

Abstract

Terrorism with weapons of mass destruction (WMDs) is an urgent threat to homeland security. The process of counter-WMD terrorism often involves multiple government and terrorist group players, which is under-studied in the literature. In this paper, first we consider two subgames: a proliferation game between two terrorist groups or cells (where one handling the black market for profits proliferates to the other one to attack, and this is modeled as a terrorism supply chain) and a subsidization game between two governments (where one potential WMD victim government subsidizes the other host government, who can interfere with terrorist activities). Then we integrate these two subgames to study how the victim government can use the strategy of subsidy to induce the host government to disrupt the terrorism supply chain. To our knowledge, this is the first game-theoretic study for modeling and optimally disrupting a terrorism supply chain in a complex 4-player scenario. We find that in the integrated game, when proliferation payment is high or low, the victim government will not subsidize the host government to destroy the black market regardless of its cost. In contrast, in the subsidization subgame between the two governments, the decision of subsidization depends on its cost. When proliferation payment is medium, the decision of subsidization depends on not only its cost but also the preparation cost and the attacking cost. We study three extensions: (a) a subsidization subgame of incomplete information, (b) a simultaneous-move integrated game, and (c) an integrated game with a different sequence of moves. Findings from our results would assist in government policy making.

Citation

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