Generic Clearance for Decision Science Data Collections
OMB CONTROL NO. 0693-0089
Expiration Date 9/30/2024

"Measurement of Risk Preferences and Perception for Experts in Community Resilience Planning Fields"

1. Explain who will be surveyed and why the group is appropriate to survey describing the specific goals and purposes of the study as well as the specific research questions that the study will address. Describe whether this study will be used strictly as feedback for internal programmatic use only, or whether it will provide performance measures for Congress or OMB, inform policy, inform agency rulemaking, or be published as an agency report or a report to Congress. Include a discussion of the strengths and weaknesses of the proposed design and its suitability for the intended uses.

Risk preference is one of the most important building blocks in the theory of choice (Ralph et. al., 2019), which refers to the risk a person is willing to take based on the expected utility of the outcome. Understanding individual risk preferences is essential for designing efficient measures, especially for community resilience planning or analyzing the impact of risk on societal well-being. Impact and inclusion of individual risk preferences has been extensively done but, to our knowledge, community risk preferences have not been explored as compared to individual risk attitudes. Research confirmed that groups do tend to make decisions that differ from those of individuals. Individuals prefer to match with others with similar risk preferences in networks (Putman, 2019). Smaller groups risk preferences have been studied against individuals in lottery valuation experiments in the economic context and identified that the average group is more risk averse than an individual (Shupp and Williams, 2008). The results in (Knippenberg et. al, 2000) showed that group risk preferences are neither risk-seeking nor risk-averse; rather depend on the problem the group is facing. Available research focused on a 3-4 member group, however, the change in people's risk attitude when making decisions for themselves versus for a community where a larger population might be impacted by the decisions has not been discussed. Surrogate decision making is when someone else makes a decision on one's behalf. Recent research has focused on one's accuracy of surrogate decision-making specifically in the healthcare domain, where health decisions are critical especially for an aging population (Silveira, 2010; Shalowitz, 2006; Kon et. al, 2016) or in the financial sector, where financial experts take investment decisions on behalf of their clients or govern one's financial affairs (Feltz, 2016; Ziegler & Tunney, 2015) . However, Surrogate decision making too hasn't been explored for communities where decisions impact a large population. We attempt to fill this gap in literature with the help of this survey. The survey asks the respondent regarding their risk preference for themselves and when several people are involved.

A wide range of elicitation methods have been developed to measure risk preferences across domains. Risk preferences are prominently measured in the Holt and Laury lottery-choice task (Holt, 2002) and the multi-item questionnaire advocated by Dohmen et al., 2011., and

incentivized games with real consequences. These methods allow researchers to estimate the economic value of reducing risks and to assess the trade-offs individuals are willing to make between risk reduction and other attributes. Lottery choices are often preferred by economists as it is easier to translate into measures and, hence, are preferable when utility functions are in question (Eckel, 2019). At the community level, eliciting risk preferences involves understanding the collective attitudes and preferences of community members towards risk and resilience. Community-level risk preferences are influenced by various factors such as cultural norms, social dynamics, and environmental conditions. Methods such as participatory workshops, focus groups, and scenario planning exercises are also employed to elicit community risk preferences and values. While these methods are useful for smaller groups, they cannot help compare the risk preferences of individuals when a large community is involved. We try to explore elicitation for risk preferences, focusing on the methods used to measure risk preference at a community level, which can be incorporated into decision-frameworks to support community resilience.

Under the Community Resilience Program, the Applied Economics Office in the Engineering Laboratory at the National Institute of Standards and Technology created a brief survey to assess the risk preferences to support in community decision making. This survey allows us to examine the difference in individual and community level risk preferences. In addition, the survey data would help evaluate the risk attitudes of individuals when making decisions for themselves in various scenarios and compare it to when they are making decisions for the community. The proposed online, electronic survey will collect data relevant to answering the following research questions:

1. How diverse are individual's risk-taking preferences?
2. Are individual's risk attitudes different when making decisions for when a community is involved?

In order to collect high-quality data to answer these research questions, the survey should be filled out by individuals who are experts in the fields relevant to community resilience planning. We have contracted with a sampling service (Qualtrics) who will offer renumeration for participants as compensation for their participation, which we expect will improve response rates. The research team will be responsible for checking the validity, completeness, and quality of participant responses. As a result, we are confident that we will be able to obtain high-quality data from the sample of interest. However, as limitations some sample bias will still be present, as the study will be online only (participants must have internet access), and volunteer to take our study for a small payment.

As this survey is targeting an expert audience, the results may not hold for a general population sample. These experts are all involved in community resilience planning, which makes them the ideal sample to examine how risk preferences differ in community resilience planning decisions in this initial research plan.

2. Explain how the survey was developed including consultation with interested parties, pretesting, and responses to suggestions for improvement.

The proposed survey instrument was created by an interdisciplinary team of researchers in the field of community resilience planning with expertise in decision science, economics and engineering, with reviews from other researchers in community resilience planning. It was informed first by a literature review focused on previous work in risk preference elicitation. The questions used in this survey are adapted from prior literature that validates the measurement tools.

The draft survey instrument was shared with several collaborators within the Community Resilience and Applied Economics Group at NIST. Their invaluable feedback was incorporated to better answer our research questions and to ensure the survey is widely accessible to a broad range of disciplines associated with community resilience planning. This included changes to the wording of a few questions as well as additional control variables being added.

3. Explain how the survey will be conducted, how customers will be sampled if fewer than all customers will be surveyed, expected response rate, and actions your agency plans to take to improve the response rate.

The proposed survey will be hosted on online via the survey platform Qualtrics. The NIST researcher (Gore) will be responsible for developing the final survey instrument and obtaining appropriate IRB and PRA approvals, as well as recruiting the survey sample and conducting analysis on the final collected dataset.

The survey will be distributed through a few groups that are related to community resilience planning as well as to individuals in the field. We will also use a snowball sampling allowing researchers to forward the invitation to others that they know in the community resilience planning field. Survey participants will then decide if they consent to participate in the research. If they do consent, then they will be shown the survey questions. Upon completion of the survey, participants who are non-federal employees will be able to provide their email address to receive renumeration through Qualtrics. If the researchers are struggling to obtain responses, then follow up emails will be used to increase participation.

The survey is expected to have 1,200 respondents, and will take 8 minutes to complete, resulting in 160 total burden hours.

4. Describe how the results of the survey will be analyzed and used to generalize the results to the entire customer population. Also, will this information be used by other Federal agencies? If so, for what purposes? Are they any privacy concerns related to this information sharing? If so, how have these been addressed?

Data received from the survey will be uploaded into the statistical analysis program STATA and analyzed in accordance with our research questions. Descriptive statistics will be used to answer research question 1, by exploring the general trends we see in risk preferences between the different measurement questions used. Regression analysis will then be used to answer research question 2, to test how individuals risk preferences compare to their community risk preferences.

While there are no current plans to share these results with other Federal agencies, resulting recommendations will be broadly informative of the impact of risk preferences in community resilience planning. We do not plan to share our data outside of NIST and do not have privacy concerns related to information sharing. Any results that are shared (via resulting reports; publications) will be aggregated and not personally identifiable to any individual participants.

5. Peer Review: If there is a reasonable likelihood that the results of this information collection will constitute "influential scientific information" under the Information Quality Bulletin for Peer Review, has NIST developed a peer review plan that will be posted on its peer review agenda?

The findings and recommendations resulting from the unique results of this research do not constitute influential scientific information but will nevertheless be subject to standard peer review processes at NIST prior to publication. This includes WERB review for any NIST internal products (e.g. technical notes) as well as planned submissions to Journals. This process will include review by a non-coauthor area expert within the Division (730), one from outside of the Division, the office chief, and division chief. The manuscript must receive approval from all of these parties before it can be published, presented on, or submitted to Journals.

For Journal articles, the manuscript will then be subject to a second round of peer-review based on the policies of the specific Journal, following their typical review processes before being published (if accepted).