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History of Economic Thought: Research paper

# Irving Fisher: Legacy Re-discovered

## Introduction

Irving Fisher (1867 – 1947), labeled as one of the greatest and earliest theoretical neoclassical economist of America, was the first ever mathematical-economist and pioneered some of the most influential monetary theories during his lifetime. His theories on utility, capital, interest rates, and general equilibrium as well as his research on quantity theory of money and debt deflation were admired by the prominent economists in the following years such as James Tobin, Milton Freidman and Joseph Schumpeter. Despite being one of the first "celebrity" economists, Fisher's reputation was deeply harmed because of his statements prior to the Wall Street Crash of 1929. During his lifetime, his work remained popular only among economic theorists and econometricians as people favored the theories of John Maynard Keynes, however, in the following decades, his work was rediscovered and his lost legacy rightfully restored (Iša, 2002).

During his lifetime Fisher wrote 28 books, 18 of which dealt with economic theory and held prestigious positions such as President of the American Economics Association (1918) and the founder as well as the first President of the Econometric Society (1930). He spent most of his career at Yale, where he first started out teaching mathematics and later became a professor in economics at 1898 until 1920, after which Fisher became a financial investor and amassed significant wealth before the 1929 stock market crash (Iša, 2002).

**Fisher's Background and Relationship With Yale**

Fisher studied mathematics, science, sociology and philosophy from Yale and later became first to receive a PhD in pure economics at Yale in 1891. It was during his undergraduate degree in mathematics at Yale when he was exposed to political economy. His succeeding work in mathematical economics was inspired from his mentors at Yale – Willard Gibbs, a mathematical physicist and William Graham Sumner, a political economist and leading Social Darwinist of the era. Summer helped Fisher combine mathematics and economic to produce Fisher's then ground breaking dissertation: *"Mathematical investigations in the Theory of Value and Prices"* (Barber, 2005).

However, most of Fisher's work is profoundly influenced, not by the contemporary political economic teachings at Yale, but rather by his postgraduate study in Germany. Given his scientific mindset from his graduate studies. Fisher believed in abstract reasoning and the use of mathematical tools for the study of economics as a subject. It was this analytical style of Fisher, and the "alien" views Fisher brought back from the German Historical School, which were not shared by his other colleagues at Yale, that set grounds for the differences between him and the Yale Establishment (Barber, 2005). Fisher always believed that Yale was too self centered in its policies and had a conservative "rigid right curriculum", and often found himself protesting campus policies. This ideological distancing and the vast amount of time he spent outside New Heaven in business-related pursuits sparked tensions in between him and other economists at Yale (Barber, 2005).

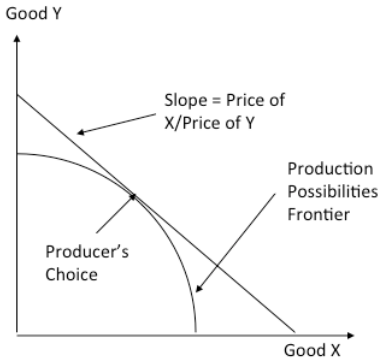
**Fisher's Legacy to Economics**

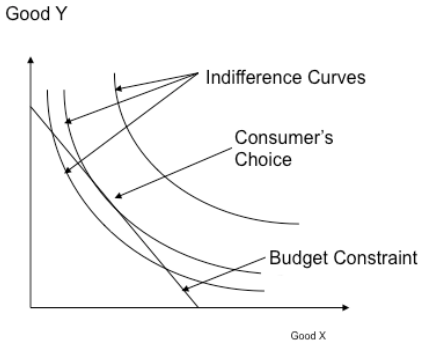
Irving Fisher is regarded as the most influential American economist prior to Paul Samuelson and Milton Friedman. During the 1970s Fisher's work was the most cited material in journals of social sciences, where he led economists such as Wesley Clair Mitchell and John Bates Clark by a ratio of 9:3:1 (Dimand, 1997). Fisher's work was cited for substance rather than the history of thought. Irving Fisher laid the foundation for much of modern monetary economics. Keynes called Fisher the "great-grandparent" of his own theories on how monetary forces influenced the real economy (Vago, 2009). Some of Fisher's most insightful theories include: *The Rate of Interest (1907), The Theory of Interest, (1930), The Purchasing Power of Money(1911 )* and his work in *The theory of Value and Prices(1925*) .

**Utility Theory**

Irving Fisher was interested in investigating the mechanical and mutual relationship between the actual processes of exchange and therefore began with his theory on utility (Iša, 2002). He was first person to show that it was indeed ordinal utility not cardinal utility that was necessary to understand the theory of demand. Utility depended not on the quantity of a given good but on the quality of all goods. Using diagrammatic representation of the maximization of utility subject to a budget constraint Fisher was able to show how individuals maximized their utilities among a selection of goods. For Fisher, total utility function cannot in general be deduced from the indifference curves and thus cannot be used to examine consumer's reaction to changes in prices and income (Stigler,1950). Fisher

also introduced the production possibility frontier- a graph that shows the combination of goods subject to fixed methods of productions.



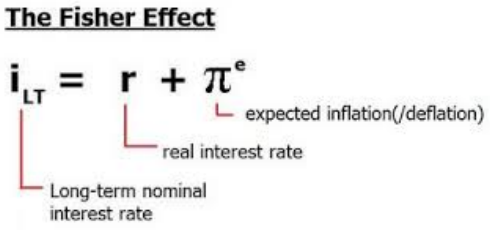

**Theory of Interest**

Labeled as the theory for "impatience and opportunity" by Fisher himself, his work on interest builds further into the production possibility frontier. Interest for Fisher was "an index of a community's preference for a dollar of present [income] over a dollar of future income". Building on the work Eugen von Böhm-Bawerk, Fisher believed interest was determined by the interaction between the "time preference" people have for capital now, and the investment opportunity principle ("Irving Fisher |Library of Economics and Liberty," n.d.).

Fisher believed the value of capital to be the present value of the flow of (net) income that the asset generates. His interest theory later develops when he does famous Inter-temporal analysis where puts *consumption now* and *consumption later* on the two axis of the graph to show how people decide between future consumption versus present consumption based on interest rates and preferences ("Irving Fisher |Library of Economics and Liberty," n.d.). Fisher called interest as "marginal rate of return over cost"- words later adapted by Keynes in his definition for the marginal efficiency of capital (Iša, 2002).

**The Fisher Equation**

The Fisher effect looks at how nominal interest rates adjust to changes in expected inflation. According to the Fisher effect, when money supply is changed, nominal interest rates will change accordingly with changes in inflation in the long run. The quantity theory of money argued that in the long run, changes in money supply corresponds to change inflation and therefore has no effect on the real variables and would not change the real interest rate. Thus, these changes are seen through changes in nominal interest rate. This has been coined as the Fisher effect, which Fisher condensed down to the following equation ("The Fisher Effect," n.d.):




**Equation of Exchange and The Newcomb-Fisher equation**

Perhaps the most significant contribution to macroeconomics from Fisher came through the his equation $M \times V = P \times T$ where M is the quantity of money in circulation, V is the velocity of money or the number of times the average dollar changes hands in that time period, P is price level, and T is the number of transactions. This is often called the Newcomb-Fisher equation because Fisher developed and quantified the ideas of S. Newcomb in his 1911 book *Purchasing Power of Money*. The left had side of this equation looks at the transfer of money and the right looks at the flow of goods and services for a year. By taking into account the heterogeneity of transactions and arguing that the real

volume of transactions T is an exogenous constant Fisher's equation helped see the relation between M and P. He concluded that changes made in money supply changed price levels in the same direction as V and T remain unaffected for a given time period (Iša, 2002).

Using this equation Fisher developed the concept of compensated dollar realizing the need to stabilize the value of money. He proposed that gold content of the dollar should be changed in accordance to official price index and that the government should bring this into effect. This proposal was the first examples of economic-political regulation and was met with stark opposition from the contemporary economists of the time (Iša, 2002).

**Debt Deflation Analysis**

In his book *Booms and Depression,* Fisher introduces the debt-deflation theory of depression where he analyzes the changes that take place during a deflationary cycle and how they persist. According to Fisher, the dominating factors that explain depressions were: the over-indebtedness to start with and the deflation that followed soon after. Fisher believed that disturbances in debt and the purchasing power of money unit sets the scene for a vicious spiral where almost every other economic variable is affected (Assous, n.d.).

Fisher believed that any attempt to liquidate debt in such a scenario would slow down the velocity of circulation and increase the incidence of bankruptcy; this in turn reduces the level of aggregate demand and price. Further attempts to repay debts cause additional declines in price. Furthermore, as bank loans are paid off, the volume of deposit currency is reduced and with the deflation that follows it, will increase the real value of

existing debt. This deposit currency's supply, Fisher believed, determined endogenously by the demand for loans. On the other hand, unanticipated price decline would lead to a "scramble for liquidity" that further deflates asset and commodity prices. Meanwhile, the positive effect of a lower price level will largely be offset by the Fisher effect of a change in the real value of inside debt. Moreover, these changes will in turn reduce the money value of collateral and increase risk premiums and makes it more difficult for borrowers to get credit. Therefore, attempts by banks to start selling off assets to restore liquidity to repay loans stop becoming an effective solution (Assous, n.d.).

Fisher developed his Debt-Deflation theory during the great depression of the 1930s but was largely ignored because of the false statements he made prior to the stock market crash. Fisher urged monetary expansion, devaluation, marking up gold prices as policy instruments to restore commodity prices to pre depression levels but was unsuccessful. He was right when he predicted that the debt deflation process while continue while the monetary base increases (Assous, n.d.).

**Fisher's influence on modern Macroeconomists**

Fisher, who was cited for substance rather than for history of thought", laid the foundations for contemporary macroeconomics (Dimand, 1997). Much of modern macro economic concepts utilize Fisher's theories, yet his contributions were largely neglected during his time. Some prominent economists that followed him were able to recognize his contributions and build upon his work. Hyman Minsky's theory of financial-system fragility was greatly influenced by Fisher's work where he analyzed Fisher's debt-deflation theory

of depressions where Fisher stresses the consequences for stability of changes in the real value of nominal-valued inside debt that had not been anticipated when the debts were incurred (Mervyn King, 1994; Dimand, 1997). Other famous economists of the 21st century such as Milton Friedman, Paul Samuelson as well as James Tobin were great admirers of Fisher's work and used a lot of his work to develop their concepts. Even though the subsequent neoclassical thought that became popular was largely influenced by the work of Keynes, the neglect of Fisher's theories during his time is something that Yale economists have been scolded for (Barber, 2005).

James Tobin attributes this neglect partly to Fisher's error in not connecting his concepts into a coherent theory that could deal with macroeconomic problems, which Keynes and Hayek solved with different approaches. By not being able to explain how a drop in nominal income and spending led to the mass unemployment in the 1930s and by his misjudgments regarding the stock prices before the crash, Fisher was unable to keep his academic audience. This led to his subsequent theories being ignored in favor of Keynes in the following decades (Dimand, 1997).

**Fisher's fall**

In the years following the stock market crash, Fisher made unpopular inaccurate claims about the depression and advocated for policies opposing contemporary believes held by Yale's Economics Department. He was heavily criticized for his theories that were then claimed to have no theoretical and practical basis, and was analyzed using data that Fisher selected to prove his point making them politically impractical. These criticisms

combined with his empirical failures during the 1929 crash, when he asserted that the stock market had "reached a permanently high plateau", as well the following bankruptcy, which Yale helped Fisher recover from, were the reason academics within Yale (and the rest of America) overlooked a vast majority of Fisher's theoretical findings during the 30s and 40s(Barber, 2005).

**Summary**

Irving Fisher with a "mathematician's desire for precision and generality" is responsible for setting the foundations of modern macroeconomics and remains one of the most influential economists America has produced (R. G. H, 1947). The failure of contemporary economists of that era to recognize the genius of Fisher's work was primarily due to their inability to "fully comprehend the novelty and ingenuity of Fisher's conceptual apparatus and his use of mathematical techniques" (Barber, 2005).

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