

2 Americans win Nobel econ prize for match-making (Update 3)

October 15 2012, by Karl Ritter



From left, Per Krusell, Staffan Normark, Peter Gardenfors and Tore Ellingsen of the Swedish Royal Academy of Sciences present the winners of the Nobel Memorial Prize in Economic Sciences, in Stockholm, Sweden, Oct. 15, 2012. Americans Alvin E. Roth of Harvard University and Lloyd S. Shapley of University of California were cited for "the theory of stable allocations and the practice of market design." (AP Photo/Scanpix Sweden, Henrik Montgomery)

Two American scholars won the Nobel economics prize Monday for work on match-making—how to pair doctors with hospitals, students with schools, kidneys with transplant recipients and even men with women in marriage.

Lloyd Shapley of UCLA and Alvin Roth, a Harvard University professor currently visiting at Stanford University, found ways to make markets work when traditional economic tools fail.

Shapley, 89, came up with the formulas to match supply and demand in markets where prices don't do the job; the 60-year-old Roth put Shapley's math to work in the real world.

Unlike some recent Nobel prizes—such as the Peace Prize that went to the embattled European Union last week—this year's economics award did not seem to send a political message.

"It's all about down-to-earth, highly useful stuff," said Robert Aumann, a professor at Jerusalem's Hebrew University who won the 2005 economics Nobel. "We're talking about the nitty-gritty of health care and education—which medical students are assigned to which hospitals. We're talking about how to arrange donors of kidneys."

Shapley made early theoretical inroads into the subject, using game theory to analyze different matching methods in the 1950s and '60s.

In a groundbreaking 1962 paper, Shapley and the late David Gale looked at how to match 10 men and 10 women in perfectly stable marriages. They created a model in which no two people liked anyone else better than each other.

While that may have had little impact on marriages and divorces, the elegant algorithm they developed has been used to better understand many different markets.

Building on Shapley's work, Roth applied it decades later to the market for allocating doctors, creating an algorithm that led to the redesign of the National Resident Matching Program that pairs fourth-year medical

students with hospitals.



This photo provided by Stanford News Service, shows Alvin Roth taking a phone call, after being awarded the Nobel economics prize, at his home in Menlo Park, Calif. on Monday, Oct. 15, 2012. Roth, 60, and Lloyd Shapley, 89, two American scholars, were awarded the Nobel economics prize on Monday, for studies on the match-making that takes place when doctors are coupled up with hospitals, students with schools and human organs with transplant recipients. The work of Roth and Shapley has sparked a flourishing field of research and helped improve the performance of many markets, the Royal Swedish Academy of Sciences said. (AP Photo/ Stanford News Service, Linda A. Cicero)

"Before Roth, it was not unusual to not get any of your first three or four choices," said David Warsh, who follows university economists in his Economic Principals blog. "After Roth hooked up this new algorithm, almost everyone got what they wanted."

Roth also successfully applied the formula to New York City's public schools, ensuring that fewer students ended up in schools that were not among their top choices. Now, noted Susan Athey, a Stanford University economist, "there are school districts all over the country that are considering these matching procedures."

The algorithm has also been used to match kidneys with patients who need transplants.

Before Roth, "there were no economists in that business at all," Warsh says. "He's really changed it and saved a lot of lives."

Roth looks at cases where prices can't be used to match supply and demand. In some markets—such as organ transplants—society recoils at the notion of a product or service going to whoever can pay the highest price.

"Al has spent a lot of time studying markets where things don't work out," says Roth's former student, Parag Pathak, now an economist at the Massachusetts Institute of Technology.

"It's not like we could just buy and sell kidneys, and people can't buy their way into public schools. So standard economic models don't apply."

"Al Roth richly deserves this prize," agreed Daniel McFadden, a professor of health economics at the University of California, Berkeley. "He is an imaginative inventor and doer, who has solved concrete, important resource-allocation problems."

Prize committee member Peter Gardenfors said the winners' work could also be applied to other areas, such as allocating housing to students or refugees.



Shortly after being awakened and learning the news, Lloyd Shapley, one of two Americans who were awarded the Nobel economics prize, talks to a reporter from his home in the Pacific Palisades area of Los Angeles Monday, Oct. 15, 2012. Shapley, 89, and Alvin Roth were awarded the Nobel economics prize on Monday, for studies on the match-making that takes place when doctors are coupled up with hospitals, students with schools and human organs with transplant recipients. The work of Roth and Shapley has sparked a flourishing field of research and helped improve the performance of many markets, the Royal Swedish Academy of Sciences said. Shapley is a professor emeritus at University of California Los Angeles. (AP Photo/Reed Saxon)

"There are economic problems that can't be solved with normal market mechanisms," Gardenfors said. "With these matchings, there is no money involved so the main thing is to follow what kind of preferences people have—who wants to be matched with whom—and find a good

solution to that."

Shapley learned that he and Roth had won the \$1.2 million award from an Associated Press photographer and another journalist who went to his home in Los Angeles early Monday.

"I consider myself a mathematician, and the award is for economics," Shapley told AP. "I never, never in my life took a course in economics."

The son of renowned astronomer Harlow Shapley, who helped estimate the true size of the Milky Way galaxy, Shapely noted: "Now, I'm ahead of my father. He got other prizes. ... But he did not get a Nobel Prize."

Roth said he and his wife were asleep when the phone rang at 3:30 a.m.

"We missed the first call because we were asleep, but we had time to wake up and think that might be what it was," he said. "My wife is going to go out and get us some coffee, and maybe we'll absorb it."

He said the award "casts a light on the work. It makes it more visible. And it's an exciting area of economics, so that's a good thing. ... We're not macroeconomists who think about the whole economy. We think about particular markets and marketplaces and how to make them work better."

The Nobel Memorial Prize in Economic Sciences was the last of the 2012 Nobel awards to be announced.

It's not technically a Nobel Prize: Unlike the five other awards, it wasn't established in the will of Alfred Nobel, a Swedish industrialist who invented dynamite. The economics prize was created by the Swedish central bank in Nobel's memory in 1968, and has been handed out with the other prizes ever since.

Americans have dominated the economics award: 15 of the last 17 winners have come from the United States.

The 2012 Nobel Prizes in medicine, physics chemistry and literature and the Nobel Peace Prize were announced last week. All awards will be handed out on Dec. 10, the anniversary of Nobel's death in 1896.

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