

Modeling Risk Perceptions and Changes in Public Behavior in Response to Terrorism

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Risk perception will be integrated formally through the re-specification of demand functions using willingness to pay estimates for risk reduction developed by Smith and Mansfield.

Background:

The primary objectives of our research to this point have been to develop estimates of the economic tradeoffs people would be prepared to make to enhance different aspects of homeland security. Our analysis has been organized around specific sources of risk to security and plans to address them. An important theme in the research has considered the feasibility of designing public policies that induce private households to self protect, thereby enhancing the security provided by complementary public actions.

The research activities have involved developing conceptual models for how people respond to security threats that influence them directly; using existing policy responses or structuring plausible hypothetical plans to respond to the security threats; evaluating whether lay respondents understand the information about the threat and planned policies as we intended; and conducting large scale surveys that presented hypothetical choices with proposed financial consequences to elicit the economic tradeoffs motivated by their preferences.

Four sets of policies have been considered in two national surveys:

- Enhanced public/private infrastructure to facilitate responses to natural and terrorist disruptions to everyday activities
- Protection of commercial passenger aircraft to reduce threats to security of industry from small scale attacks with shoulder mounted missiles.
- Private/public protection of the safety of the domestic food supply through policies to reduce the risk and or consequences of foodborne illness arising from accidental and purposeful activities; and
- Modifications to the structure of the REAL ID system to enhance household acceptance of the private time requirements for implementing the system.

These activities were undertaken in addition to background research exploiting specific natural events (hurricanes) to evaluate how households learn from these events and respond.

The primary products of our research have been research papers and presentations of the findings from the research. By the close of year four of CREATE support we expect to have papers describing the results from all of these surveys.

Proposed Objectives, Products and Customers for Year Five

Under Executive Orders 12291 and 12866, agencies are required to develop benefit cost analyses of major rules. The Office of Management and Budget (OMB) reviews these assessments, or regulatory impact analyses (RIAs), for the rules. OMB is required to report on all the analyses reviewed during each year. At least one commentator reviewing the DHS assessments that were received has suggested homeland security regulations were being given a “free ride” by OMB.

They were not being required to undertake serious efforts to estimate the economic tradeoffs or benefits households would receive from the rules. .*

We believe this policy allowing less stringent attention to the benefits from increased regulations intended to enhance security will not persist indefinitely and agency staff will be expected to quantify benefits. Our meetings with DHS staff (Bryan Roberts) suggest that there is general agreement of the staff with this assessment.

Two objectives organize our activities for the research proposed in year five:

(1) To develop measures of the benefits or economic tradeoffs households would make for policies designed to reduce threats to security. We selected four areas for consideration. Our research is intended to develop transferrable models for measuring these tradeoffs so they could be adapted to meet policy assessments of closely related areas. The candidate areas were selected by reviewing recent DHS rules and discussions with DHS staff. They are:

- Rules affecting border security—inspections in ports and of trucks entering the U.S. with plans for pre-registration of some groups, and sampling plans for containers.
- Rules associated with monitoring phone records and e-mails and related data-mining activities.
- Rules associated with advanced notice of passenger manifests and implications for rigidity of travel plans and schedules from the perspective of the individual traveler.
- Information, advance training requirement, shelter and risk communication systems associated with planning for dirty nuclear attacks or on major urban areas.

We will undertake a survey that addresses two of these threat areas. One would be selected as the primary research objective and a second as a less important objective where the results serve as a pilot assessment. The survey would be designed as a stated choice model to estimate as the basis for measuring economic tradeoffs of specific attributes of plans to address two of these issues. The results would be presented in papers and presentations that illustrate how the models and findings would be used to assess tradeoffs for closely related rules and policies.

(2) To the extent resources permit, we would plan and conduct a small scale workshop on benefits transfer for DHS staff to discuss available research to respond to benefit assessment needs and to illustrate how our research to date might be used.

Technical Approach

Our methodology for developing research to meet the first objective involves four steps:

1. Conceptual modeling of individual decisions in hypothesized choice situations for security plans
2. Design of questions to explain threat, plan and resource commitments individuals would need to make; this design requires an interactive process of focus groups, cognitive

* This point was also reinforced at a Mac Arthur Foundation conference on Benefit Cost analysis for social programs. Kerry participated as a panelist discussing the prospect for using of stated preference methods to estimate transferable shadow prices for social programs on June24-25, 2008. In the discussions commentators in a session on current state of the art in benefit cost analysis cited the limited record for DHS RIAs as an example where improvement was needed.

interviews, and in some cases pilot surveys to evaluate proposed framings of the stated choice questions.

3. Design and implementation of large scale survey; to date cost and convenience have caused us to select Internet panels as the mechanism to conduct surveys; convenience and cost suggest we would continue this practice.
4. Statistical modeling of responses and simulation of modifications to attributes of stated choice plans to evaluate response surface structure for individual tradeoffs.

The second objective, a workshop on benefit transfer, would require interaction with CREATE and DHS staff to plan a small workshop at the end of year five that would be limited to CREATE researchers and DHS staff plus selected researchers from other DHS sponsored centers. It would be for one day and located in D.C.