

## **The Value of Military Intelligence in an Arms Race Context**

Eyal Pecht and Asher Tishler

The Recanati Graduate School of Business Administration, Tel Aviv University, Israel

### **Abstract**

High quality knowledge on the capabilities and intentions of rivals is a major factor in achieving a balanced military, meaningful deterrence capabilities, and success in warfare situations. Publicly available data show that direct investment in intelligence amounts to 5%-15% of the defense budget of most developed countries. The 2010 direct expenditure on intelligence by the USA was about \$80 billion. The direct and indirect spending by the USA on intelligence (e.g. on integrative technologies) is estimated to be approximately 15% (\$120 billion) of its national defense budget.

This study integrates military intelligence into the optimal allocation of the government budget (which includes civilian and military expenditures). We develop and analyze several static (one-period) models in which two rival countries are engaged in an arms race. Intelligence activities include the process of data collection and knowledge analysis for decision making by the military and governmental hierarchies. We assume that the intelligence process serves two main goals: (a) evaluation of the rival's capabilities and intentions; (b) enhancing the capability of the military by increasing the effectiveness of its weapon systems and reducing the effectiveness of the rival's weapon systems.

We derive the optimal solution of the arms race, showing that the optimal expenditure on intelligence by each rival may or may not be a monotonically increasing function of: (a) the government budget; (b) the effectiveness of the intelligence apparatus; (c) the decision makers' degree of conservatism. Furthermore, in some (extreme) situations one or both rivals may not invest any resources in intelligence. We present scenarios in which the two rivals face a knowledge race in addition to the usual arms race. In such cases, a country with much higher intelligence effectiveness (better human capital) may force its rival to spend significant resources on intelligence, resulting in a substantial advantage in security and welfare for the country with the better human capital. Finally, using data for 1996-2009, we present an application of our model to the Israeli-Syrian arms race.