Ambiguity Aversion and Buying a Service Contract

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Moore (*Southwestern Economic Review*, 2008) found a variety of factors are useful in predicting service contract purchases; one significant factor being consumer attitudes toward risk. The current paper delves further into the role of attitudes toward uncertainty and service contract purchases. A subset of consumers surveyed in Moore's work took part in a follow-up study involving the collection of additional survey data and an experiment designed to elicit attitudes toward uncertainty.

This paper presents a comparison of responses to hypothetical survey questions, replies to queries on the likelihood and cost of repairs, and the results of an experiment, with the aim of determining which factors are useful in discriminating service contract purchasers from non-purchasers. Additionally, an aim of this paper is to explore the predictive power and external validity of experimental methods in insurance decisions.

Forty-five new vehicle buyers (of Moore's 191 survey respondents) participated in the follow-up study, with each study lasting approximately 1 hour and 10 minutes. Participants were paid a $30 show-up fee and earned additional money in the study, which was designed so that the average subject payment would be $90. Actual average earnings were $102.55.

Moore's survey asked for information about the buyer's vehicle, risk attitudes (in hypothetical situations), and sociodemographic attributes. The follow-up study survey allowed for the collection of information regarding research efforts about new vehicles, other vehicles owned, ability to find rides in case of breakdown, and familiarity with extended warranties among other items. It also allowed for asking about repair expectations including the likelihood and cost of the most likely vehicle problems. Moore's survey was restricted due to dealership imposed limitations; they did not want any questions that might affect the customers' decisions unless it might *increase* the likelihood of a service contract purchase. This eliminated questions about perceived reliability, repair frequencies, or the availability of substitutes for the new car. These were asked about in the follow-up study.

The experiment in this paper uses a variant of Holt and Laury's (*American Economic Review*, 2002 and 2005) instrument, modified to measure the new vehicle buyers' attitudes toward uncertainty using 'known' and 'unknowable' uncertainty.

Subjects complete a series of lottery choice tasks designed to elicit certainty equivalents for a variety of gambles. The gambles included variations in the underlying probability, the range over probabilities, and the range over payoffs. The subjects completed similar tasks in gain and loss domains. Gambles in the gain domain were framed as investment opportunities; loss domain gambles were framed as insurance decisions.

The mean certainty equivalents from these gambles suggest that the new vehicle buyers displayed ambiguity aversion for low probability events and a slight preference for ambiguity for high probability events. This generalization holds for gambles in both the gain and loss domains. However, random effects modeling suggests that attitudes toward ambiguity are statistically significant in the loss domain. Furthermore, it reveals that ambiguity aversion is stronger for low probability of loss events. This aversion appears to be driven primarily by ambiguity in the probability rather than in the possible amount to be lost.

The buyers stated a relatively low mean predicted probability of breakdown for various components of their vehicles. Comparing their behavior in the laboratory experiment (particularly low probability of loss gambles) with their real-world service contract purchase decision reveals a *negative* correlation.

However, a number of the other measures including hypothetical (no financial stakes involved) insurance decisions and expected repair costs were positively correlated with service contract purchases as might be expected.

The question is why the experimental measures are not positively correlated with service contract purchases? The answer to this may depend on at least two factors. First, the subjects may not have viewed the possible losses as ‘real’, or at the very least not sufficiently substantial. Second, Moore found that increases in loan duration increase the likelihood of a service contract purchase. If consumers view the expenditure on the contract in a cost-flow format, the ability to finance this type of insurance decreases the contract to a monthly payment (and relatively small) rather than a one-shot expenditure. In the lab the expense of avoiding the loss is one-shot and could be a relatively large percentage of the amount earned from completing the survey.

Future research opportunities include the development of an experiment that involves a noticeable temporal aspect. Many insurance purchases involve protection from risks in the future, and there does not seem to be any current experimental design capturing this feature. Additionally, it would be an interesting exercise to develop an experiment that would incorporate a stronger notion of ambiguity and involve a way for the subjects to feel that they were risking their own money.