



Risk preferences, responsibility, and self-monitoring in a Stag Hunt[☆]



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ABSTRACT

Previous experimental research suggests that people often switch their strategy in games of uncertainty when faced with responsibility over another individual's outcomes. We extend this literature by assessing which personal traits may lead to changes in decisions. Specifically, we investigate how risk preferences and self-monitoring are related to decision changes in the Stag Hunt game under different levels of responsibility. As expected, we find that risk-averse individuals tend to make riskier choices less often than risk-loving individuals do in a series of economic games. Having responsibility for another player in the Stag Hunt seems to amplify risk attitudes as risk-averse individuals are more likely to make cautious choices and risk loving participants are more likely to make risky choices with responsibility than without it. High self-monitors are more likely to switch their strategy than low self-monitors when faced with responsibility over another's outcomes, and when they change strategies they tend to change in a manner consistent with their own preferences for risk.

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1. Introduction

Economists have begun to recognize and clarify the importance of personality traits, other non-cognitive skills, and social influences in economic settings. It is evident that personal traits and characteristics are important factors for economic outcomes such as wages, educational attainment, and decisions in experimental games. Many researchers have also investigated how individual preferences for risk influence decisions in situations involving uncertainty. As we learn more about these characteristics, it is natural to wonder how these factors interact to determine choices in social settings. Prior studies have found that individual behavior changes when an agent is responsible for another person's outcome, but the direction of the change with respect to risk is ambiguous. Some studies observe riskier choices with responsibility (see for example Pahlke et al., 2015; Andersson et al., 2016), and others observe safer choices with responsibility (see for example Reynolds et al., 2009; Bolton et al., 2015). We seek a behavioral explanation that can reconcile this inconsistency.

We conduct an experiment that gathers information on decisions in the Stag Hunt game as well as other bargaining and public goods games. In addition, we collect responses to the Holt and Laury (2002) risk assessment, and a series of psychological surveys. We confirm that individual decisions in our games involving risky choices are highly correlated to risk preferences revealed in the Holt and Laury (2002) risk assessment. Our primary focus is on Rousseau's classic Stag Hunt game in which participants choose between a risky choice with a higher potential payoff, and a safer choice with a smaller payoff. The outcome also depends on the choice made by the other player. We compare decisions made under two treatments that differ in responsibility for others similar to Charness and Jackson (2009). In the 'play for self' (PFS) treatment participants play the Stag Hunt where their choice is tied to their payoff only. In the 'play for pair' (PFP) treatment the choice they make also affects another passive player's payoff. Charness and Jackson (2009) show that many people switch their decisions with a change in responsibility and we supplement their study by examining the underlying reasons why the participants behave differently with responsibility, focusing on risk preferences and the self-monitoring personality trait.

We find that risk averse players choose the safe strategy more often than their more risk loving counterparts do, across all games, and in both the PFS and PFP treatments of the Stag Hunt. We

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also find that risk averse individuals tend to play the safer strategy more often on average when they are given responsibility over another player's outcome than when they are playing only for their outcome. Interestingly, risk loving individuals tend to play the riskier strategy more often on average when they are given responsibility over another player's outcome than when they are playing only for their outcome. This indicates that risk preferences are amplified with responsibility.

Given this pattern, we explore what underlies the decision that some participants make to change strategies with changes in responsibility. Self-monitoring is a personality trait that describes how an individual behaves in various situations, especially around other people. Persons who are high self-monitors tend to continuously adapt their behavior to make a positive impression upon others, while low self-monitors tend to be their true self, and make similar choices no matter the social situation (Snyder, 1987). Self-monitoring is an inherent trait in an individual that may generate a different behavioral response when presented with responsibility over another. We expect high self-monitors to behave differently in social situations based on how they feel society will perceive them. Thus, high self-monitors may be more likely to change behavior in response to changes in responsibility than their low self-monitor counterparts.

Our findings show that high self-monitoring individuals are significantly more likely to switch their behavior across PFS and PFP treatments. However, the direction of the change depends on their risk preferences. High self-monitors who are risk loving are even more likely to make risky decisions with responsibility, and high self-monitors who are risk averse are more likely to make safer decisions with responsibility.

Our findings offer some insights about the role of responsibility found in previous work. We are able to extend Charness and Jackson (2009) by proposing self-monitoring and its interaction with risk preferences as possible reasons for the switching phenomenon found in their experiments. We contend that responsibility does not encourage people to make uniformly riskier or safer decisions. Overall, many people make the same choices with and without responsibility. For others, responsibility causes a change in actions in accordance with personal preference. People who are high self-monitors respond to added responsibility by taking actions for others that are consistent with their inherent risk preferences. As a result, the direction of the impact of responsibility on risk taking is likely to be individual specific.

In the following section, we present a brief review of the experimental literature on the impact of personality traits, risk preferences, and responsibility on decision making. In Section 3 we discuss our experimental design, and survey instruments. In Section 4 we present the results of our study. Section 5 concludes and relates our results to other work.

2. Literature review

This study builds on the literature relating decision-making under risk and uncertainty with different levels of responsibility for others. We also link the behavioral response to additional responsibility to the self-monitoring personality trait.

There is a great deal of experimental literature investigating behavior under risk and uncertainty, which is too voluminous to adequately summarize here. Please see Camerer (1995) for a summary of early experiments about choices under risk and uncertainty, and Eckel and Grossman (2008) for a summary of more recent findings. There are also studies which relate the implications for prosocial preferences to changes in responsibility (see for examples Blount, 1995; Owens, 2012; and Maximiano et al., 2007) in bargaining games. We focus on the subset of studies relating risk taking, responsibility, and non-cognitive personality traits.

There is a growing economic literature that investigates the influence of responsibility on risk taking. The idea has its origin in psychology going back to Stoner (1968) who created the terms *risky shift* and *cautious shift* to describe changes in risk preferences with responsibility. Recent economic studies have found evidence for both risky and cautious shifts in different settings.

Several economic studies find evidence that individuals decrease their preference for risky choices when they are responsible for other people's outcomes (Charness, 2000; Kerr and MacCoun, 1985). Reynolds et al. (2009) investigate whether individuals tend to become more or less cautious when making decisions for others. In their experiment, a player decides whether to accept a guaranteed amount or enter into a gamble where there is a chance to earn more or less than the guaranteed amount. The game is played under two different treatments. First, participants make a decision in isolation that only affects their own outcomes. Second, participants make the same decision but are told that their decision directly affects the outcome of a second team member. The team member is not involved in the decision and acts as a silent third party. They find that individuals are more risk-averse when they are responsible for other and experience a cautious shift when responsible for other players. Bolton et al. (2015) find that the influence of social responsibility and the tendency to conform to preferences of others leads to a decrease in risk when making decisions over lotteries for a group.

Several other studies have found that people make riskier choices when given responsibility for others and attribute this to reduced loss aversion. Pahlke et al. (2015) find evidence disputing the cautious shift hypothesis. Using a similar experimental design to Reynolds et al. (2009), they introduce risky decisions with gains and losses. They find that people behave differently when facing decisions that could result in gains versus decisions that could result in a loss. They conclude that traditional loss aversion holds under responsibility. Andersson et al. (2016) show that when losses are possible, people choose riskier lotteries for others, when given responsibility. Vieider et al. (2016) present a structural model approach that shows that loss aversion is lowered when making decisions for others. Pollman et al. (2014) demonstrate that subjects have reduced loss aversion when deciding for a principal, but that lower loss aversion is mitigated when agents are held accountable. Polman (2012) shows loss aversion is lowered when subjects choose for others in social situations, gambling, and other situations where losses are possible.

The study which is closest in spirit to ours is Charness and Jackson (2009). They investigate the impact of responsibility using Rousseau's classic Stag Hunt. Participants play a simultaneous move game against another player where they choose to hunt either a "Stag" or a "Hare". Hunting "Hare" results in a smaller, but more certain payoff than hunting Stag. Hunting "Stag" may result in a larger payoff if both players choose to hunt Stag. The first round of play is simply the traditional Stag Hunt. The second round, introduces a silent second party that is affected by each player's decisions. The silent second party receives the same payoff as his/her active partner. They find that players are 18% points more likely to choose Stag when choosing solely for their own payoffs as opposed to being responsible for another silent player. They also find that about one-third of their sample is sensitive to the introduction of responsibility in the game. Charness and Jackson (2009) suggest several reasons that individuals behave differently under responsibility, but they are unable to set these hypotheses with their data. We link this behavior to underlying personality traits.

There are numerous personality trait instruments developed by social and personality psychologists, which may be relevant in economic contexts. Krueger and Schkade (2008) used Day Reconstruction Methods and found that subjective measurements of person-

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