

On the Value of Differentiated Military Intelligence

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Abstract

The technology and information revolution, along with globalization, have placed security intelligence as a major factor in achieving appropriate national security in the face of military threats in general and the current trends in world nonsymmetrical warfare in particular. Investment in intelligence is, generally, divided between operational, short-term intelligence needs, and fundamental, long-term intelligence projects.

This study integrates differentiated intelligence into a model describing an arms race between two rival countries, in which the military capability of each country depends on its expenditure on weapon systems and on intelligence. Expenditures on weapon systems are divided between short-term, mainly operational, capabilities (such as system modifications, training, logistics, etc.) and long-term, mainly procurement and infrastructure needs (power building, technology projects, R&D, platforms, etc.). Similarly, expenditure on intelligence is divided between short-term intelligence for missions and long-term intelligence (knowledge) on the rival's capabilities, infrastructure projects and human capital. Each rival uses its (differentiated) intelligence to improve its own capabilities and, at the same time, reduce the effectiveness of its rival's capabilities.

We derive an analytical solution of a specific symmetric form of the model, showing that the optimal expenditure on intelligence by each rival is, generally, an increasing function of its intelligence effectiveness. We show how the optimal expenditures on the various types of weapon systems and intelligence depend on the intelligence effectiveness levels (reflecting the human capital in each country). Furthermore, we demonstrate how the optimal expenditures on weapon systems and on intelligence depend on the uncertainty (variance) of the outcomes of the countries' various types of intelligence efforts. Finally, we show that our model tends to yield corner solutions when the two countries possess very different government budgets or very different levels of human capital (and, hence, intelligence effectiveness). This scenario may be a good reflection of the current Israeli-Arab arms race and the arms race between the USA and the USSR during the last decade of the Cold-War era (1980's).