



**BUSINESS DAY**

# Herbert Scarf, an Economist's Mathematician, Dies at 85

By **SAM ROBERTS** NOV. 21, 2015

Herbert Scarf, a Yale mathematician who never took an economics course but whose groundbreaking theories were embraced by businesses and governments, died on Nov. 15 at his home in Sag Harbor, N.Y. He was 85.

The cause was heart failure, his daughter Martha Samuelson said.

Professor Scarf's most enduring legacy was an algorithm — named for him — that enables economists to evaluate how markets, companies and even households would respond to fundamental changes in tax policy or trade strategies.

Glenn Hubbard, a former chairman of the Council of Economic Advisers under President George W. Bush and now dean of the Columbia University Graduate School of Business, said in an email that the Scarf algorithm was a revolutionary advance in economic analysis that has helped shape policies affecting every American.

“Economists and policy makers have long been interested in assessing the economic impacts on gross domestic product or incomes from major policy initiatives such as fundamental tax reform or trade liberalization,” Professor Hubbard wrote. “The Scarf algorithm made much of modern policy analysis

possible.”

Professor Scarf had a comparable impact on the business sector. Over five decades, he devised pioneering theories on how adjusting prices, inventory and other variables could maximize profits.

“Economics, like physics, has gained greatly from the use of sophisticated mathematics,” Lawrence H. Summers, the former Treasury secretary and Harvard president, said in an email. “No economist has done more to import math over the last half-century than Herbert Scarf.”

Professor Scarf’s first exposure to the economy was far from abstract: His father’s clothing store went bust during the Depression.

Herbert Eli Scarf was born in Philadelphia on July 25, 1930, the son of Louis Scarf and the former Lene Elkman, Jewish immigrants from Ukraine and Russia.

As a teenager, Herbert was drawn to the world of numbers by the romance of the 1937 book “Men of Mathematics,” by E. T. Bell. Bell dreamily wrote of mathematics’ invigorating “light and wisdom” and of mathematicians’ “magnificent achievements” as “refreshing as a drink of cold water on a hot day and as inspiring as any art.”

Motivated by that book, he began studying higher math on his own, astounding his high school teachers when he won a statewide math tournament run by Temple University in 1947.

He went on to enroll at Temple, receiving his bachelor’s degree in 1951. He earned his master’s and doctoral degrees in mathematics from Princeton University.

In 1953 he married Margaret Klein, whom he had met at Temple, and who, as Maggie Scarf, became a best-selling author of books popularizing behavioral science, among them “Unfinished Business: Pressure Points in the

Lives of Women” and “Intimate Partners: Patterns in Love and Marriage.”

“There was this beautiful, poetic man with huge brown eyes, carrying a volume of German poetry,” she once said of Professor Scarf in an interview with The New York Times.

In addition to his wife and his daughter Martha, he is survived by two other daughters, Elizabeth Stone and Susan Merrell, and eight grandchildren. (His daughter Martha married Paul R. Samuelson, a son of Paul A. Samuelson, the Nobel laureate in economics.)

After Princeton, Professor Scarf worked for the RAND Corporation and was a professor at Stanford before joining the Yale faculty in 1963. At his death, he was Sterling Professor Emeritus of Economics at Yale and had been director of the university’s Cowles Foundation for Research in Economics and the Division of Social Sciences.

Professor Scarf’s honors included the Lanchester Prize and the John von Neumann Theory Prize, both awarded in the management sciences. Among his many publications was the book “The Computation of Economic Equilibria.”

Professor Scarf’s mathematical insights and formidable mental dexterity were invoked in more than one Nobel citation.

“Associated with our joint paper is one of my vivid memories of the instant when a problem is solved,” Gérard Debreu, a French-born American economist and mathematician, recalled in his 1983 Nobel lecture. “Scarf, then at Stanford, had met me at the San Francisco Airport in December 1961, and as he was driving to Palo Alto on the freeway, one of us, in one sentence, provided a key to the solution; the other, also in one sentence, immediately provided the other key; and the lock clicked open.”

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