



Inequality aversion and diminishing sensitivity

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Abstract

We define inequality aversion as a decision-maker disliking it when his opponents' payoffs differ from his own, diminishing sensitivity as this effect increasing less-than-proportionately as the opponents' payoffs move further from the decision-maker's, and a preference for Robin Hood redistributions as a preference for taking money from a high-payoff opponent and giving it to a low-payoff opponent. Existing models of inequality averse preferences are unable to accommodate all three properties. The three are not inherently inconsistent, though, and we construct a new model which exhibits all three properties.

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1. Introduction

Diminishing sensitivity, or the property that changes in a variable have less impact the farther the variable is from a reference point, is pervasive in both economics and psychology. For instance, it implies the properties of diminishing marginal rates of substitution in

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consumer theory, diminishing returns in producer theory, discounting in intertemporal choice, and the pattern of risk aversion over gains and risk seeking over losses in behavior toward risk. Even though it has been applied fruitfully to other areas of decision theory, it has yet to be applied to other-regarding preferences, in which decision-makers care about the payoffs of other individuals in their group.

One common hypothesis for other-regarding preferences is inequality aversion, the property that decision-makers dislike differences between their opponents' payoffs and their own, as in [Fehr and Schmidt \(1999\)](#) and [Bolton and Ockenfels \(2000\)](#). Inequality aversion implies that the decision-maker would like to take actions that move his own payoff and an opponent's payoff closer together. Another hypothesis, examined empirically by [Engelmann and Strobel \(2004\)](#) and [Karni, Salmon, and Sopher \(2001\)](#), and which seems like a perfectly compatible extension, is that the decision-maker would like to take actions that move two of his opponents' payoffs closer to each other. After all, by taking from the rich and giving to the poor, this sort of Robin Hood redistribution reduces inequality within the group.

The purpose of this paper is to explore the compatibility of three properties: inequality aversion, diminishing sensitivity, and a preference for Robin Hood redistributions. We show that for three existing specifications of other-regarding preferences, one additive in levels, one additive in differences, as in the [Fehr–Schmidt \(1999\)](#) model, and one additive in payoff shares, as in the [Bolton–Ockenfels](#) model, the three patterns cannot coexist. Two questions arise from this result. First, is the result special to the three functional forms examined, or is it a general property of other-regarding preferences? Second, why should we care about these three patterns in the first place?

To answer the second question, not only do all three patterns possess intuitive appeal, but they all have experimental support, as discussed in [Section 2](#). As for the first question, we show that the incompatibility is a property of the functional specifications, and not a property of other-regarding preferences in general, by constructing a new specification which exhibits all three properties, and this new specification coincides with the [Fehr–Schmidt](#) model when the decision-maker has only one opponent. The primary contribution of the paper, then, is to demonstrate that the three patterns of inequality aversion, diminishing sensitivity, and preference for Robin Hood redistributions are not inherently incompatible and that it is possible to allow for all three patterns in a single utility specification.

Furthermore, an analogy with the analysis of behavior toward risk suggests that diminishing sensitivity might be the appropriate place to start when characterizing preferences. When he first introduced what we now know as expected utility theory, [Bernoulli \(1738\)](#) restricted attention to risk aversion. Risk aversion went on to become the dominant paradigm within expected utility theory until [Kahneman and Tversky \(1979\)](#) provided compelling evidence that while people tend to be risk averse over gains, they also tend to be risk seeking over losses. This more complicated pattern is implied by diminishing sensitivity to changes in wealth. Perhaps diminishing sensitivity can lead to the “right” behavioral assumptions for other-regarding preferences just as it did for preferences toward risk.

The paper proceeds as follows. [Section 2](#) describes the choice setting and formally defines the notions of inequality aversion, diminishing sensitivity, and a preference for Robin Hood redistributions. It also reviews the experimental evidence for all three patterns. [Section 3](#) shows that the three properties are incompatible in three existing utility

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