

Paul A. Samuelson, Economist, Dies at 94

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Paul A. Samuelson, the first American Nobel laureate in economics and the foremost academic economist of the 20th century, died Sunday at his home in Belmont, Mass. He was 94.

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Paul A. Samuelson received the National Medal of Science as former President Bill Clinton looked on in Washington in 1996.

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Robert Spencer for The New York Times

Mr. Samuelson discussed the implications of outsourcing in his office at the Massachusetts Institute of Technology in 2004.

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Bob Child/Associated Press

Mr. Samuelson arrived at Yale graduation ceremonies in 2004.

His death was announced by the [Massachusetts Institute of Technology](#), which Mr. Samuelson helped build into one of the world's great centers of graduate education in economics.

In receiving the [Nobel Prize](#) in 1970, Mr. Samuelson was credited with transforming his discipline from one that ruminates about economic issues to one that solves problems, answering questions about cause and effect with mathematical rigor and clarity.

When economists “sit down with a piece of paper to calculate or analyze something, you would have to say that no one was more important in providing the tools they use and the ideas that they employ than Paul Samuelson,” said Robert M. Solow, a fellow Nobel laureate and colleague of Mr. Samuelson's at [M.I.T.](#)

Mr. Samuelson attracted a brilliant roster of economists to teach or study at the university, among them Mr. Solow as well as such other future Nobel laureates as George A. Akerlof, Robert F. Engle III, Lawrence R. Klein, Paul Krugman, Franco Modigliani, Robert C. Merton and [Joseph E. Stiglitz](#).

Mr. Samuelson wrote one of the most widely used college textbooks in the history of American education. The book, “Economics,” first published in 1948, was the nation's best-selling textbook for nearly 30 years. Translated into 20 languages, it was selling 50,000 copies a year a half century after it first appeared.

“I don't care who writes a nation's laws — or crafts its advanced treatises — if I can write its economics textbooks,” Mr. Samuelson said.

His textbook taught college students how to think about economics. His technical work — especially his discipline-shattering Ph.D. thesis, immodestly titled “The Foundations of Economic Analysis” — taught professional economists how to ply their trade. Between the two books, Mr. Samuelson redefined modern economics.

The textbook introduced generations of students to the revolutionary ideas of [John Maynard Keynes](#), the British economist who in the 1930s developed the theory that modern market economies could become trapped in depression and would then need a strong push from government spending or tax cuts, in addition to lenient monetary policy, to restore them. No student would ever again rest comfortably with the 19th-century nostrum that private markets would cure unemployment without need of government intervention.

That lesson was reinforced in 2008, when the international economy slipped into the steepest downturn since [the Great Depression](#), when Keynesian economics was born. When the Depression began, governments stood pat or made matters worse by trying to balance fiscal budgets and erecting trade barriers. But 80 years later, having absorbed the Keynesian preaching of Mr. Samuelson and his followers, most industrialized countries took corrective action, raising government spending, cutting taxes, keeping exports and imports flowing and driving short-term interest rates to near zero.

Lessons for [President Kennedy](#)

Mr. Samuelson explained Keynesian economics to American presidents, world leaders, members of Congress and the Federal Reserve Board, not to mention other economists. He was a consultant to the [United States Treasury](#), the Bureau of the Budget and the President's [Council of Economic Advisers](#).

His most influential student was John F. Kennedy, whose first 40-minute class with Mr. Samuelson, after the 1960 election, was conducted on a rock by the beach at the family compound at Hyannis Port, Mass. Before class, there was lunch with politicians and Cambridge intellectuals aboard a yacht offshore. "I had expected a scrumptious meal," Mr. Samuelson said. "We had franks and beans."

As a member of the Kennedy campaign brain trust, Professor Samuelson headed an economic task force for the candidate and held several private sessions on economics with him. Many would have a bearing on decisions made during the Kennedy administration.

Though Professor Samuelson was President Kennedy's first choice to become chairman of the Council of Economic Advisers, he refused, on principle, to take any government office because, he said, he did not want to put himself in a position in which he could not say and write what he believed.

After the 1960 election, he told the young president-elect that the nation was heading into a [recession](#) and that Mr. Kennedy should push through a tax cut to head it off. Mr. Kennedy was shocked.

"I've just campaigned on a platform of fiscal responsibility and balanced budgets and here you are telling me that the first thing I should do in office is to cut taxes?" Professor Samuelson recalled, quoting the president.

Kennedy eventually accepted the professor's advice and signaled his willingness to cut taxes, but he was assassinated before he could take action. His successor, [Lyndon B. Johnson](#), carried out the plan, however, and the tax cut reinvigorated the economy.

Adding a Bite to Academia

In the classroom, Mr. Samuelson was a lively, funny, articulate teacher. On theories that he and others had developed to show links between the performance of the stock market and the general economy, he famously said: "It is indeed true that the stock market can forecast the business cycle. The stock market has called nine of the last five recessions."

His speeches and his voluminous writing had a lucidity and bite not usually found in academic technicians. He tried to give his economic pronouncements a "snap at the end," he said, "like [Mark Twain](#)." When women began complaining about career and salary inequities, for example, he said in their defense, "Women are men without money."

Remarkably versatile, Mr. Samuelson reshaped academic thinking about nearly every economic subject, from what Marx could have meant by a labor theory of value to whether stock prices fluctuate randomly. Mathematics had already been employed by social scientists, but Mr. Samuelson brought the discipline into the mainstream of economic thinking, showing how to derive strong theoretical predictions from simple mathematical assumptions.

His early work, for example, presented a unified mathematical structure for predicting how businesses and households alike will respond to changes in economic forces, how changes in wage rates will affect employment, and how tax rate changes will affect tax collections.

His relentless application of mathematical analysis gave rise to an astonishing number of groundbreaking theorems, resolving debates that had raged among theorists for decades, if not centuries.

Early in his career, Mr. Samuelson developed the rudimentary mathematics of business cycles with a model, called the multiplier-accelerator, that captured the inherent tendency of market economies to fluctuate. The model showed how markets magnify the impact of outside shocks and turn, say, an initial one-dollar increase in foreign investment into a several-dollar increase in total domestic income, to be followed by a decline.

The Stolper-Samuelson Theorem

Mr. Samuelson provided a mathematical structure to study the impact of trade on different groups of consumers and workers. In a famous theorem, known as Stolper-Samuelson, he and a co-author showed that competition from imports of clothes and similar goods from underdeveloped countries, where producers rely on unskilled workers, could drive down the wages of low-paid workers in industrialized countries.

The theorem provided the intellectual scaffold for opponents of free trade. And late in his career, Mr. Samuelson set off an intellectual commotion by pointing out that the economy of a country like the United States could be hurt if productivity rose among the economies with which it traded.

Yet Mr. Samuelson, like most academic economists, remained an advocate of open trade. Trade, he taught, raises average living standards enough to allow the workers and consumers who benefit to compensate those who suffer, and still have some extra income left over. Protectionism would not help, but higher productivity would.

Mr. Samuelson also formulated a theory of public goods — that is, goods that can be provided effectively only through collective, or government, action. National defense is one such public good. It is non-exclusive; the Navy, for example, exists to protect every citizen. It also eliminates rivalry among its many consumers; that is, the amount of security that any one citizen derives from the Navy subtracts nothing from the amount of security that any other citizen derives.

The features of public goods, Mr. Samuelson taught, stand in direct contrast to those of ordinary goods, like apples. An apple eaten by one consumer is not available to any other. Public goods,

he concluded, cannot be sold in private markets because individuals have no incentive to pay for them voluntarily. Instead they hope to get a free ride off the decisions of others to make the public goods available.

‘Correspondence Principle’

Mr. Samuelson pushed mathematical analysis to new levels of sophistication. His “correspondence principle” showed that information about the stability or instability of a theoretical economic system — whether, after a disruption, the economy returns to fixed levels of prices and output or, instead, flies out of control — could be used to predict the aggregate outcome of decisions taken by consumers and business firms. He showed, for example, that only a stable economic system would undergo ordinary business cycles like those captured by Mr. Samuelson’s multiplier-accelerator model.

He analyzed the evolution of economies with a mathematical model, called an overlapping generations model, that scholars have since used to study, for example, the functioning over time of the [Social Security](#) System and the management of public debt.

He also helped develop linear programming, a mathematical tool used by corporations and central planners to calculate how to produce pre-set levels of various goods and services at the least cost.

Late in his career, Mr. Samuelson laid out the mathematics of stock price movements, an analysis that became the basis for Nobel-prize-winning research by his student Mr. Merton and [Myron S. Scholes](#). They designed formulas that Wall Street analysts use to trade options and other complicated securities known as derivatives.

But beyond his astonishing array of scientific theorems and conclusions, Mr. Samuelson wedded Keynesian thought to conventional economics. He developed what he called the Neoclassical Synthesis. The neoclassical economists in the late 19th century showed how forces of supply and demand generate equilibrium in the market for apples, shoes and all other consumer goods and services. The standard analysis had held that market economies, left to their own devices, gravitated naturally toward full employment.

Economists clung to this theory even in the wake of the Depression of the 1930s. But the need to explain the market collapse, as well as unemployment rates that soared to 25 percent, gave rise to a contrary strain of thought associated with Lord Keynes.

Mr. Samuelson’s resulting “synthesis” amounted to the notion that economists could use the neoclassical apparatus to analyze economies operating near full employment, but switch over to Keynesian analysis when the economy turned sour.

Midwestern Roots

Paul Anthony Samuelson was born on May 15, 1915 in Gary, Ind., the son of Frank Samuelson, a pharmacist, and the former Ella Lipton. His family, he said, was “made up of upwardly mobile

Jewish immigrants from Poland who had prospered considerably in World War I, because Gary was a brand new steel town when my family went there.”

But after his father lost much of his money in the years after the war, the family moved to Chicago. Young Paul attended Hyde Park High School, where as a freshman he began studying the stock market. At one point he helped his algebra teacher select stocks to buy in the boom of the 1920s.

“Hupp Motors and other losers,” he remembered in an interview in 1996. “Proof of the fallibility of systems,” he explained.

He left high school at age 16 to enter the [University of Chicago](#). “I was born as an economist on Jan. 2, 1932,” he said. That was the day he heard his first college lecture, on Thomas Malthus, the 18th-century British economist who studied the relation between poverty and population growth. Hooked, he began taking economics courses.

The University of Chicago developed the century’s leading conservative economic theorists, under the later guidance of [Milton Friedman](#). But Mr. Samuelson regarded the teaching at Chicago as “schizophrenic.” This was at the height of the Depression, and courses about the business cycle naturally talked about unemployment, he said. But in economic-theory classes, joblessness was not mentioned.

“The niceties of existence were not a matter of concern,” he recalled, “yet everything around was closed down most of the time. If you lived in a middle-class community in Chicago, children and adults came daily to the door saying, ‘We are starving, how about a potato?’ I speak from poignant memory.”

After receiving his bachelor’s degree from Chicago in 1935, he went to [Harvard](#), where he was attracted to the ideas of the Harvard professor Alvin Hansen, the leading exponent of Keynesian theory in America.

As a student at Chicago and later at Cambridge, Paul Samuelson had at first reacted negatively to Keynes. “What I resisted most was the notion that there could be equilibrium unemployment” — that some level of unemployment would be impossible to eliminate and have to be tolerated. “I spent four summers of my college career on the beach at Lake Michigan,” he explained. “It was pointless to look for work. I didn’t even have to test the market because I had friends who would go to 350 potential employers and not be able to get any job at all.”

Eventually he was converted. “Why do I want to refuse a paradigm that enables me to understand the Roosevelt upturn from 1933 to 1937?” he asked himself.

A Bold Dissertation

Mr. Samuelson was perceived at the outset of his career as a brilliant mathematical economist. He shot to academic fame as a 22-year-old l’enfant terrible at Harvard when he began a boldly

sweeping and highly technical doctoral dissertation, published as a book in 1947 by Harvard University Press.

At Harvard, as at Chicago, he was not shy about critiquing his professors — “respecting neither age nor rank,” according to James Tobin, a Nobel laureate of [Yale University](#). The young Mr. Samuelson’s chief complaint against economists was that they preoccupied themselves with finer economic principles while all around them people were being thrown into bread lines.

His attitudes did not endear him to the austere chairman of the economics department at Harvard, Harold Hitchens Burbank, with whom he had a rocky relationship.

But the publication of his dissertation was an immediate success. It won him the John Bates Clark Medal awarded by the American Economic Association to the economist showing the most scholarly promise before the age of 40; it would eventually help him win his Nobel Prize, and it was frequently reprinted despite the heavy resistance of Professor Burbank, selling to economists around the world for more than 20 years. (“Sweet revenge,” Mr. Samuelson said.)

Among Mr. Samuelson’s fellow students was Marion Crawford. They married in 1938. Mr. Samuelson earned his master’s degree from Harvard in 1936 and a Ph.D. in 1941. He wrote his thesis between 1937 and 1940 as a member of the prestigious Harvard Society of Junior Fellows. In 1940, Harvard offered him an instructorship, which he accepted, but a month later M.I.T. invited him to become an assistant professor.

Harvard made no attempt to keep him, even though he had by then developed an international following. Mr. Solow said of the Harvard economics department at the time: “You could be disqualified for a job if you were either smart or Jewish or Keynesian. So what chance did this smart, Jewish, Keynesian have?”

Indeed, American university life before World War II was anti-Semitic in a way that hardly seemed possible later, and Harvard, along with Yale and Princeton, was a flagrant example.

During World War II, Mr. Samuelson worked in M.I.T.’s Radiation Laboratory, developing computers for tracking aircraft, and was a consultant for the War Production Board. After the war, having resumed teaching, he and his wife started a family. When she became pregnant the fourth time, she gave birth to [triplets](#), all boys.

Marion Samuelson died in 1978. Mr. Samuelson is survived by his second wife, Risha Clay Samuelson; six children from his first marriage: Jane Raybould, Margaret Crawford-Samuelson, William and the triplet sons Robert, John and Paul; a brother, Robert Summers, a professor emeritus of economics at the [University of Pennsylvania](#), and 15 grandchildren.

A Keynesian Textbook

The birth of the triplets doubled the number of children in the Samuelson household, which soon found itself sending 350 diapers to the laundry per week. His friends suggested that Mr. Samuelson needed to write a book to earn more money.

He decided on writing an economics textbook, but one that would not only be compelling for students but also sophisticated and complete. And he wanted to center it on the still poorly understood Keynesian revolution. President [Herbert Hoover](#), he noted, had never referred to Keynes other than as “the Marxist Keynes.”

“I never quite understood that venom, Mr. Samuelson said.

He said he “sweated blood” writing his book, employing detailed charts, color graphics and humor. He wrote: “Economists are said to disagree too much but in ways that are too much alike: If eight sleep in the same bed, you can be sure that, like Eskimos, when they turn over, they’ll all turn over together.”

It would be difficult to overestimate the influence of “Economics.” Business Week, taking note of the textbook’s publication in Greek, Punjabi, Hebrew, Russian, Serbo-Croatian and other languages, once said that it had “gone a long way in giving the world a common economic language.” Students were attracted to its lively prose and relevance to their everyday lives. Many textbook authors began to copy its presentation.

“Economics,” together with shrewd investing, made Mr. Samuelson a millionaire many times over.

Friendship and Rivalry With Friedman

A historian could well tell the story of 20th-century public debate over economic policy in America through the jousting between Mr. Samuelson and Milton Friedman, who won the Nobel prize in 1976. Mr. Samuelson said the two had almost always disagreed with each other but had remained friends. They met in 1933 at the University of Chicago, when Mr. Samuelson was an undergraduate and Mr. Friedman a graduate student.

Unlike the liberal Mr. Samuelson, the conservative Mr. Friedman opposed active government participation in most areas of the economy except national defense and law enforcement. He thought private enterprise and competition could do better and that government controls posed risks to individual freedoms.

Both men were fluid speakers as well as writers, and they debated often in public forums, in testimony before congressional committees, in op-ed articles and in columns each of them wrote for [Newsweek](#) magazine. But Professor Samuelson said he always had fear in his heart when he prepared for combat with Professor Friedman, a formidably engaging debater.

“If you looked at a transcript afterward, it might seem clear that you had won the debate on points,” he said. “But somehow, with members of the audience, you always seemed to come off as elite, and Milton seemed to have won the day.”

Mr. Samuelson said he had never regarded Keynesianism as a religion, and he criticized some of his liberal colleagues for seeming to do so, earning himself, late in life, the label *l’enfant terrible*,

emeritus. The experience of nations in the second half of the century, he said, had diminished his optimism about the ability of government to perform miracles.

If government gets too big, and too great a portion of the nation's income passes through it, he said, government becomes inefficient and unresponsive to the human needs "we do-gooders extol," and thus risks infringing on freedoms.

But, he said, no serious political or economic thinker would reject the fundamental Keynesian idea that a benevolent democratic government must do what it can to avert economic trouble in areas the free markets cannot. Neither government alone nor the markets alone, he said, could serve the public welfare without help from the other.

As nations became locked in global competition, and as the computerization of the workplace created daunting employment problems, he agreed with the economic conservatives in advocating that American corporations must stay lean and efficient and follow the general dictates of the free market.

But he warned that the harshness of the market place had to be tempered and that corporate downsizing and the reduction of government programs "must be done with a heart."

Despite his celebrated accomplishments, Mr. Samuelson preached and practiced humility. The M.I.T. economics department became famous for collegiality, in no small part because no one else could play prima donna if Mr. Samuelson refused the role, and, of course, he did. Economists, he told his students, as Churchill said of political colleagues, "have much to be humble about."