

Abstract

Deterring the smuggling of nuclear weapons in container freight is critical. Previous work has suggested that such deterrence could be achieved by retaliation threats and partial inspection. However, pre-event declared retaliation threats may not be credible, causing the desired deterrence not to be achieved. In this paper, we extend and complement the work of Haphuriwat et al. (2011) to model credible retaliation threats in a three-stage game, by introducing two additional decision variables and five additional parameters. Our results suggest that noncredible retaliation could be at equilibrium when the reputation loss is low, the reward from the public for retaliation is low, or the costs of retaliation are high. When the declared retaliations are noncredible, we quantitatively show that a higher inspection level would be required to deter nuclear smuggling than would be needed if retaliation threats are always credible. This paper provides additional quantitative insights on the decision-making process for container screening to deter nuclear smuggling.

Citation

Shan, X. and J. Zhuang. "Modeling Credible Retaliation in the Smuggling of Nuclear Weapons – A Three-stage Game", *Decision Analysis*, 11(1): 43-62, 2014.