

Obituary

Nicholas Georgescu-Roegen (1906–1994)



Professor Nicholas Georgescu-Roegen died on 30.9.1994 at the Vanderbilt University hospital in Nashville: the Grand Old Man of Economics, so far away, in the land of Grand Old Opry. An exultant and refugee, who was forced to flee the Communist Romania in 1948 and who has become a role model for many young exiles from Central Europe, induced to follow in the subsequent decades, he has now left us to continue on our own and without his wise guidance.

As so many other great men of economics, also Georgescu-Roegen has not been awarded the Nobel Memorial Prize, even though his contributions far surpass all those of assorted financial portfolio analysts, artificial intelligencers and other arithmomorphists. Georgescu-Roegen was a true, undiluted economist in the grand Central European tradition of Schumpeter, von Hayek, Morgenstern and Carl Menger.

My own personal sense of loss and regret is too great. In 1984 I had the unusual privilege and pleasure of writing the following paragraph [1]:

“As usual, Georgescu-Roegen's writing is full of stimulating ideas and topics for research and doctoral dissertations in economics. His are ideas and topics leading not to a simple cranking of the mathematical machine but to intelligent effort for coming to grips with the complexity of facts. Not many students are independent enough or guided with enough imagination and ambition to undertake such tasks without taking substantial short-term risks. Yet, in the long run, it is

Georgescu-Roegen, *one of our greatest living economists, who is showing the path toward the true economics of human beings.*”

My admiration for this strong willed and fiery man of passionate convictions and opinions was as intense then as it still remains today. Georgescu-Roegen was interested and accomplished in pure economic theory, mathematics, statistics, economic history, biology, physics, systems theory, multiple criteria decision making, among others, because he understood the essentially nondisciplinary nature of Nature and the degrading poverty and narrowness of specialization: he was one of the last truly renaissance men of modern sciences.

Georgescu-Roegen of Greek descent, was born in Constanta, Romania, on February 4, 1906, the son of a Romanian army officer. Nicholas was very talented in mathematics and statistics and he received his master's degree in mathematics from the University of Bucharest in 1926 and a doctorate in mathematical statistics from the Sorbonne, in 1930. He accepted a teaching post at the University of Bucharest in 1932, after spending two years in London as a student of Karl Pearson at the Galton Laboratory. His first publications were on sampling theory in *Biometrika* (1932). In 1933 he published his *Metoda Statistica*, in Romanian.

During the mid-thirties he spent two years at Harvard as a Rockefeller fellow. There he worked closely with Joseph A. Schumpeter and published “The Pure Theory of Consumer Behavior” in the *Journal of Economics* (1936). Schumpeter urged him to stay in the United States, but Georgescu-Roegen was still a patriot and chose, quite unwisely it turned out, to return to Romania. He got involved with the Romanian monarchist government, served as a delegate to the League of Nations and helped to negotiate the peace with the Soviets after World War II.

Then, of course, he had to flee. With his wife Otilia, they stowed away in barrels aboard of a freighter to Istanbul – and then directly back at Harvard. One year later he was offered a tenured

position in the economics department at Vanderbilt University in Nashville. That is where he remained for more than 25 years, until his retirement in 1976.

In the United States, Georgescu-Roegen clearly and positively flourished. His famous papers appeared: "The Theory of Choice and the Constancy of Economic Laws," *Quarterly Journal of Economics* (1950), "Choice, Expectations, and Measurability," *Quarterly Journal of Economics* (1954), "Choice and Revealed Preference," *Southern Economic Journal* (1954), and "Threshold in Choice and Theory of Demand," *Econometrica* (1958).

In 1984, see [1], he acknowledged that in making decisions there is never a single reason to guide us: all decisions, no matter how rarely and artificially explored by traditional economists, are characterized by multiple criteria. He was even critical of the designation "Multiple Criteria Decision Making": he considered the qualifier "multiple criteria" meaningless because no other decision making can exist. According to Georgescu-Roegen, such a label can only be used to correct the old myopic theory.

In the same article, he launched a devastating critique of economic utility theory. He established nontransitivity and noncomparability of preferences as perfectly normal conditions of human decision making. Similarly, he condemned the concept of indifference as a purely abstract construct rather than a more desirable falsifiable postulate. In fact, the absence of indifference is a dominant feature of the ordinary preference structure. Also, he argued, there are often no trade-offs among many types of multiple criteria and so they cannot be aggregated and collapsed into some form of super-utility superfunction. "Give to a hungry woman dresses in any number, they will not satisfy her hunger a bit", he joked.

Falsifiable postulates are mandatory in sciences, while traditional economics is replete with nonfalsifiable presuppositions and tautologies à la "Utility maximization leads to the best solution and the best solution is the one that maximizes the utility." This amounts to the same "science" as the one derived from wisdoms like: "Only the fittest survive and those who survive are the fittest".

So-called Marschak's imperative, "Everyone should maximize expected utility", has been similarly demolished, although already refuted and "deconstructed" earlier by Maurice Allais, in 1951.

Concerning the choice among risky propositions,

Georgescu-Roegen evoked Irving Fisher's observation (1906) that human choice is influenced not only by the expected value but also by the variance of the appropriate probability distribution. Thus, Fisher's observation preceded those of modern portfolio analysts, like Markowitz, Tobin and Sharpe, by some fifty years.

John Hicks argued already in 1934 against the use of *only* expected value and variance, establishing thus something akin to the modern principle of stochastic dominance. Even Karl Pearson's idea of comparing two distributions by comparing two sequences in their first four moments, preceded the mean-variance Markowitz-Tobin model both in time and substance.

In the seventies, Georgescu-Roegen first established a relationship between economic growth and the environment. His *The Entropy Law and the Economic Process* (1971) [2] became one of the most influential books of the decade. The "mechanical pendulum" world of Keynes and Samuelson was forever broken by the second law of thermodynamics: useful energy gets dissipated and the economy faces limits to growth, more like an hourglass.

Among his other books are *Analytical Economics: Issues and Problems* (1966), and *Energy and Economic Myths: Institutional and Analytic Economic Essays* (1976).

Unfortunately, Georgescu-Roegen's entropy ideas were too eagerly coopted by political environmentalists and environmental politicians, spawned assorted "entropy gurus" who oversimplified the idea, the reasoning and the impacts and thus delayed serious developments of theories of sustainable and self-sustainable systems well into the nineties. Even the advances of ecological economics, ecosystems and ecosocieties were stunted by the popularized, unidirectional "entropic thinking" of the seventies. Georgescu-Roegen never submitted to this political activism and remained thoughtful and objective.

Georgescu-Roegen's death comes at the time when most of his ideas are coming to their full fruition and are becoming a part of the respectable mainstream of modern economic thought. Being too early, being ahead of one's time, is exciting, thrilling and often satisfying, but it is definitionally unrewarded and unappreciated by the society which often treats its dead so much better, more seriously and respectfully than its living.

Let us take a look at an example of Georgescu-Roegen's prose, in order to appreciate why he could not have been "rewarded" during his lifetime:

"A particular variant of Democritus's particular atomism is Karl Marx's argument for the labor theory of value: every concrete labor consists *only* of a definite amount of homogeneous abstract, general labor (which is measured in units of unskilled labor). Standard economists have not minced words in denouncing this view as absurd. Yet essentially the same argument is implied in the prevailing consumer theory. Commodities answer to various *concrete* wants of the individual which are just various manifestations of the same general, abstract want – utility. This kind of monism was indirectly formulated by Aristotle (*Ethica Nicomachea*, 1133a–b), as he argued that there must be the same thing in all things that are exchanged against each other."

That kind of writing, that kind of intelligent revolt against the medieval scholasticism prevailing in modern economics, can only be appreciated by the posteriority.

A mathematician par excellence, Georgescu-Roegen was fighting most of his life against *arithmomorphism* and even – as he called it – against arithmomania. The arithmomorphic concept stands in direct opposition to the dialectical concept. Yet, modern economics is still dominated by the arithmofetish of a number, i.e., by a concept standing in absolute isolation from all other concepts, including all other numbers.

That is why Georgescu-Roegen was so pleased with the emerging applications of *fuzzy sets* theory because dialectical concepts of want, democracy, justice, etc., have fuzzy boundaries. But he cautioned [1]:

"But we must not fail to see that between dialectics and any arithmomorphic structure – as the theory of fuzzy sets indisputably is – there can be no solid bridge. The membership function is a purely subjective coordinate, largely analogous but far less transparent than personal probability. In 1964, I said that dialectical reasoning awaited a new Aristotle, not a new arithmomorphic scheme; it still does."

That remains the real problem: fuzzy sets theory has attempted to build a bridge where no bridge can or should be built. Instead of enhancing the

true dialectical reasoning, it simply built another arithmomorphic superstructure, not transparent any more even to its own progenitors.

Georgescu-Roegen wrote [3] that there is abuse whenever mathematical models are introduced without any previous basis – the well-known phenomenon of translating mathematics into economics (or mathematics into fuzzy dialectics, decision making or management sciences). In a valuable document of the time, a young economist recognizes that nowadays it is easier to get some results by simply cranking the mathematical machine than to come to grips with the complexity of facts.

I am also grateful for Georgescu-Roegen's usage of my own work:

"The point that mean and variance provide an incomplete, albeit simple, picture of the actual distribution has been recently reflected in the protest of Zeleny: "Why is simplicity so often confused with correctness?"

I still remain baffled by this phenomenon, as I am sure Georgescu-Roegen also was, and as most emigrés always will be.

Scientific exulants, emigrés and refugees shall remain plagued by their inbred refusals of simplicity and popular, smug explanations: for they have tasted the world of complexity and that knowledge has forever bounded them to it and bonded them together ...

References

- [1] Georgescu-Roegen, Nicholas, "Analytical Representation of Economic Decisions Under Multiple Criteria," in: *MCDM: Past Decade and Future Trends*, edited by M. Zeleny, JAI Press, Greenwich, CT, 1984, pp. 1–23.
- [2] Georgescu-Roegen, Nicholas, *The Entropy Law and the Economic Process*, Harvard University Press, Cambridge, MA, 1971.
- [3] Georgescu-Roegen, Nicholas, "Methods in Economic Science: A Rejoinder," *Journal of Economic Issues*, 15, 1981, pp. 188–193.

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