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In Memory of Milton Friedman, A Great Economic Scientist and Person

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Milton Friedman was born in Brooklyn, New York in 1912, the son of poor Jewish immigrants from what is now the Ukraine and died in 2006 in San Francisco, a world famous economist. He grew up in Rahway, New Jersey and received his B.A. degree in 1932 from Rutgers University and his M.A. degree from the University of Chicago in 1933 where he was strongly influenced by Jacob Viner, Frank Knight, and Henry Simons. He worked for several years for the federal government where he was an adviser to high Treasury officials and helped design the U.S.'s payroll withholding system of income tax payments, a major innovation in the country's tax system. In this and other work, he focused his attention on mainly quantitative statistical and econometric topics. His doctoral dissertation, "Income from Independent Professional Practice," was published with co-author and thesis advisor Simon Kuznets in 1945 and Columbia University awarded him a Ph.D. in 1946. After that, he served as a Professor of Economics at the University of Chicago from 1946 to 1976 ". . . where he helped to build a close-knit intellectual community that produced a number of Nobel Prize winners, known collectively as the Chicago School of Economics. . . In 1976, he won the Nobel Prize in Economics 'for his achievements in the fields of consumption analysis, monetary history and theory and for his demonstration of the complexity of stabilization policy.' From 1977, Friedman was affiliated with the Hoover Institution at Stanford University. . . In 1988 he received the National Medal of Science and Presidential Medal of Freedom. Milton Friedman is today known as of the most influential economists of the 20th century." [Quote from 12/27/2006 Wikipedia encyclopedia article on the web available at: http://en.wikipedia.org/wiki/Milton_Friedman] He was also awarded the prestigious John Bates Clark Medal in 1951and later at a ceremony honoring Milton Friedman's achievements, Alan Greenspan said, "There are many Nobel Prize winners in economics, but few have achieved the mythical status of Milton Friedman." [Wikipedia article, cit. supra]

As is well known, Friedman has exerted much influence not only in the economics profession but also on policies and philosophies of individuals and governments worldwide. Friedman, along with Frederick von Hayek, is given credit for providing the intellectual foundations for the revival of classical liberalism in the 20th century. See the Wikipedia article, cited above, for information about the powerful influence of Friedman's ideas on policies of many countries worldwide, including China, Chile, Iceland, Estonia and many others. And indeed, his emphasis on freedom, free and open markets, competition, private ownership and enterprise, and relatively "laissez faire" stable, economic policies has been appreciated and applied in India in recent years with great success.

[1] Invited paper to be published in the *Indian Journal of Quantitative Economics.*

What has impressed me most about Milton Friedman over the years that I have known him as a friend, colleague and fellow economist are (1) his generous and constructive approach in his interactions with students, colleagues and others and (2) the scientific approach that he employed in his research to produce fundamental results of great importance and was instrumental in creating the productive methodology of what has come to be known as the Chicago School of Economics and of many other economists world-wide. Indeed, many others and I believe that he played a key role in transforming economics from an art to a science. That is, he not only enjoyed deriving new theories but also emphasized that new theories have to be tested with data using appropriate statistical methods to appraise their value in explaining the past, predicting as yet unobserved data and in making private and/or public policy decisions. In addition, he appreciated the importance of keeping theories, methods and policy methods sophisticatedly simple. Little understood, complicated models and theories, e.g. early complicated macro econometric models, were viewed quite negatively by Friedman and indeed their poor performance in forecasting and other areas justified his negative evaluations. In addition, he was an enthusiastic data analyst and recognized the importance of having much good data in order to describe and measure economic phenomena and to discover new, unusual facts that contradicted current theories and beliefs and required new theories to explain them that he provided in many cases during his brilliant career. And all of his research was carried out in a way that reflected his considerable knowledge of applied and theoretical statistics, reflected, e.g., in his early paper in which he created "analysis of variance by ranks" and his two joint articles with L.J. Savage in the 1940s in which they produced modern Bayesian decision theory, an integration of economic utility theory and statistical theory that had a great impact on later statistical and econometric methodology and applications.

To illustrate Friedman's very generous nature and some aspects of his research methodology, when I was a graduate student in economics at the University of California at Berkeley in the 1950's working on my doctoral dissertation that dealt with testing whether or not a Pigou real money balance effect is important in explaining variation in consumer spending, a central hypothesis of the monetarists, I heard that Friedman was working on a new theory of the consumption function that was to be published. I wrote to him requesting information about the book since it was quite relevant for my research. To my surprise, he responded by sending me a copy of his manuscript with encouraging words about my project. And when he visited the Department of Economics at the University of Washington in the late 1950s to present some lectures, we met for the first time. After saying hello, he requested a copy of my PhD thesis and read it that very evening. On the next day, I was relieved to learn that he liked it since it was not just another theoretical piece but combined theory with empirical estimation and testing using quarterly data for the U.S. and finding that indeed a real balance effect exists and is important empirically and theoretically in affecting consumer spending, as emphasized by Friedman and other monetarists. Thus changes in the money supply not only affect the economy through effects on interest rates, as argued by the Keynesians, but also by their direct effects on consumer spending, particularly on durables and services.

As regards Friedman's classic 1957 book, *A Theory of the Consumption Function,* it is an outstanding example of what many consider to be productive economic science. In part, he sought to explain Simon Kuznets' unusual empirical finding that the U.S. personal saving rate had remained relatively constant over the first half of the 20th century rather than rise as most Keynesians had predicted. Friedman developed an ingenious two-period Fisherian analysis of utility-maximizing behavior that led to the conclusion that the ratio of saving to income is independent of the level of income but does depend on other variables. In addition, he very cleverly distinguished between permanent and transitory income and consumption in a model that is in the form of the statistical errors in the variables model in which he got identification of the parameters by assuming that the intercept in the relation connecting permanent income and permanent consumption is equal to zero, a result of his economic theory of consumer behavior. This integration of economic theory, statistical theory and empirical findings is a fine example of Friedman's fruitful scientific method. But that was not all. Just as Einstein's theory not only explained past empirical results but also yielded predictions that could be checked with future data, Friedman's theory of consumer behavior did so also. In the latter part of his book, he listed a number of predictive implications of his theory and explained how to evaluate these predictions using new data. And since then, many of his predictions have been found to be in accord with the information in new data and belief in Friedman's theory grew. Very few works in economics present such suggested predictive tests of new theories.

Another area in which Friedman produced central, important scientific results was in the evaluation of simple variants of Keynesian and Monetarist models of economies. Years ago, most introductory texts, including Samuelson's famous text, included a discussion of the Keynesian multiplier and concluded that a unit increase in government spending would result in a 3 unit increase in national output since the Keynesian multiplier is theoretically equal to 3 under "relatively weak" assumptions. Friedman and Meiselman in an important article decided to test this Keynesian multiplier model versus a monetary multiplier model using data from various periods of history. Their empirical findings, published in the *American Economic Review* shocked the profession, namely, that for all periods considered, except that of the great depression of the 1930s for which the models performed about equally well, the Monetarist model performed much better in all other periods considered. The results of this simple comparison of alternative models generated much theoretical and methodological controversy and were confirmed in later published work by Martin Geisel using Bayesian posterior odds rather than goodness of fit measures that pleased Friedman very much.

In many other areas, Friedman's direct, scientific production and testing of theories, models, and policies had a tremendous impact not only on the development of economic science but also on the introduction of new policies that have been influential in improving the performance of our economies. His theoretical and empirical work in monetary economics, as mentioned above, has influenced macroeconomics and macroeconomic policy-making. His negative income tax proposal, studied in field experiments, while not as yet implemented may help to improve current welfare systems. His school voucher system based on his "price-theoretic" analyses of the market for

education services has been tested in field experiments and adopted in several states and cities in the U.S.; for further information, see the web page and publications of the Milton and Rose Friedman Foundation. Among many other policy areas to which Friedman has contributed, his work on the influence of free and open markets on economic development has had a worldwide impact, as mentioned earlier.

To illustrate the impact of free and open markets on economic development, in the 1960s, my former student, Professor V.K. Chetty, then a faculty member at ISI Delhi, and his colleagues did a series of studies to evaluate governmental pricing policies in a number of Indian industries. Their findings were very critical. In many cases, the low prices imposed by the government to help low income consumers discouraged supply creating shortages or limited output growth in such industries as cement, steel, wheat, rice, etc. Concentrating on demand and forgetting supply effects was a very costly mistake according to the scientific studies carried out by Chetty and his colleagues at ISI Delhi. Also, Professor U. Sankar, now a famous researcher at the Madras School of Economics, in his doctoral dissertation and later publications showed that the policy of limiting the size of firms in Indian manufacturing industries was a very costly mistake. And in the 1960s, Dr. P.A.V.B. Swamy, now a productive researcher in the U.S. Government, evaluated the predictive performance of input-output models for the Indian economy that apparently had been used in formulating and implementing Indian governmental plans following the Soviet example. His results indicated that the in-put-output model's forecasts were highly inaccurate and that the model was probably inadequate for use in planning the Indian economy. And of course such mistaken policies and bad models were not unique to India but also present in many other planned economies as emphasized over the years by Friedman. By adopting free and open markets, with appropriate legal and political systems, he argued that these countries could do much better in improving the lives of their peoples. And, as I jokingly have remarked over the years, in this regard Friedman is in agreement with Marx who theoretically (or religiously?) claimed that it is historically determined that capitalism will cure the internal contradictions of feudalism and is a tremendous engine of growth in the early stages of capitalism. In this regard, Lenin, Stalin, Mao and others are "rank deviationists" since they stated (religiously) that it is possible to skip the capitalist phase and go directly from feudalism to socialism. Marx was right and they were wrong! However, as Selig Perlman pointed out many years ago in his book, *Theory of the Labor Movement*, Marx predicted the revolutions in the wrong places, a severe, scientific blow to Marxian theory. On the other hand, Friedman's predictions about the beneficial effects of free and open markets and good supportive legal and political systems have in the main been correct.

Milton Friedman died on November 16, 2006 in San Francisco and is survived by his wife and co-worker in economics, Dr. Rose Director Friedman, a daughter and son, four grandchildren and three great grandchildren. He will be sorely missed by many worldwide.

In closing this brief overview of Friedman's many accomplishments. I shall provide some statements of a few of my colleagues who have studied and worked closely

with Friedman over the years that appeared in the *University of Chicago Chronicle*'s, December 7, 2006, obituary:

1. Gary Becker, University Professor of Economics and 1992 Nobel Prize winner: "He was clearly the most important economist of the 20th century. He had enormous influence in economic science and indirectly on public policy. He had an important influence on President Ronald Regan and other presidents as well as leaders in both parties through his work on the flat tax, school vouchers, flexible exchange rates, stable monetary policy and for a voluntary military . . . . He had lots of good ideas and suggested practical ways to implement them.

2. James Heckman, The Henry Schultz Distinguished Service Professor of Economics and 2000 Nobel Prize winner: "Milton was one of the greatest economists of all times and certainly of the last half century. He created and fostered empirical science and made highly original contributions to statistics and economics and human knowledge. His death was a huge loss to the world."

3. Ben Bernanke, U.S. Federal Reserve Chairman: "Among economic scholars, Milton Friedman had no peer. The direct and indirect influences of his thinking on contemporary monetary economics would be difficult to overstate." [Quote from *New York Times*, Friday, November 17, 2006]

4. Leo Melamed, Chairman Emeritus, Chicago Mercantile Exchange: "The world is so much a better place today as a consequence of his life and teachings and his wisdom. His ideas touched us all. I personally have lost my mentor and closest ally in our common cause on behalf of the principles of free markets." [Quote from *New York Times*, Friday, November 17, 2006]