

Irving Fisher

Origins of Modern Central Bank Policy

During the first quarter of the 20th century, Irving Fisher was one of America's most celebrated economists. But sadly, most Americans today have not heard of him. Even as his reputation among the public faded with the years, his reputation within the economics profession has steadily risen. Fisher (no relation to the undersigned, though I would like to claim access to his gene pool) was a pioneer in many theoretical and technical areas of economics that today are the foundation of central bank policy. One such achievement was the creation of indexes to measure average prices, the bedrock for all current monetary policy. His was a storied and successful career even if, by the time of his death, Fisher's own finances and reputation as an economic prognosticator lay in ruins. We hope readers will find his life story interesting as they learn more about this pioneer of monetary economics.

— **Richard W. Fisher**
President
Federal Reserve Bank of Dallas

Irving Fisher was one of America's most celebrated economists. Although not widely remembered outside of economics, within it he has increasingly become considered a giant of the profession.

Fisher was born in 1867 in Saugerties, New York, and died in New York City in 1947. He studied at Yale University, where he was taught by such prominent academics as William Graham Sumner, Josiah Willard Gibbs and Arthur Twining Hadley. Sumner was the professor who convinced Fisher to write his doctoral dissertation on mathematical economics, a field then in its infancy.

Fisher received a B.A. in mathematics in 1888, followed by a Ph.D. in economics in 1891. Although he won every math prize contest he entered and the Yale math faculty wanted him to major in mathematics as a graduate student, during his senior year he became interested in other subjects, including law, metaphysics and social and political science.

His earliest economics research culminated in his internationally acclaimed dissertation, *Mathematical Investigations in the Theory of Value and Prices* (1892). Fisher wrote this work under the direction of the mathematics faculty because formal economics doctorates typically were not offered in U.S. universities at that time. In fact, Fisher wrote Yale's first.

Fisher had been well schooled in the political economy of the day—primarily the British tradition of Adam



Irving Fisher

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Smith, David Ricardo and J. S. Mill—but ventured into neoclassical mathematical economics, becoming one of its pioneers. Modern economics was going through tremendous changes during Fisher's college years, and he helped lead it in the direction that produced its current reliance on mathematics, general equilibrium analysis and aggregate data sets for the calculation of various price indexes. In this transformative undertaking, he should be ranked along with Leon Walras, Stanley Jevons and Francis Edgeworth.

After returning from a trip to Europe in 1895, Fisher became an assistant professor of political and social science at Yale (over the fierce objections of the mathematics faculty, which wanted Fisher for itself). He started

A Modest Agenda

In his book *100% Money*, Fisher begins by setting himself the following small task:

Designed to keep checking banks 100% liquid; to prevent inflation and deflation; largely to cure or prevent depressions; and to wipe out much of the National Debt.

In this book, produced during the middle of the Great Depression, Fisher endorsed the so-called Chicago Plan put forward by leading economists at the University of Chicago. The plan included 100 percent bank reserves, and Fisher endorsed it because he believed the system in place before 1935 had been far too unstable. He writes here about the 1920s but could just as well be predicting the late 1990s:

The over-indebtedness hitherto presupposed must have had its starters. Over-indebtedness may be started by many causes, of which the most common appears to be new opportunities to invest at a big prospective profit, as compared with ordinary profits and interest. Such new opportunities occur through new inventions, new industries, development of new resources, opening of new lands or new markets. When the rate of profit is expected to be far greater than the rate of interest, we have the chief cause of over-borrowing. When an investor thinks he can make over 100 per cent per annum by borrowing at 6 per cent, he will be tempted to borrow, and to invest or speculate with borrowed money. This was a prime cause leading to the over-indebtedness of 1929. Inventions and technological improvements created wonderful investment opportunities, and so caused big debts....

When the starter consists of new opportunities to make unusually profitable investments, the bubble of debt, especially bank loans, tends to be blown bigger and faster than when the starter is some great misfortune, like an earthquake causing merely non-productive debts....

The public psychology of going into debt for gain passes through at least four more or less distinct phases: (a) the lure of big prospective profits in the form of dividends, i.e. income in the future; (b) the hope of selling at a profit, and realizing a capital gain in the immediate future; (c) the vogue of reckless promotions, taking advantage of the habituation of the public to great expectations; (d) the development of downright fraud, imposing on a public which had grown credulous and gullible.

When it is too late, the dupes discover scandals like the Hatry and Kreuger scandals. At least one book has been written to prove that crises are due to frauds of clever promoters. But these frauds could seldom, if ever, have become so great without the original starters of genuine opportunities to invest lucratively. There is probably always a very real basis for the "new era" psychology before it runs away with its victims. ■

—*100% Money*, 130–32 (original emphasis)

teaching economics, rapidly rising to the position of full professor in 1898. He retired from Yale in 1935.

After his dissertation, more than a decade passed before Fisher published another important book on economics. Because of personal health concerns during this period, he became fascinated with health-related issues, explored various exercise and relaxation techniques, wrote books about both and became almost a pure vegetarian.

When Fisher returned to econom-

ics, one of his most notable contributions was his work on the doctrine of dollar stability. He had always been interested in the issue but did not put his ideas into book form until 1911 with the publication of *The Purchasing Power of Money*. The policy of price stabilization, carried out today by central banks all over the world, is mostly based on work done by Fisher between 1895 and 1922, when his *The Making of Index Numbers* was first published.

Is Gold Stable?

Our fixed-weight dollar is as poor a substitute for a really stable dollar as would be a fixed weight of copper, a fixed yardage of carpet, or a fixed number of eggs. If we were to define a dollar as a dozen eggs, thenceforth the price of eggs would necessarily and always be a dollar a dozen. Nevertheless, the supply and demand of eggs would keep on working. For instance, if the hens failed to lay, the price of eggs would not rise but the price of almost everything else would fall. One egg would buy more than before. Yet, because of Money Illusion, we would not ever suspect the hens of causing low prices and hard times. In what sense, then, should a dollar be fixed if not in weight. Evidently, in buying power. ■

— *The Money Illusion*, 17

Before a price index can be stabilized as a matter of monetary policy, it must be defined and calculated. Fisher was one of the world's first experts on the calculation of index numbers. He began the first weekly newspaper publication of a wholesale price index in 1923.

In addition to helping originate the idea of commodity money stabilization, Fisher's expertise ranged from the general equilibrium theorizing of his dissertation to the emerging study of econometrics. He was a cofounder of the American Econometrics Society (1931) and was its first president (1932). He even published definitive works in accounting theory and practice. His theoretical work touches on almost every major macroeconomic issue and is still regularly consulted and cited, not only by historians of economic thought, but also by practicing economists. That, in itself, sets him apart from most of his contemporaries.

A key area of interest for Fisher was the quantity theory of money, and his work was a forerunner of what macroeconomists today call monetarism.¹ Fisher attempted to take the

Can Capital Be Measured?

Such a collection (capital machines) of wealth is, however, heterogeneous; it cannot be expressed in a single sum. We can inventory the separate items, but we cannot add them together. They may, however, be reduced to a homogeneous mass by considering, not their kinds and quantities, but their values. And this value of any stock of wealth is also called "capital." To distinguish these two senses of capital, we call a stock, store or accumulation of existing instruments of wealth, each instrument being measured in its own unit, capital-instruments, or capital-wealth, and we call the value of this stock, when all articles are measured in a common unit, capital-value. ■

— The Nature of Capital and Income,
66 (original emphasis)

classical school's equation of exchange ($MV = PT$), which is simply a mathematical truism, and convert this equation into a general theory of prices and, therefore, of the price level. He did this by allowing for transition periods when the flow of the money supply is changed (thus breaking the equality of the equation during the transition period).

He laid out his ideas thoroughly in *The Purchasing Power of Money*. The book is also a long plea for Fisher's views about how a commodity money (in this case, gold) can be stabilized in international trade situations. He anticipated much of what today we call "monetary rules." His approach was to make the U.S. dollar one of constant purchasing power and not one of a constant amount (weight) of gold or anything else.

The idea he promoted in his book, and continued to advocate for the rest of his life, came to be called the compensated dollar. He argued for altering the commodity price of gold inversely with movements in a designated price index to stabilize its real purchasing power. He also anticipated—by over

Ought the Gold Standard Be "Automatic"?

As to the idea that the government should make the gold standard "automatic" and unassisted by any legislative action, even if that implies (as it certainly does) unstable money, the reply is that there is no function of government more obviously proper than to keep stable the units by which we measure. We have a Bureau of Standards which fixes the units of length, weight, volume, electricity, and of every other unit employed in commerce, except the most important and universally used unit of all, the unit of value. Our Federal Constitution authorizes Congress to "coin money and regulate the value thereof, and of foreign coin, and fix the standard of weights and measures."

There is a popular fiction that our price level and gold standard ought to be left to the "natural" play of supply and demand and not subjected to "arbitrary" interference. Of course every unit of measure is "arbitrary." There is no "natural" yard. The gold dollar is already "arbitrary" at 23.22 grains. In fact it is unnaturally arbitrary to fix it in weight; for this interferes with the play of supply and demand on the price of gold. This price, on the plea of "naturalness," certainly ought to be as free to fluctuate as the price of silver, instead of being tied to the fixed figure \$20.67 per ounce.

The idea that the gold standard today is, or can be, "automatic" is wrong. As we have seen, gold is now far more influenced by banking policy than by its use in the arts for dentistry, gilding picture frames or making gold watches, rings and jewelry. Such use is trivial in comparison with its importance in finance. As Reginald McKenna [1863–1943, British politician and banker, chancellor of the exchequer, 1915–16] has said, the world now has a "dollar standard" fixed by credit control rather than a gold standard fixed by gold bullion as such.... We already have human discretion, operating if not to control, at least to influence, the price level; we no longer have an automatic gold standard. And we ought to be profoundly thankful!

Only by the exercise of discretion, duly safeguarded, can we really expect some day fully to stabilize the dollar. ■

—The Money Illusion, 156–58 (original emphasis)

40 years—A. W. Phillips' famous curve with its trade-off between inflation and unemployment.

In addition to his other endeavors, Fisher was an inventor and entrepreneur. He created and patented an index card file system (known today as the Rolodex) that led him to start the Index Visible Company, which merged with Kardex Rand in 1925 and later became Remington Rand. The company made Fisher very wealthy. Yet for all his knowledge of economic theory and markets, Fisher suffered huge declines in his personal fortune and his professional reputation in the 1929 stock market crash and the Great Depression, eventually leaving an estate so small it wasn't even taxed.

His son estimated his monetary losses in this period to have been as much as \$10 million. He continued buying stock well past the time it was prudent

to do so. When he was finally broke, Yale University had to buy his house and rent it back to him to keep him from being evicted. His sunny predictions of a "new era" with continuing prosperity, even after the 1929 crash, lowered his reputation among economists as well as the general public.

Despite falling from the rank of America's best-known economist into obscurity for several decades, Fisher's reputation has since risen steadily as economists rediscover the path-breaking work he did on so many important topics. Fisher wrote 29 books, 14 of which are about economics. Joseph Schumpeter's 1948 memorial article sums up well Fisher's many contributions and his long-term place in the history of economics:

In his scientific work, he stood almost alone.... There are no Fisherians in the sense in which

there have been Ricardians or Marshallians and in which there are Keynesians.... But those pillars and arches [of Fisher's theoretical temple] will stand by themselves. They will be visible long after the sands will have smothered much that commands the scene of today.² ■

— **Robert L. Formaini**
Senior Economist

Notes

¹ For accounts of this theory by other famous economists, see "Knut Wicksell: The Birth of Modern Monetary Policy," by Robert L. Formaini, *Federal Reserve Bank of Dallas Economic Insights*, vol. 9, no. 1, and "Milton Friedman: Economist as Public Intellectual," by Robert L. Formaini, *Federal Reserve Bank of Dallas Economic Insights*, vol. 7, no. 2.

² Schumpeter (1969), 237–38.

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A Great Economist—but a Failure as a Social Reformer

As a social reformer, Irving Fisher was a failure. He opposed the federal income tax, but the 16th Amendment created one. He was in favor of the Prohibition Amendment, but that was eventually repealed. He passionately advocated monetary and tax policies that were never adopted. His association with "healthy food" companies wound up with him attaching his name to such products as sugar-coated breakfast cereals made by Post and Kellogg. With President Woodrow Wilson, he strongly supported creation of a League of Nations after World War I.

Retrospectively, perhaps the worst endeavor he supported was the American eugenics movement, serving as president of its national association from 1922 to 1926. Like other notables who grew up during the Progressive Era, Fisher became convinced that a scientific approach to producing better human beings was not just possible, but desirable. History has judged this undertaking in a negative light. But these ideas were popular at the time, considered by many to be cutting edge science. Many major news organizations in the United States were enthusiastic supporters, even editorializing in support of infanticide as a legitimate means of carrying out the eugenics program. In the late 1930s, the U.S. Supreme Court in a famous opinion authored by Oliver Wendell Holmes legally endorsed forced sterilization as another weapon to be used against the "genetically undesirable."

But in spite of all this, Fisher's immersion in social reforms of large scope is curious given his own youthful insights on this very subject. In a letter to a Yale colleague in 1895, Fisher demonstrated great wisdom on the topic of large reform movements and social reformers generally:

Concerning social reform, I feel that the effort of philanthropists to apply therapeutics too soon is more likely to lead to evil than good. The very best the exhorter can do is to work against the "something must be done" spirit, and beg us to wait patiently until we know enough to base action upon and meantime confine philanthropic endeavor to the narrow limits in which it has been proved successful—chiefly education.... There is so much specific reform at hand to be done—in city government, suppression of vice, education—that the hard workers of humanity need not and ought not talk, until "little" things are done, on broad schemes for "society."

—My Father, Irving Fisher, 71 (original emphasis)

Later in his life, Fisher clearly did not take the thoughtful advice that he dispensed to others when younger. ■

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