Martin Shubik

Martin Shubik is a distinguished economist who has made major contributions to a variety of fields in economics. Two of Shubik's early papers demonstrate a significant connection between the novel concepts of game theory and classical problems in economics. In his 1953 paper, "A Comparison of Treatments of a Duopoly Situation" written with John Mayberry and John Nash, Shubik shows that Nash equilibrium generalizes the classical Cournot duopoly equilibrium. In *Edgeworth Market Games,* published in 1959, he noted that Edgeworth's analysis of the contract curve in Mathematical Psychics can be extended to the concept of the core of a general Walrasian model of exchange. He conjectured that the core would converge to the set of competitive equilibria as the number of consumers became large, anticipating the Debreu-Scarf theorem.

Shubik's paper with Lloyd Shapley," *A Method for Evaluating the Distribution of Power in a Committee System"* published in 1954 applies the Shapley Value to complex voting games giving each player a power index between 0 and 1. The power index has been widely used in the study of electoral systems. In *"The assignment game I: The core" (1971)*, Shapley and Shubik analyze a two-sided market in which a product that comes in large, indivisible units (houses, cars, etc.) is exchanged for money.

Shubik was one of the pioneers of experimental game theory. His *"Dollar Auction Game"* (1971) is a classic that exposed the phenomenon of escalation among competitors, and fostered debate on how far actual behavior may deviate from the purely rational mode of play embodied in Nash equilibria.

Shubik has long been intrigued by the role played by money in the economy. In order to pursue his analysis, he invented a playable game with the generality of the Walrasian model in which money plays a crucial strategic role. The game is first described in his 1973 paper "Commodity Money, Oligopoly, Credit, and Bankruptcy in a General Equilibrium Model". In subsequent papers with Charles Wilson on " The Optimal Bankruptcy Rule in a Trading Economy using Fiat Money" and with Lloyd Shapley on "Trade Using One Commodity as a Means of Payment" he established strategic markets games as a central paradigm in monetary analysis. He has also written on default in general equilibrium with Pradeep Dubey and John Geanakoplos.

Shubik has been concerned with defense analysis. His paper *"Terrorism, Technology, and the Socioeconomics of Death,"* (1997) pioneered the paradigmatic shift in warfare brought about by the increasing permeability of national borders. His 1994 paper with Jerome Bracken "*Worldwide Nuclear Coalition Games: A Valuation of Strategic Offensive and Defensive Forces"* gives a game theoretic and computational analysis of nuclear stability in a multi-state nuclear power world. It was awarded the Koopmans Prize in Military Operations Research in 1995.