
Today's News

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Nobel Prize in Economics Goes to 2 Scholars Who Developed Game Theory as Analytical Tool in Public Policy

By [DAVID GLENN](#)

The Nobel Memorial Prize in Economic Science was awarded this morning to two scholars who developed the use of game theory to analyze public policy.

Robert J. Aumann, a professor emeritus of mathematics at the Hebrew University of Jerusalem, and Thomas C. Schelling, a professor emeritus of economics and public policy at the University of Maryland at College Park, were honored for separate studies showing how game theory provides a pervasive mode of analysis of human interaction. Their models have been applied to such questions as price wars between businesses and nuclear wars between nations.

The Royal Swedish Academy of Sciences, which awards the annual prize, said in a statement that "current economic analysis of conflict and cooperation builds almost uniformly on the foundations laid by Aumann and Schelling."

The prize, which is formally known as the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, is not one of the five awards the Swedish inventor devised in his will in 1895. The economics prize was established in his honor in 1968 by the Bank of Sweden. The two scholars will share an award of approximately \$1.3-million; the prize will be formally presented at a ceremony on December 10.

Mr. Aumann was born in Germany in 1930, studied mathematics at the Massachusetts Institute of Technology, and began teaching at Hebrew University in 1956. He is best known for his models of "infinitely repeated games" -- that is, games in which the players can gradually acquire more knowledge about their fellow players' traits.

If a town has five identical tire stores, for example, and one store undercuts the prevailing price, the other four must decide whether to punish that deviation with still-lower prices, thus sacrificing their own short-term profits in the hope of driving at least one competitor out of business. Mr. Aumann's models have described the conditions in which one or another strategy might be optimal for such stores, depending on how willing they are to sacrifice potential current and future profits, how much they know about their competitors' past behavior, and how many competitors are in the game.

Mr. Schelling was born in California in 1921, studied economics at Harvard University, and joined Maryland's faculty in 1990 after many years at Harvard. His most famous work is *The Strategy of Conflict* (Harvard University Press, 1960). In that book, Mr. Schelling applied the framework of game theory -- which had been developed during the mid-20th century by scholars including John von Neumann and John Nash -- to the threat of nuclear war.

In *The Strategy of Conflict*, Mr. Schelling emphasized the idea of "credible commitments" -- that is, he argued, countries can bargain more effectively if they can persuade their adversaries that they are not bluffing, and that their arsenals are well protected and ready to fire. The logic of strategic commitments has subsequently been applied to models of business behavior and monetary policy. (Unelected central banks such as the U.S. Federal

Reserve, for example, are said to be regarded by businesses as offering credible commitments to resist inflation.)

Mr. Schelling also emphasized the instability of international relations when (as is always the case) countries have imperfect information about one another's preferences. "If I go downstairs to investigate a noise at night, with a gun in my hand," he wrote, "and find myself face to face with a burglar who has a gun in his hand, there is a danger of an outcome that neither of us desires. Even if he prefers to just leave quietly, and I wish him to, there is danger that he may *think* I want to shoot, and shoot first."

"It's impossible to overestimate the extent to which Schelling's type of reasoning has influenced people's thinking," said Peter Murrell, chairman of the economics department at Maryland, in an interview this morning. "One application is how neighborhoods become segregated along ethnic lines, for instance. And Schelling has done some very interesting work on smoking and drinking, and on how people save too little."

Mr. Murrell first encountered Mr. Schelling in the mid-1970s, when Mr. Schelling gave a lecture at Swarthmore College. "In contrast to most speakers, he got to the room before most of the students," Mr. Murrell recalled. "He just watched them. And then, for 10 minutes at the beginning of his lecture, he gave a spontaneous theory of why the people had sat in the patterns they all had. It was just a wonderful demonstration of how he could apply his basic economic theories to very simple human interactions."

During the last decade -- more than 30 years after Mr. Schelling's original work -- the tools of game theory and formal modeling have spread from economics to political science. A significant number of international-relations theorists have begun to use such tools regularly when analyzing the risks of interstate conflict.

Mr. Schelling has also left an imprint in popular culture. In the early 1960s, he wrote an article for the *Bulletin of the Atomic Scientists* about the danger of accidental war. He mentioned that the popular novelist Peter George, in his 1958 book *Red Alert*, had more accurately imagined an accidental-war scenario than many academic and military strategists had managed to do.

The film director Stanley Kubrick happened to read the article, and soon bought the rights to Mr. George's novel. He consulted extensively with Mr. Schelling during the making of *Dr. Strangelove, or: How I Learned to Stop Worrying and Love the Bomb*.

More information about the prize winners is available on the [Nobel Web site](#).

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