The impact of governmental assistance on insurance demand under ambiguity: a theoretical model and an experimental test

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Abstract This article deals with the impact of governmental assistance on insurance demand under ambiguity, i.e., in situations where probabilities are uncertain. First, using a model of insurance demand under ambiguity, we derive theoretical predictions about the impact of several governmental assistance programmes on optimal insurance demand. For example, governmental assistance through a fixed public support scheme implies that partial insurance is always optimal under fair insurance with ambiguity. Second, we present the results of an experiment designed to test these predictions. We find support for several of our theoretical predictions. For example, the presence of governmental assistance through a fixed public support scheme decreases individuals’ willingness to pay to be fully insured. Finally, we compare these results with those obtained for a risk situation. We find that, regardless of the form of governmental assistance, participants in the ambiguity context are consistently willing to pay more to be fully insured than participants in the risk situation.

Keywords Ambiguity · Experimental economics · Insurance · Public policy · Risk
1 Introduction

The impact of governmental assistance programmes on insurance demand is an important topic for economists. Economic analysis shows that although public compensation limits liability for financial losses, it also removes individual incentives to insure (Brunette and Couture 2008; Kaplow 1991; Kelly and Kleffner 2003; Kim and Schlesinger 2005; Lewis and Nickerson 1989; Raschky and Weck-Hanneman 2007). It also shows that an expectation that an ex post public disaster relief programme will be implemented can, in theory, create a type of Samaritan’s dilemma (Coate 1995), which leads to under-insurance.

Despite the practical importance of the topic, a limited number of empirical studies have analysed the effect of government relief on insurance. Furthermore, the few existing empirical results provide conflicting evidence. For instance, Browne and Hoyt (2000) empirical findings contradict the idea that government financial relief crowds out private insurance. On the other hand, Asseldonk et al. (2002) find that an expectation of governmental assistance in response to disasters had a significant negative impact on the likelihood of participation in an insurance programme.

As Raschky et al. (2010) argue, the divergence between theoretical predictions and empirical findings could result from the failure to consider the institutional design of government relief programmes in extant research. Furthermore, most research on governmental assistance has focused on insurance demand under risk, i.e. when the probabilities of damage are well known. Yet, for most potential victims, the probability of natural disaster is rather ambiguous. In this paper, therefore, we study insurance demand under ambiguity, i.e. in contexts where probabilities are uncertain.1 To do so, we rely on a non-expected utility model of ambiguity preference. Specifically, we adapt Klibanoff et al. (2005) model of decision making under ambiguity to derive predictions about the impact of three types of government programmes on insurance demand (two fixed public compensation programmes and one insurance subsidy programme) and, we then test these predictions in an experiment.

We aim to contribute to the economic literature on the impact of governmental assistance programmes on insurance demand in three ways. First, we contribute to the literature stream by focusing on situations in which decision makers do not have perfect knowledge about the probabilities, i.e. they face ambiguity. Ambiguous situations are common in real life and some evidence indicates that ambiguity has a net impact on different types of behaviour (Camerer and Weber 1992; Ellsberg 1961; Wakker 2008), including insurance behaviour (Cabantous 2007; Cabantous et al. 2011; Hogarth and Kunreuther 1989; Kunreuther et al. 1995). Yet, we know little about the impact of public compensation programmes on insurance demand under ambiguity. Research on ambiguity (Camerer and Weber 1992) shows that most individuals are ambiguity-averse in the loss domain for low-probability events, which suggests that ambiguity is likely to increase the willingness to pay (WTP) for insurance for low-probability negative events. Thus, the

1 Contrary to Raschky et al. (2010), we assume that there is no uncertainty about the public compensation programme but there is ambiguity about the probability of damage.