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Professor Franco Modigliani

Nobel prizewinning economist and author of the 'life-cycle theory of spending'

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Franco Modigliani, economist: born Rome 18 June 1918; Lecturer, New York School for Social Research 1943-44, Assistant Professor of Mathematics, Economics and Econometrics 1946-48; Research Associate and Chief Statistician, Institute of World Affairs, New York 1945-48; Research Consultant, Cowles Commission for Research in Economics, University of Chicago 1949-54; Associate Professor of Economics, University of Illinois 1949-50, Professor 1950-52; Professor of Economics and Industrial Administration, Carnegie Institute of Technology 1952-60; Professor of Economics, Northwestern University 1960-62; Professor of Economics and Finance, Massachusetts Institute of Technology 1962-70, Institute Professor 1970-88 (Emeritus); Senior Adviser, Brookings Panel on Economic Activity 1971-2003; Nobel Prize in Economic Science 1985; married 1939 Serena Calabi (two sons); died Cambridge, Massachusetts 25 September 2003.

Old men often believe they have achieved wisdom, and stop listening: not the economist Franco Modigliani, not even after winning the Nobel Prize in 1985 for "his pioneering analyses of saving and of financial markets". His approach was silent, he rarely spoke first, whether meeting a colleague or the child of a young student. "That's interesting," he would say, "tell me more!" - of a recent academic paper just as of a child's wonderings.

Curiosity for all aspects of life is what started off his research in the 1940s. The scientific question he first addressed was, how do people make up their mind about how much to spend and how much to set aside in the bank? He soon developed a theory, the "life-cycle theory of spending": people borrow when they are young - typically to buy a house; they save in the middle of their lives, and they spend it after retirement. It was a simple but powerful idea, that can explain why the countries where population or productivity grows fast tend to have higher saving rates than those which are rich and do not grow as fast.

But his paper, "Utility Analysis and the Consumption Function: an interpretation of cross-section data", written in 1954 jointly with Richard

Brumberg, a student who died soon after, was just the beginning. Modigliani spent the rest of his life asking whether the life-cycle theory would survive the data. His last paper, completed just a few days ago, tests the life-cycle theory using data from a survey of Chinese households: the results go a long way toward explaining why China keeps running such a large current-account surplus, the mirror-image of a high saving rate.

Franco Modigliani dedicated his entire life to his students, many generations of economists now spread around the world, often in policy jobs: Lucas Papademos, the vice-president of the European Central Bank, was his devoted research assistant in the 1970s; Charlie Bean, the Chief Economist of the Bank of England, was also one of his students, as was Stanley Fischer, the economist who held the No 2 job at the International Monetary Fund throughout the 1990s.

With Paul Samuelson and Robert Solow he shaped economics at the Massachusetts Institute of Technology, the university where he taught since 1962. Theory is essential, the students were taught, but never sufficient: find your questions looking at the real world, then build a theory, but eventually go back to the real world and ask whether your model survives the data. This straightforward rule made economics at MIT unique, and explains why so many students were eventually drawn into policymaking.

Modigliani was himself an influential adviser: in the late 1960s, on a contract with the Federal Reserve, he designed the MPS (MIT-Pennsylvania-Social Science Research Council) model, a tool that guided monetary policy in Washington for many decades.

He was among the first economists to use the power of computers to analyse data: he started running regressions in the 1940s, when computers occupied an entire building and a single regression took a few hours. At 85 he was still struggling with the printouts produced by his research assistant.

Corporate finance was another important area of research: in 1958 he published an article with Merton Miller, "The Cost of Capital, Corporation Finance and the Theory of Investment", proving that the debt-equity ratio of a company should have no effects on its market value, nor should its dividend policy. It was the first clear statement of the idea that firms should maximise their market value, rather than profits, as traditionally thought. The Modigliani-Miller theorem remains the first step in any course in corporate finance.

An example of the great variety of his interests is the patent he obtained in the 1990s for a financial product that would allow people to borrow from themselves, rather than from a bank, and at whatever interest rate they preferred. The idea is simple. In the United States one is restricted from

drawing on the savings accumulated in 401K accounts (tax-efficient employer's personal pension plans with voluntary employee contributions): Modigliani's plan would allow individuals to do this, essentially by borrowing from themselves and setting their own conditions.

Born in Rome in 1918, he had fled Italy in 1938, when Mussolini announced new laws against the Italian Jews: "I clearly remember the day, that summer, when my future father-in-law [his own father had died when he was young] told Serena and me that we should leave the country, the sooner the better," he writes in his autobiography, *Adventures of an Economist* (2001). They went to Paris, where they soon married: Franco was barely 20, but had already completed a degree in law at the University of Rome; Serena was 19. They crossed the Atlantic a few days before the outbreak of the Second World War, and settled in New York, where Modigliani enrolled in the graduate programme in economics at the New School for Social Research, started learning mathematics, a subject he had never studied, and earned his life selling books.

For eight years from 1952 he was in Pittsburgh, at what is now Carnegie Mellon, and for two at Northwestern; in 1962 he moved to MIT, where, as an Institute Professor, he was still teaching at least one course each year.

The ocean between did not stop him from being an active presence in Italy, although he had been an American citizen since the 1940s. At the Bank of Italy he transmitted the experience he had acquired working with the Fed, and the bank's research department soon became a model for other European central banks.

In the 1970s, after Opec raised the price of oil, he was the first, and for a few years the only, economist to point out that the combination of higher oil prices and wages fully indexed to prices was an explosive mixture, that would blow up the Italian economy. It took 10 years for Italy to understand this: by then inflation had exceeded 20 per cent.

In 1984 a national referendum eliminated all indexation clauses in labour contracts: Modigliani was an active voice in the campaign ahead of the referendum, as was one of his closest students, Ezio Tarantelli, a young Italian economist who divided his life between MIT, where he was a visiting professor, and the University of Rome. Tarantelli paid with his own life: a few weeks ahead of the referendum he was shot by the Red Brigades while leaving the classroom where he had delivered a lecture.

Up to his last days Modigliani was furious with Italy's prime minister, Silvio Berlusconi, and the casual manner in which he dealt with the country's past and with the Fascist regime. A week ago, with his lifelong friends and colleagues Paul Samuelson and Robert Solow, he sent a letter to *The New York Times*, protesting at the decision of the American Anti-Defamation League, a Jewish pro-liberties group, to give an award to Berlusconi. The

letter took centre-stage in the Italian political debate and was a serious embarrassment for the prime minister.

Franco Modigliani is survived by his wife Serena, two sons and many nieces and nephews. With one of them, Leah Modigliani, a young investment banker at Morgan Stanley in New York, he had recently produced a formula for measuring stock risk. "We started going back and forth with ideas over the dinner table one night, then I tried to put them down on paper, and we went back and forth with that," says Leah. The result became known as Modigliani-Modigliani, or M-squared theorem, to distinguish it from the time-honoured Modigliani-Miller theorem.

Francesco Giavazzi