kolm (1969) and Atkinson (1970) established the concept of the equally distributed equivalent income (EDE) by analogy with the certainty equivalent (CE) of a lottery.[1]

There are several ways to elicit preferences between lotteries and, a fortiori, between income distributions. Preferences between lotteries may be elicited by observing subjects' choices, or they may be elicited by asking them for their valuations. Empirical research on such preferences has evidenced significant response-mode effects: Many subjects exhibit contradictory preferences when different elicitation methods are used. This phenomenon has been termed *preference reversal*. It has been well evidenced with lotteries, but has also recently been evidenced with income distributions. The main thrust of this paper is the investigation of preference reversal by using more general distributions than normally used in the literature, and comparing their preference reversal patterns for lotteries with their patterns for income distributions. Moreover, our paper offers several methodological advances.

1.1. Focus of investigation

Preference reversal was first observed by Lindman (1965, 1971), Slovic and Lichtenstein (1968) and Lichtenstein and Slovic (1971) in the evaluation of lotteries. Their experimental design is straightforward and typical of later research: Subjects are presented with two lotteries, a so-called P-bet, which provides a modest payoff with a high probability, and a so-called $-bet, which provides a high payoff with a low probability. A substantial fraction of subjects chooses the P-bet, but assigns a higher CE (usually measured in terms of selling price) to the $-bet.

The literature abounds with explanations for the preference reversal phenomenon.[2]

[1] Other similarities exist between the transfer principle and mean-preserving contractions and stochastic dominance, between inequality aversion and risk aversion, between Lorenz dominance and risk aversion, and between happiness with income distributions and lottery preferences. See also Rothschild and Stiglitz (1970, 1971, 1973) and, for a generalized presentation, Nermuth (1993).

[2] The various attempts at explaining preference reversal cannot be presented in an nutshell. Seidl's (2002) literature survey on preference reversal devotes 16 pages to giving just a concise account of the explanations of preference reversal. The reader is referred to this literature survey.