Irving FISHER
b. 27 February 1867 - d. 29 April 1947

Summary. With his crusades for health, the League of Nations etc., Irving Fisher lost about half of his working time as professor of economics. Otherwise, his "pillars and arches", as Schumpeter called his contributions to theoretical economics, may have grown to a kind of temple of economics/econometrics.

When mathematical statisticians hear the name of Fisher, they think of Irving's namesake Ronald A. Fisher (q.v.). For economic statisticians it is clear that Irving Fisher is meant.

As with Ronald A., Irving Fisher is famous for introducing tests into statistics. A test in Irving Fisher's sense is a desired property of a price index. He introduced several tests into price index theory. His investigations in this field inspired many workers in this field till nowadays. Today, in the framework of axiomatic price index theory, it is well known which of the subsystems of Fisher's system of tests are consistent. Furthermore, finding a definitive axiom system for price indices accepted by all scientists concerned remains a field of research and debate (cf. Vogt and Barta 1997).

The following is a short synopsis of the life of Fisher. He was born in Saugerties, New York, USA. In 1884 he entered Yale University, where he earned his Ph.D in 1891, and was appointed as Assistant Professor of Mathematics in 1892. In 1893 he married Margaret Hazard and they spent the following year in Europe. He transferred from the Mathematics Department to the Political Economy Department at Yale in 1895 and was promoted to Full Professor in 1898. But he fell ill with tuberculosis and took leave for the following three years. He became President of the American Economic Association in 1918 and finally retired from Yale in 1935. He remained active until his 80th birthday and finally died, of cancer, on April 29, 1947.

At the age of 78, Fisher went to see the movie "Wilson" (about the former US President). He recorded in his diary a list of all the characters in the movie that he had known personally, practically a who's who of the epoch. In the same sense Fisher's Biography is a who's who of the worldwide economic science between 1891 when Fisher's thesis *Mathematical Investigations in the Theory of Value and Price* was published, and 1947 when he passed away. Fisher could be called the first econometrician. In fact, at the beginning of the century, he proposed to found such a society but - ahead of his time -

he did not find followers. Finally, in 1930 he was involved in founding the Econometric Society. The group of 30 economists elected Fisher unanimously as their first president.

One scientific inspiration suddenly occured to Fisher on a mountain trip he made in Switzerland in July 1894 while looking at a watering trough, and its inflow and outflow: The basic distinction needed in order to distinguish capital and income was substantially the same as the distinction between the water in that trough and the flow into or out of it. That was the very moment when the distinction between flows and funds (i.e. stocks) was introduced in the economic science, a distinction which was traditionally made before by bookkeepers! However, Fisher mentioned that already Newcomb (q.v.) showed clearly the distinction between flows and funds.

Early in this century, Fisher played a seminal role in suggesting the use of double-entry bookkeeping techniques for national income and product estimates. He is even regarded as the intellectual organisor and founding father of all national economic accounting systems (Kenessey 1997). In 1913 Fisher founded the Life Extension Institute to endeavour to improve public health through publicity and by promoting periodic health examinations. He tried to convince insurance companies that it would be to their advantage to provide low-cost medical checkups. In 1916 Fisher was among the first to recognise the importance of insurance against large medical expenditures, coupling, as it does, his interest in maintaining and improving people's health with his interest in financial matters. He strongly favoured health insurance and foresaw the day when insurance would cover most medical costs.

In 1923 Fisher established his Index Number Institute, a business to prepare and sell index numbers and other economic data for publication. The Index Number Institute became the first organization to provide systematic economic data in index number form to the public, long before governments even began to think about it. By 1929 Fisher's wholesale price index reached 5 million newspaper readers.

Another contribution of Fisher to statistics was the investigation of distributed lags when determining the correlation between two time series. In a publication in *Extrait du Bulletin de ISI* of 1937 Fisher refered to several of his publications on the subject going back to 1925. Irving Fisher was also involved in the measurement of marginal utility. Fisher (1922:xiii) expressed his practical and theoretical ideas about index numbers:

> One incidental result of this study is to show that many pre-

> cise and interesting relations or laws exist connecting the various magnitudes studied - index numbers, dispersions, ..., correlation coefficient, etc. Thus this field of study ... may truly be called an exact science - if it be permissible to designate as a science the theoretical foundations of a useful art.... Most writers on index numbers have been either exclusively theoretical or exclusively practical, and each of these two classes of writers has been very little acquainted with the other. By bringing these two worlds into closer contact I hope that, in some measure, I may have helped forward, both the science and the art of index numbers.

Up to 1929 Fisher made a fortune of $10 million, mainly with one of his inventions, the index card system (and subsequent stock market gains). His firm producing it, later became Remington Rand Corp. After the stock market crash (October 1929), his fortune melted to about minus half a million going down further to nearly minus one million. Fisher's personal financial failure was a double burden for him as a great economist because he had recommended investment in stocks privately and in public. However, he remained an optimist throughout his life. After the crash he kept on seeing the economic recovery "round the corner". Already in December 1929 he had finished his book *The Stock Market Crash - and After?*.

Fisher was not a scientist living in an ivory tower but he enthusiastically tried to educate people. In an agreement with the Worker's Education Bureau, Fisher wrote simple explanations of elementary principles of economics suitable for reading by union members. He called them *Short Stories of Wealth*. The bureau issued them monthly for publication in any union publication that desired to print them. They appeared in the *Brotherhood of Locomotive Fireman and Engineers Magazine*, *Trade Union News*, *Labour Herald*, etc., and are currently on the way to being reprinted (Fisher 1998).

As Fisher was known for his scientific contributions in the world of economic science, he was known to the US public for his struggle for health (motivated by his own experience), prohibition and the League of Nations - for the betterment of mankind quite generally. His health book sold more than a million copies in 21 editions while Fisher was alive and then went on to 90 editions and 4 millions sold. It already promoted the idea of "biological living". With the quantity theory of money he made a cursade connected with his scientific work. Fisher was the first monetarist. A talk he gave on this subject can still be listened to (Fisher 1941).

Tobin writes that Fisher is widely regarded as the greatest economist America has ever produced. His main economic subjects were: theory of indices, theory of interest, theory of capital and income as well as taxation theory. He was prouder of his relatively unimportant book *The Money Illusion* (1928) than he was of *The Making of Index Numbers* (1922). He did not see that in the latter new contributions are building blocks that accumulate and form a long-lasting structure, whereas in policy matters, advocacy and even research are ephemeral.

Biographies of Fisher have been written by his son (I.N. Fisher 1956) and by Allen (1993). The former is a personal account. It records his father's publications in the different fields, 2000 altogether. The secret of Fisher's working power was best expressed by H. Cohrssen who worked from 1932 to 1942 for Fisher and died in Frankfurt in 1997 in a radio talk given at the occasion of Fisher's 80th birthday.

> It was in 1896 in a tuberculosis sanatorium, high in the Mountains of Arizona, where the air is pure and clear. A young man of 19 was sitting in his invalid-chair waiting for death. The doctors had given him only a very short time to live. Behind him were years of the most intensive work as an economist at a university and exceptional academic recognition. This man, marked by death, looked at his young wife, his child playing before him in the sand ... and he made up his mind: "I'd rather work to death than rust to death idly." He left the mountains and returned to his work.... He took up the battle against his sickness and packed into each and every day so much work that in the race against his death he might leave at least the maximum of creative work of which he was capable. Week after week, month after month, year after year this feverish race continued.... One book after another appeared, basic contributions to the science of economics, also notes recording his experiences in the field of health and hygiene which he made in quest for life extention.... He has been adviser to several presidents of USA; he was one of the founders of the Peace Society from which later developed the League of Nations.... Today he is 80. He is still tirelessly active and one of the happiest men I've ever met. His name is Irving Fisher, Professor of Yale University....

In 1995 an Irving Fisher Committee was founded within ISI. In 1997 there

appeared the first issue of the ifc Bulletin (cf. Fisher 1998).

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A. Vogt