

Modeling and Estimating the Macroeconomic Consequences of Terrorism  
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This project develops a research program to estimate the economic impact of terrorism using a myriad of macroeconometric techniques. To estimate the long-term impact of terrorism the project will employ cross-sectional estimation, to estimate the short- and medium-term impact of terrorism the project employ dynamic panel and VAR analysis.

**Brief Description:**

This study provides three contributions for our understanding of underlying macroeconomic consequences of terrorism. First, the study proposes to estimate the long run economic growth effects associated with terrorism. To accomplish this task, we will construct a panel data set that incorporates the World Bank data on national income and growth, IMF data on financial conditions, data on domestic and international terrorism incidents, and data on external and internal conflict. Using this unique dataset, which spans 40 years for 180 countries, we examine the dynamic effects of terrorism on economic growth, consumption growth, as well as possible effects on capital accumulation and macroeconomic instability. The panel dimension of this data is particularly useful as it allows identification of the effects of terrorism on economic activity, growth and stability that may be evident in long-run trends that cannot be detected absent long-horizon cross-country comparisons. With these added degrees of freedom across the globe, we can then extract the impact on the United States economy.

Second, we explore the extent to which terrorism “crowds-in” and/or “crowds-out” alternative forms of domestic and international conflict and the potential differences in the macroeconomic consequences of these alternative forms of conflict. This is of particular interest because terrorist episodes are far more frequent and persistent than are other forms of external and internal conflicts. While terrorism and more traditional forms of conflict are not typically considered as gross substitutes or complements for one another, the explicit consideration of this issue is essential for understanding the macroeconomic costs of terrorism per se, as opposed to the costs that might typically be identified with other forms of conflict.

Finally, having established the empirical properties of how terrorism affects economic activity as well as the extent to which terrorism affects the nation-specific and world-wide frequency of domestic and international conflict, the paper will conclude by “pricing” the macroeconomic impact of terrorism. The study will calculate the “terrorism tax” by calibrating from our findings the amount that each country’s representative individual would be willing to give up of their current consumption level in order to live in an imagined economic world that is free from terrorism. This work will explicitly look at the direct role of terrorism on the present discounted value of utility weighted stochastic consumption growth as well as the indirect effect of how terrorism impacts on other types of conflict (which also, in turn, affect consumption growth). This work builds on CREATE’s efforts to assess the economic impact of terrorism and in particular to help DHS optimally allocate resources intended to stem violent outcomes.

**Objectives:**

This research will (a) develop a novel and rich dataset spanning 180 countries from 1968-2008 with associated cultural, political and economic factors; (b) develop one or more comprehensive

methodologies for assessing the short-, medium- and long-term macroeconomic impact of terrorism on United States borders and U.S. interests to complement the existing modeling accomplished through CGE and I-O approaches; (c) develop an estimate of the impact of terrorism on welfare via a “terrorism tax”; (d) perform sensitivity testing of these methods through a series of robustness and replications tests; (e) summarize and evaluate the relative cost and compare these to existing CGE and IO estimates.

**Interfaces to other Center Projects:**

This work will maintain a close interface with the Dr. von Winterfeldt’s risk analysis and economics projects, especially those in academic and other scholarly publications.

**Interfaces to non-Center Projects:**

We are working with the National Bureau for Economic Research (NBER) summer program on the Economics of National Security organized by Martin Feldstein. We are hoping to present the proposal during one summer and the actual findings over the next summer.

**Major Products and Customers:**

Project deliverables will consist of reports that will: (a) develop one or more comprehensive methodologies that can be employed to answer questions on the macroeconomic cost of terrorism; (b) develop a series of academic papers that will be sent to scholarly outlets such as journals or books; (c) develop one or more comprehensive methodologies for analysis on the impact factors on investment, consumption and other forms of conflict; and (d) summarize and evaluate the conceptual and practical soundness of alternative strategies using cost-benefit analysis. Customers: DHS; and DOD;

Products: Mainly research publications and reports.

**Technical Approach:**

The methods developed will build on previous research using economic models measuring persistence and duration of terrorist organizations. The methods will first employ computer programming to generate the rich dataset of over 1 million observations. Then the methods will allow us to employ econometric techniques that build on the existing models that estimate economic impacts. The overall framework uses mathematical programming including linear and nonlinear programming.

**Major Milestones and Dates:**

1. Develop the dataset of terrorism linked to economic, political, geographic data -- summer 2008.
2. Evaluate the temporal and geographic empirical regularities that impact the United States by examining heterogeneity due to time, region and conflict -- October 2008.
3. Develop econometric model to test various economic and political theories – Nov. 2008.
4. Explore extensions of model as a check on the robustness of our results-- December 2009.
5. Provide first draft of results for American Economic Association conference – January 2009.
6. Provide revised paper(s) for presentation and review-- March 2009.
7. Submit paper(s) to scholarly outlets and present additional findings to NBER National Security Summer Program -- July 2009.