RECENT ECONOMIC THOUGHT

Samuelson and Neoclassical Economics

EDITED BY

GEORGE R. FEIWEL

Kluwer-Nijhoff Publishing

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KLUWER • NIJHOFF PUBLISHING
BOSTON/THE HAGUE/DORDRECHT/LANCASTER

DISTRIBUTORS FOR NORTH AMERICA:
Kluwer Academic Publishers
190 Old Derby Street
Hingham, Massachusetts 02043, U.S.A.

DISTRIBUTORS OUTSIDE NORTH AMERICA:
Kluwer Academic Publishers Group
Distribution Centre
P.O. Box 322
3300 AH Dordrecht, The Netherlands

Library of Congress Cataloging in Publication Data

Main entry under title:
Samuelson and neoclassical economics.

(Recent economic thought)
1. Samuelson, Paul Anthony, 1915– — Addresses, essays, lectures. 2. Neoclassical school of economics — Addresses, essays, lectures. I. Feiwel, George R. II. Series.
HB119.S25S25 330.15'5 81-1211

ISBN 0-89838-069-3 AACR2

Printed in the United States of America

Third printing 1984

PREFACE

This is not a *festschrift,* but a study of the prodigious Samuelson phenomenon, his history-making contributions to and impact on the economics of our age, and the intricate, often perplexing, and divergent trends in modern economics — all intensely controversial subjects that will be argued, scrutinized, and periodically reassessed by economists of various strands and traditions for years to come, for, as Samuelson wrote of Pigou, "immortality does have its price." A scholar with such an outstanding body of contributions "must expect other men to swarm about it" (1966, p. 1233), subject it to scholarly scrutiny, and challenge it.

Although Paul Samuelson was 65 on May 15, 1980 (and our best wishes go out to him for long life and continued enrichment of economics), this is neither a birthday party nor a gathering of only the Good Fairies, for, as he himself has said of Marx, "a great scholar deserves the compliment of being judged seriously" and critically (1972, p. 268). In accordance with the rule of Roman law, *audiatur et altera pars,* I have invited representative scholars of widely divergent perceptions to offer their critical evaluation of the "age of Samuelson." While the response was by and large gratifying, some scholars were unable to meet the deadline, and with much compunction I have had to expand my own essays to partly fill the gaps.

When I was approached to contribute to and edit this volume, I was already committed to organizing the session on economic theory to honor Samuelson at the 1980 AEA meetings. So whatever merit there is in this volume is largely to the credit of Will Baumol for setting me this happy task. In preparing my introductory comments on Samuelson's place in modern economics, I found myself delving ever deeper into Samuelson's voluminous contributions and growing increasingly more enthusiastic about my subject, so much so that I was seriously contemplating writing a study of Samuelson's influence on modern economics. As I perceived the advantages of division of labor among such highly qualified specialists, I agreed to undertake this volume.

The book was conceived in the form of a few major essays and a number of shorter commentaries on related subjects and from various vantage points, to afford both depth and breadth of coverage. Of course, no single volume can do justice to the multifaceted dimensions of a subject that is so interdependent that even the separation in this volume into four parts is not without its pitfalls.

The introductory essay sets the stage by providing an overview of Samuelson's body of work and reflections on the man and the scholar. Part I opens with Chipman's searching survey of consumption theory, which traces the evolution of Samuelson's thinking and illuminates the professional turnabout in the last four decades, with a commentary on revealed preference after Samuelson by a leading mathematical economist of the younger generation — Andreu Mas-Colell. Negishi (himself a contributor to the subject and author of a well-known survey of stability analysis) extends Samuelson's stability analysis to non-Walrasian economics, while Beach incisively criticizes the entire approach, which is fruitfully extended by Krelle in the Samuelsonian tradition. (The related problem of instability is also treated in some of the papers in Part III.) Lau succinctly traces Samuelson's pervasive influence on production theory, while Joan Robinson reflects on her controversy with Samuelson and provides a succinct statement of her position. Tinbergen concentrates on alternative interpretations of production functions, the phenomenon of counterproduction, and the incomes of the "bearers of competition."

Part II opens with an overview perspective of Samuelson's contributions to trade theory by his distinguished student Wan. Chipman deals with developments in welfare economics, and Kemp and Long revisit the important question of reevaluation of social income in a dynamic system.

In Part III Bronfenbrenner takes up the cudgels for eclecticism in economics. I attempt to depict the Samuelsonian neoclassical synthesis, its major critiques, and the various currents in modern economic theory. The author of the classic *Keynesian Revolution,* Klein, Samuelson's first Ph.D. student — and it is said that MIT has not been able to raise its standards since — extends and generalizes the Keynesian model to cope with today's problems. Wallich reviews expertly the changing scene of monetary economics. In the tension between sophistication and relevance, Kuenne criticizes the modern trends in building very general and elegant models and argues for more relevance to the real world — an argument that is reinforced from a different vantage point by Myrdal, who has long swum against the mainstream. Nell, an established critic of neoclassical economics, takes issue with Samuelson's interpretation of Marx's value theory and provides comparisons of Marxist, neoclassical, and neo-Ricardian analyses. Finally, the paramount problem of making the tradeoff between equality and efficiency operational is ably tackled by yet another Samuelson student, Blinder, who calls for economists' increasing recognition of their proposals' implications for distributive justice and for cooperation between macroeconomists, general equilibrium "practitioners," labor economists, and public finance specialists to solve this onerous problem.

In the concluding part we get further glimpses of the many Samuelsons in Bergson's and Akerlof's profiles of a fellow student and mentor. Intriligator, also a student of Samuelson, uses the revealed preference approach to survey the overall impact of Samuelson's contributions on the profession. Bronfenbrenner also provides insights into the fellow student, the man, and the scholar and speculates on Samuelson's likely place in history.

If we succeeded somewhat in our task, my main feat was in a wise choice of contributors. Working with them was an unforgettable and rewarding experience. I am beholden to them for their interest, cooperation, and commitment and, above all, for putting aside their other pressing work to contribute to this volume. Many scholars who do not appear in the table of contents have left their imprint on it. I must thank them collectively. But I would be remiss not to identify at least some of them. The members of the AEA panel — Kenneth J. Arrow (Stanford University), William J. Baumol (Princeton University and New York University), Lawrence R. Klein (University of Pennsylvania), and Robert M. Solow (MIT) — have provided stimulus, encouragement, and valuable clarifications. In the formative stages I benefited greatly from discussions with Leonid Hurwicz (University of Minnesota), Thomas J. Rothenberg (University of California, Berkeley), and Gerard Debreu (University of

California, Berkeley), who also helped by carefully scrutinizing the introductory essay. Among those who provided some valuable contrasting insights into the Samuelson phenomenon and/or substantive comments on my essays are: Moses Abramovitz, (Stanford University), Earl F. Beach (McGill University), Olivier Blanchard (Harvard University), John S. Chipman (University of Minnesota), Benjamin M. Friedman (Harvard University), Nicholas Georgescu-Roegen (Vanderbilt University), Richard M. Goodwin (Cambridge University), Errol Glustoff (University of Tennessee), Geoffrey C. Harcourt (University of Adelaide), Michael D. Intriligator (U.C.L.A.), Hans E. Jensen (University of Tennessee), Murray C. Kemp (University of New South Wales), Charles P. Kindleberger (MIT), Harvey Leibenstein (Harvard University), Abba P. Lerner (Florida State University), John M. Letiche (University of California, Berkeley), Franco Modigliani (MIT), John R. Moore (University of Tennessee), Takashi Negishi (University of Tokyo), Joan Robinson (Cambridge University), Walter S. Salant (Brookings Institution), Theodore W. Schultz (University of Chicago), Amartya K. Sen (Oxford University), G. L. S. Shackle (University of Liverpool), Wolfgang F. Stolper (University of Michigan), Robert Summers (University of Pennsylvania), Paolo Sylos-Labini (University of Rome), Peter Temin (MIT), and Henry Y. Wan, Jr. (Cornell University). All the above are implicated only in anything that is positive and absolved of any errors of commission or omission.

I would like to express my thanks to Robert Bassett and his assistant, Warner Grenade, of the University of Tennessee library for extraordinary diligence and working in the spirit that the impossible takes just a little bit longer. My thanks also to the staff of the University of California (Berkeley) and Stanford libraries, to Cathy Shires (University of Tennessee) for helping me with some of the correspondence while I was away, and to Paul Samuelson for making available a number of yet-unpublished papers and permission to quote from his letter to William R. Allen.

This undertaking took a high toll willingly paid, particularly by my wife and collaborator, Ida, for she shares the sense of purpose and commitment to what we were doing. One of the greatest benefits that academic life offers is the opportunity to come into contact with great minds. Knowing Paul Samuelson is not only a rare privilege, but also an extraordinary and, at every meeting, a refreshing experience. It is to Paul, the remarkable human being and friend, that this book is affectionately dedicated. Many of the vignettes of Samuelson that I have used here were garnered over several years of contact and discussions when neither of the participants knew to what purpose they would be put, and least of all is Paul responsible for my misinterpretations.

GEORGE R. FEIWEL

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1 SAMUELSON AND CONTEMPORARY ECONOMICS: *An Introduction*

George R. Feiwel

Paul Samuelson has made an indelible imprint on modern economics. He ranks among history-making economists for his accomplishments in refining, advancing, and spreading economic knowledge. He has played an outstanding role in the analytical revolution in economic theory. He was the 1970 (first American) recipient of the Nobel Prize in Economic Science (the first prize was awarded in 1969 to Jan Tinbergen and Ragnar Frisch); excerpts from the citation read:

> By his many contributions, Samuelson has done more than any other contemporary economist to raise the level of scientific analysis in economic theory. . . . He has rewritten considerable parts of central economic theory, and has in several areas achieved results which now rank among the classical theorems of economics.

All in all, as Kenneth Arrow put it, "Samuelson is one of the greatest economic theorists of all time" (1967, p. 735).

Samuelson is a major architect of the modern neoclassical conception. His pervasive influence on contemporary economics has also come largely from his role as teacher to generations of economists the world over ever since the first appearance of his masterly and controversial textbook in 1948. Another important role played by Samuelson in the history of economic analysis was that of helping to overcome resistance to the use of mathematics in economics through the authority he had acquired in the profession — a role for which he is praised by one group of economists and criticized by another.

His contributions cover a range of subjects almost as broad as economics itself, from the very esoteric, through questions in the mainstream and issues that have played an important role in the accretion of economic knowledge, to the very relevant modern problems of political economy. As he admitted (with a grain of salt) in his presidential address to the American Economic Association:

> My own scholarship has covered a great variety of fields. And many of them involve questions like welfare economics and factor-price equalization; turnpike theorems and osculating envelopes; nonsubstitutability relations in Minkowski-Ricardo-Leontief-Metzler matrices of Mosak-Hicks type; or balanced-budget multipliers under conditions of balanced uncertainty in locally impacted topological spaces and molar equivalences. My friends warn me that such topics are suitable merely for captive audiences in search of a degree — and even then not after dark. [Samuelson 1966, p. 1499]

Samuelson's steady stream of output is not only astounding in quantity, but also always stimulating and often seminal, if not entirely new. Unlike the output of many of his contemporaries, his contributions are broad and deep enough to have assured him an appreciative audience of his peers, from mathematical theorists to literary economists in almost all fields, including those who differ from him in theory, methodology, ideology, policy, and politics (see Hurwicz 1970, p. 721; Friedman 1970, p. 80). Samuelson's work is spiced with astute observations and analytical pointers that are not always fully integrated with the analytical framework, which decreases his currency among economists whose "revealed preference" is for elegance and enhances it among the rank and file.

THE MAKING OF THE ECONOMIST

In a field as intensely controversial as economics, the work of such a major and wide-ranging contributor as Samuelson has necessarily been subject to clashing perceptions on fundamentals, if not on specific formulations. His general neoclassical approach, if not his macroeconomics and his mathematics, is under strong attack from various quarters.

Neoclassical economics means different things to different people.[1] It can be traced to various streams and traditions in the nineteenth century (primarily to Jevons, Edgeworth, Marshall, Walras, Pareto, Menger, Böhm-Bawerk, J. B. Clark, and Wicksell).[2] Probably a distinction should be made between the broad neoclassical perception of the world and the more narrow economic theories of the neoclassical type. "The twin pillars of neoclassical doctrine are the principle of optimization by economic agents and the coordination of their activities through the market" (Arrow 1975, p. 4). It is commonly believed that the most important criterion for distinguishing the neoclassical economists from their classical (Smith to Mill) precursors is probably the introduction of the subjective theory of value (Samuelson 1947, p. 90). Samuelson perceived that the so-called marginal revolution had in fact little to do with either subjective value and utility or with marginalism; rather, it was concerned with refining the general relations of supply and demand and culminated in Walras's formulation of general equilibrium (Samuelson 1966, p. 1756).

Samuelson perceived Walrasian general equilibrium as the peak of neoclassical economics; he believed that Marshall delayed its understanding. Ironically, some younger general equilibrium theorists perceive Samuelson as too Marshallian. However, the mixture of Walras and Marshall, which manifests itself in varied configurations in time and subjects, and not always as compatible elements, provides one clue to the thinking of this great eclectic.

Samuelson seems to share, albeit with reservations, Schumpeter's evaluation of Walras as "the greatest economist of all time." Samuelson likened Walras to Newton: "For there is but one system of the world and Newton was the one who found it. Similarly, there is but one grand concept of general equilibrium and it was Walras who had the insight (and luck) to find it" (ibid., pp. 1501–02).

Samuelson views Marshall as the most overrated economist, who was so afraid of being unrealistic that he ended up fuzzy, confused, and confusing. He claims that Marshall's ambiguities paralyzed the best economic brains on both sides of the Atlantic for three decades. His contention that the problem of modern economics is to exorcize the Marshallian incubus has hardly endeared him to those who claim that it is all in Marshall[3] (Samuelson 1972, pp. 22–24).

Samuelson recalls that in 1932 Chicago was the best place to study economics, for the subject had not yet been energized by Keynes. While marking time he received a thorough grounding in neoclassical economics and doctrinal history:

> Chicago was a better place . . . than would have been Harvard, Columbia, or the London School. Cambridge University was never within my ken, but since economics was also waiting for the invigorating kiss of mathematical methods, it would have been a personal tragedy. . . . (I like to think I might have risen above the tragedy, but as Wellington said of Waterloo, it would have been a "damned close-run thing"). [Samuelson 1977, pp. 885–86]

About his transfer from Chicago to Harvard, Samuelson recollects (ibid., pp. 888–89): "Luck was with me. Harvard was precisely the right place to be in the next half dozen years."[4] And on behalf of his "comrades at arms" he reflects: "Harvard made us. Yes, but we made Harvard."

This transfer placed him in what was then the vanguard of science; "right in the forefront of the three great waves of modern economics: the Keynesian revolution . . . the monopolistic or imperfect-competition revolution, and finally, the fruitful clarification of the analysis of economic reality resulting from the mathematical and econometric handling of the subject. . . ." (ibid., p. 890). By 1950, having heard Frank Knight's diatribe against Keynesians and believers in monopolistic competition, Samuelson was emboldened to egg him on by asking him what he thought of mathematical economists, to which the curt reply was that Knight could not stomach them either. Samuelson came to realize "that the indictment fitted me to a T" (ibid., pp. 886–87).

Samuelson left Harvard, but never the banks of the Charles. He transferred to MIT [where he "made beautiful music together with Robert Solow . . . and even survived collaboration with Franco Modigliani" (1972, p. 684) and *made* its economics department]. About this transfer he said (1977, pp. 890–91): "A better offer came from MIT and when I learned that my departure would not cause irreparable grief, I took the offer." Furthermore, "my parting was eased by the fact that no one, least of all me thought that it was lack of merit that kept me from a chair in economic theory."[5]

Samuelson made the greatest splash in the "third wave" of modern economics:

> To a person of analytical ability, perceptive enough to realize that mathematical equipment was a powerful sword in economics, the world of economics was his oyster in 1935. The terrain was strewn with beautiful theorems begging to be picked up and arranged in unified order. [Samuelson 1977, p. 886]

He proceeded to do so in his influential classic, *Foundations of Economic Analysis*. Using his innovative powers and analytical and mathematical skills, he investigated the common elements and aimed at deducing the general principles and unifying the various parts of economic theory. Thus, he concentrated, inter alia, on the nature of the equilibrium system, on the general structure of the problem of maximization under constraints, on the statics and dynamics of nonmaximum systems, and on the relationship between comparative statics and dynamics. The result was a sifting through, a creative reconstruction, and a rigorous formulation of a significant part of received theory with new or refined theorems and novel applications.

Thinking back on his work and thought processes when formulating *Foundations,* Samuelson notes:

> In those days someone once asked me which economic journals I read. I had to reply that I read them all. . . . For myself, it was a matter of pride to try to do justice to the literature. Not only did equity require this, but also the efficiency of building up the edifice of scientific knowledge called for integrating new findings with old. . . . I think it is pride that makes one accept the much, much harder challenge of trying only to produce value-added rather than gross contributions to the body of scientific knowledge. [Samuelson 1972, pp. 687–88]

Twenty years after the original publication of *Foundations,* he confessed (ibid., p. 689) to having become "rather estranged" from his brainchild. In the turbulence engendered by the Keynesian revolution and during the war, "the niceties of pure economics seemed somewhat decadent."

To those who accuse him of the mathematization of economics, Samuelson answers (1977, p. 868): "That is one of the mortal sins for which I shall have to do some explaining when I arrive at heaven's pearly gates."

> What a Daniel-come-to-Judgment I would be, if I, the lamb that strayed fustus' and mustus' from the fold, were to testify before God and this company that mathematics had all been a horrible mistake. . . . I wish I could be obliging. Yet even if my lips could be brought to utter the comforting words, like Galileo I would hear myself whispering inside, "But mathematics does indeed help." [Samuelson 1966, p. 1500]

But in the same breath he warns (ibid., p. 1503) that if economists increasingly concentrate on highly technical economics and statistics, they must expect that the informed citizen will increasingly lose interest in their activities and thus deprive them of a means of influencing public opinion and policy. Beyond Samuelson the superb technician lurks Samuelson the political economist. He speaks of economic theory as "a mistress of even too tempting grace. . . . When man sets himself the challenge to theorize and *yet stay within the constraint of explaining reality,* the task is much the harder — but how much more satisfying the hunt. At night by the fireside let them who will display their easy tiger skins; for man the greatest quarry of all is the study of man. For what do they know of economics, who political economy do not know?'' (ibid., pp. 1680–81).

CONTRIBUTIONS TO THEORETICAL ECONOMICS

In a quest to extricate the theory of demand ''from any vestigial traces of the utility concept'' and to find a consumption theory stripped of nonessentials ''to its bare implications for empirical realism'' (ibid., p. 13; 1972, p. 763), Samuelson pioneered in a 1938 essay the forceful and fruitful revealed preference approach, which not only invigorated consumer's choice theory, but also went beyond it. Samuelson's earliest paper, writes John Chipman in Chapter 2, this volume, ''literally revolutionized the theory of consumer behavior.'' Hendrik Houthakker (1961, p. 706), himself a landmark contributor in this field, called it ''epoch making.'' The perplexing problem of characterizing the economic content of the symmetry of the substitution term in the Slutsky equation, which Samuelson did not solve in that paper, has been cracked after four decades. And, to quote Chipman, ''It must be a very satisfying outcome for the originator of such a fruitful idea; it has in fact been one of the most glorious chapters in the history of economic thought.''

Chipman traces the development in two strands of consumption theory of varied traditions — the revealed preference and the measurement of individual welfare. He argues that Samuelson's achievements have been instrumental in transforming analysis in both strands and have provided the foundations for a synthesis of the two. This has opened the door for building utility functions and welfare measures based on market observations of consumer demand behavior.

One of the major quests of modern mainstream economic theory has been the progressive integration of static and dynamic modes of analysis. In dynamic theory time appears in a most essential way: the system is evolving, and present events, which are the result of preceding developments, contribute in turn to the further development of the system.[6] As Samuelson put it:

> The economist has no choice but to study dynamics; for otherwise there is little possibility of presenting a reasonably realistic description of such phenomena as speculation, cyclical fluctuations, and secular growth. In addition,