Paul Samuelson

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Paul Samuelson is one of the greatest economists ever, and was an extraordinary man.

The citation for his 1970 Nobel Prize in Economics, the second economics prize and the first awarded to an American, is dry: "for the scientific work through which he has developed static and dynamic economic theory and actively contributed to raising the level of analysis in economic science". A prize for that achievement – which began with the *Foundations*[1] – was well deserved, for more than anyone else, Samuelson brought economics from its pre-1930s verbal and diagrammatic mode of analysis to the quantitative mathematical style and methods of reasoning that now dominate our discourse.

He could equally have been given the prize for fundamental contributions in any of five or six different fields of economics: consumer theory; welfare economics; capital and growth; international trade; finance; and public finance.

The volume of his output is staggering, even given the seventy eight years since he entered the profession in 1932. His first article was published in 1937, and there are 388 papers in the five volumes of his *Collected Scientific Papers*, which runs through 1985. Add to that *Foundations of Economic Analysis,* in its original 1947 and enlarged 1983 editions, Dorfman, Samuelson and Solow (1958), thousands of newspaper and magazine articles, which he continued to write to the very end, the nineteen (so far) editions of *Economics*, which since the twelfth edition has been co-authored with William Nordhaus, his writings since 1985, active and highly successful management of his personal finances, and it becomes difficult to understand how he did it all. It was a combination of genius, imagination and hard work – for Paul Samuelson worked very hard. Or at least so it seemed to others, though not, he claimed, to himself, for "working out economic analysis is play, not work"[2].

To read *Economics* is to have a glimpse of the extraordinary mind that wrote it in 1948 – undogmatic, generous, encyclopedic, brilliant, and most remarkably, not inclined to take itself too seriously. But the economics in it is very serious. Not only has the book sold in the many millions and educated generations in economics, it set

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* Governor, Bank of Israel. This tribute was prepared for presentation at a special session of the Annual Meetings of the American Economic Association in Atlanta, January 4, 2010. In preparing my remarks I have drawn extensively on Fischer (1987), the entry on Samuelson in the *New Palgrave Dictionary of Economics.*

[1] *Foundations,* published in 1947, is closely based on Samuelson's 1941 David Wells prize-winning dissertation of the same title.

[2] CSP, V, 356, "Economics in My Time", 1983, p. 805. (*References to Collected Scientific Papers* are given as CSP, followed by volume number, chapter number, title of chapter, and year of initial publication).

the standard for the introductory textbooks of the second half of the twentieth century. It is no small feat to have kept a textbook going for sixty years, the first eleven editions alone, the next eight together with Bill Nordhaus. I once asked Paul how he had managed this feat. He answered "A lot of hard work, and some benign neglect."

Samuelson's writing style is unmistakable. His articles contain multiple references to the literature, the history of economics and the history of thought, and to other fields, especially the sciences, sometimes to literature and music. His generous acknowledgement of the previous literature is an example worth emulating. As he explained: "Long ago I set myself the grandiose challenge of not being merely subjectively original. More useful to science ... is to try to stay informed on what other scientists have done and to advance the frontier by your own quantum jumps".[3]

He could not prevent himself from being cheerful and witty – "playful" says Paul Krugman[4] – even in the most serious of his articles. Rereading some of his articles for this presentation, I repeatedly found myself bursting into laughter at some turn of phrase or another. His inability to suppress his urge to tell stories surfaced in his Nobel Prize speech: "May I crave your indulgence to digress and tell an anecdote? I do so with some trepidation because when I was invited to give this lecture I was warned by Professor Lundberg that it must be a serious one" – whereupon he launched into at least two stories about John von Neumann.[5] Critics have told me in private conversation that the Samuelson style is off-putting and not deep. Everyone to his or her own tastes – and if you can retain your wit and perspective while dealing with serious topics, so much the better.

In the time remaining, I want to discuss Paul Samuelson, the macroeconomist, and his role in the MIT Department of Economics.

First, macroeconomics. James Tobin, one of the economists Samuelson admired most, describes the neoclassical synthesis as Samuelson's greatest contribution to macroeconomics (Tobin, 1983, p. 197). Essentially the synthesis says that with the aid of skillful fiscal and monetary policy[6] the economy can be kept close to full employment, and will behave as models of long-run growth suggest it will. Every now and then – as at present – the emphasis will have to be on the short run, where the Keynesian analysis comes into its own. But all the neoclassical questions, for example of optimal allocative fiscal policy, remain valid and are useful guides to policy.[7]

In practice, most policymakers and policy-advisers use the neoclassical synthesis as their basic approach. For much of the time, and for thinking about certain problems, we use neoclassical full-employment optimizing models and results. But in a recession, in our policy advice we are nearly all Keynesians – though not simple-

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[3] CSP, V, 355, "My Life Philosophy", 1983, 796

[4] Paul Krugman, http://krugman.blogs.nytimes.com/2009/12/15/the-incomparable-economist/

[5] CSP, III, 130, "Maximum Principles in Analytic Economics", 1970, 14-15.

[6] CSP, II, 115, "A Brief Survey of Post-Keynesian Developments", 1963. Samuelson says that the approach can be found in his *Economics,* from the third edition on; it appears as Chapter 18 in my high school copy of the book, fifth edition (1961), "Synthesis of Monetary Analysis and Income Analysis".

[7] Tobin (1983) contains a more detailed description of the neoclassical synthesis.

minded, fiscal-policy-only Keynesians – even if some find this difficult to accept emotionally.

Samuelson's early work on multiplier-accelerator models[8] argued for the importance of the interaction of the multiplier and the accelerator in generating business cycle dynamics. This argument has held up well over time. In 1940[9], he was already emphasizing a key feature of the neoclassical synthesis, by stipulating that the "economic system is not perfect and frictionless so that there exists the possibility of unemployment and under-utilization of productive resources ..."

Despite the wide range of his research, Samuelson did not try to explain the microfoundations of the Keynesian model, including the reasons for wage and price stickiness. In 1986 he said that he had long ago decided that wages and prices were sticky, that he could understand the behavior of the economy and give policy advice on that basis, and that he had seen nothing since then to lead him to change his views on the issue – and that he had not seen a payoff to researching it.

The Phillips curve is part of the neoclassical synthesis, and the famous 1960 Samuelson-Solow article "Analytic aspects of anti-inflation policy"[10] has been much-criticized for allegedly arguing that the estimated Phillips' curve presents society's long-run tradeoffs between inflation and unemployment. That it does not do. The paper contains a discussion of the estimated Phillips curve as presenting policy choices for the next few years. But the authors warn explicitly that it would be wrong to think that the menu of choices represented by that curve "will maintain its same shape in the longer run", (p 193) presenting both expectational and hysteresis reasons to think that the curve might shift over time. This is not an anticipation of the vertical long-run Phillips curve, but it is clear evidence that the authors were not guilty of believing that they were estimating a long-run policy tradeoff. In conversation, Samuelson has said that he was always the Kennedy administration pessimist about the long-run tradeoff.

As a policy adviser to President Kennedy and to others, and as a macroeconomic commentator, his views reflected the neoclassical synthesis, a disdain for rules rather than discretion, and an almost shameless eclecticism. This despite his comment on John Stuart Mill: "It is almost fatal to be flexible, eclectic and prolific if you want your name to go down in the history books...."[11] He kept up with the current state of the macroeconomy, drawing on forecasts and empirical work of others, and was a canny forecaster (as well as investor). His eclecticism made his policy views less exciting than those of economists with a strong view of the way the world works, but he never sought to be interesting rather than right. He said in 1983[12], "I am eclectic because experience has shown that Mother Nature is eclectic".

In the classroom Samuelson confessed that among his many offspring, the consumption loans model[13] was his favorite. The affection has been amply rewarded,

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[8] CSP, II, 82, 83, 1939; and a retrospective in CSP, II, 1959.
[9] CSP, II, 85, "The theory of pump-priming reexamined", 1125.
[10] CSP, II, 102.
[11] CSP II, 113, 1962, 1509.
[12] CSP, V, 355, "My Life Philosophy", 793.
[13] CSP, I, 21, 1958

for within macroeconomics the simplest two-period version of the model has been used in countless papers in which a tractable framework with an explicit time-structure was needed. And of course multi-period overlapping generations models are easy to simulate – and besides, convey a sense of realism that at least for one economist flows less easily from continuous time versions of the model, such as that of Blanchard.[14] But with Peter Diamond on this panel, there is no point in my continuing to describe the virtues of the consumption loans model, in modern macroeconomics and in many other branches of our field.

Paul Samuelson and MIT. Samuelson moved to MIT in 1940, and was there for the next 69 years, virtually without a break, except that in recent years he wintered in Florida. He proudly proclaimed that he had never been in Washington for as long as a week, and he did relatively little international traveling. He was above all a scholar, albeit not of the ivory tower school. With his coming, and with the later addition of Bob Solow and others, the MIT Department of Economics and its Ph.D. program gradually became recognized as among the best in the world, and for many years the department has been ranked as either number one or among the top three in economics.

Samuelson's role in this success was pivotal but not domineering. His research habits, his devotion to the field, his hard work (though he drew the line at academic administration), the open-door policy for students and fellow faculty, his absolute refusal to use authority instead of reason, his zest for conversation about economics, economists and nearly all else made him a role model for a department where cooperation and friendliness were extraordinary . He helped shape the department but he did not dictate its shape; he told one of his young co-authors that as a young man he decided that at age forty he would stop taking initiatives in the department, at fifty he would venture an opinion on departmental matters only when asked, and at sixty would stop attending faculty meetings. He kept close to that intention.

Although many graduate students have passed through his classes and been profoundly affected by him, there is no Samuelson school of economics, no overarching design for either economics or the world that is uniquely his. That is because he treated his students as fellow economists, rather than as future disciples. He was easy to talk to; he reasoned with you; he did not talk down to you. Nor did he talk down to the profession. When I taught at MIT I would often receive a note from him, accompanying a paper from an unknown or lightly regarded economist, saying something like "I think he has a point on page 23". This would generally be followed by a visit to his office for further discussion, and resolution.

Although there is no Samuelson school of economics, if you would seek his memorial, look around you – for on today's panel and in the audience are many outstanding economists, leaders in their fields, whose lives have been profoundly affected by Paul Samuelson and the department that he and Bob Solow and others built, and who are here to express their gratitude and their affection and their respect.

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[14] Olivier Blanchard, "Deficits, Debt and Finite Horizons", *Journal of Political Economy*, 93, 2 (April 1985), 223-47.

It is reputed that Paul Samuelson wrote in the visitors' book after a dinner at the Modigliani's, "Franco, when I'm gone, you'll be sorry you never heard me speak". Nonetheless I give the penultimate words to Franco, who after the speeches at the 1983 party at which Samuelson was presented with the Cary Brown-Bob Solow edited *festschrift*, walked over to the seated Samuelson, wagged his finger at him, and said "You", and after a pause, "You have enriched our lives".

That he did, and for that and much more, we thank his memory.

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