

# **Economic Theories and Econometric Applications Help to Achieve Goals**

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To achieve its goals, peace economics must cover understanding of the behavior of individuals and groups of individuals ranging from the local community up to the nation, alliances of nations, and international organizations such as the United Nations and GATT. It draws upon utility, production, public choice, and welfare theories — theories at both the micro and macro level, involving both practical and general equilibrium/disequilibrium frameworks. Also it embodies game-theoretic, strategic, and other reaction-interaction analyses among parties, wherein hostility and friendliness, and cooperation and defection are involved. Behaving units are taken to engage in appropriative activities (for example, military ventures) as well as productive activities, with war often viewed as a rational, purposeful choice of decision makers.

During the Cold War era, much investigation was devoted to models of deterrence attack capability, the inherent propensity for certain types of weaponry to lead to escalation of arms races, the need for the development of non-threatening weapon systems, and procedures for qualitative arms control. With the demise of the Cold War and the relaxation of controls on developing nations by the former Soviet Union and the United States, concern has arisen with the emergence of arms races among developing nations and their acquisition of nuclear weapons.

At the empirical and applied level, a number of econometric, computable general equilibrium and other studies have examined the impact, particularly at the national level, of military expenditures on inflation, unemployment, budget deficits, trade and balance of payments, and the general problem of allocation of resources between military and peacetime (social-welfare) programs. Along with those have been analyses of the effect of political conflict upon trade and of trade upon the hostility of nations. Numerous input-output investigations have examined the impact of increases and cutbacks of military expenditures on output and employment by economic sectors at national, regional, and local levels. Closely associated with these have been studies concerned with conversion of defense-oriented activities to peacetime operations with the retraining of workers employed in such activities, the retooling of plant and equipment and restructuring of industry, the reorientation of management to a competitive market economy, and the identification of desirable and effective offset programs. A most recent development is the incorporation of arms-race models and political variables in econometric, input-output, and potentially computable general equilibrium models of the world economy.

Another major line of inquiry relates to the impact of arms expenditures on the level of investment in the civilian economy. In particular, is there a negative impact and a consequent slowdown in the growth of the national economy? Economic warfare studies stem from such considerations. Further, are military R&D expenditures made at the expense of civilian expenditures, and is the resulting increase in industry and overall national productivity significantly less, even though the spillover effects of the former may be major? With regard to developing countries a hotly debated thesis is that arms production is job-creating, develops a market for the product of domestic firms, and stimulates the acquisition of labor skills and entrepreneurship, all of which spark and foster industrialization.

Other specific topics with which peace economics is concerned are guerrilla warfare, terrorism, and revolution as means to achieve ends; the expected utility of war; the effectiveness of economic sanctions, boycotts, and embargoes; alliance behavior and burden sharing; the properties of particular games like prisoner's dilemma, hawk/dove and chicken; particular arms-race models (e.g., the pre-World War I British/German dreadnought race); case studies of the effects of military expenditures in a given nation (e.g., India); the nature and scope of

international arms trade, organizational politics models involving resource allocation; lobbying efforts, particularly of the military-industrial complex; the effectiveness of arms expenditures as a countercyclical force; the probabilistic and non-probabilistic models of war initiation, maintenance and termination; the pollution aspects of military operations; the benefits and costs for each participant in a violent outbreak; and the economics of an international police force. Peace economics is distinct from defense economics, which has been primarily concerned with the efficient operation of a defense establishment (e.g., the Department of Defense), its budgeting process and weapons procurement, and missile war simulations to evaluate deterrence and attack capabilities of different weapon systems and their cost efficiency.

Another major concern of peace economics is with conflict management procedures (CMPs). Such procedures (e.g., veto incremax, max the min in rank improvement, and determination of priorities) involve extensions of Cournot/Edgeworth frameworks, oligopoly theory, game theory, coalition analysis, programming methods, and other economic tools.

As with those in many other areas of social science, law, and other professions, peace economists have explored possibilities for institutional change, particularly that which could influence the operation of key economic forces in the national and world systems -- e.g. foreign aid and the financial support of development projects that can significantly affect internal unrest and the hostility a nation levels at its neighbors and others.

Leading figures in the field have been Jan Tinbergen, Wassily Leontief, and Kenneth Boulding, all of pre-World War I vintage. Since the early 1980s, the Peace Science Society (International) has been organizing conflict and peace economics sessions jointly with the American Economics Association at the latter's annual convention; and recently ECAAR has focused the interest of many outstanding economists, including a number of Nobel laureates, on critical peace issues.

References Boulding, Kenneth, *Conflict & Defense*, New York; Harper & Row, 1962.

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Leontief, Wassily, and Faye Duchin. *Military Spending: Facts and Figures, Worldwide Implications and Future Outlook*, New York Oxford UP, 1983.

Tinbergen, Jan and Dietrich Fischer, *Warfare and Welfare; Integrating Security Policy into Socio-Economic Policy*. New York. 1987.

For worldwide statistics on military expenditures, arms trade. and related elements, see Stockholm International Peace Research Institute, *Yearbook of World Armaments and Disarmaments*. New York: Oxford UP, annually.

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