

Wassily Leontief, 1906-1999



Wassily Leontief's name has been associated with a particular type of quantitative economics: [input-output analysis](#). Input-output was partly inspired by the [Marxian](#) and [Walrasian](#) analysis of general equilibrium via interindustry flows - which in turn were inspired by [Quesnay's *Tableau Economique*](#), and was the outgrowth of the "multi-sectoral" approach followed by the [Kiel School](#). Although of fluctuating popularity, input-output analysis has been a mainstay of economics and economic policy and planning throughout the world for the past half-century.

Raised in Russia, Leontief obtained his Ph.D in Berlin. Although the seeds of input-output analysis were already in his work at the [Kiel Institute](#), he would have to wait until he reached [Harvard](#) in 1932 to begin constructing an empirical example of his input-output system - an effort which gave rise to his 1941 classic, *Structure of American Industry*. Leontief followed up this work with a series of classical papers on input-output economics (collected in 1966). Input-output was novel and inspired large-scale [empirical](#) work. It has been used for economic planning throughout the world, whether in Western, Socialist or Third World countries.

It was also of crucial theoretical importance. Input-output inspired the analysis of linear production systems, which were instrumental in the development of modern [Neo-Walrasian](#) theory. Unusual for most economic contributions, Leontief's system was also crucial for the revival of [Classical Ricardian](#) theory. The structure of input-output (albeit with some critical differences) was employed by Piero [Sraffa](#) and the [Neo-Ricardians](#) in the 1960s to resurrect the theories of [Ricardo](#) and [Marx](#).

Leontief's contributions to economics were not limited to input-output. His 1936 article on "composite commodities" made him, together with [Hicks](#), the father of that famous microeconomic theorem. His early reviews of [Keynes's *General Theory*](#) (1936, 1937, 1947, 1948) were important stepping stones to the [Neo-Keynesian](#) synthesis's stress on fixed nominal wages in interpreting Keynes's theory. His 1933 article on the analysis of international trade is still learnt today and his 1946 contribution on the wage contract outlined what is now a classical application of the principal-agent model before that term was invented. One of his more stirring contributions has been his 1953 finding that Americans were exporting labor-intensive rather than capital-intensive goods - the "Leontief Paradox" - which brought into question the validity of the conventional factor-proportions theory of international trade.

After having presided, together with [Schumpeter](#), as a teacher over the [Harvard](#) generation of the 1930s which was to develop much of post-war economics, Leontief moved to the C.V. Starr Center at New York University. As a critic, Leontief's repeated admonishment of

economics for its misuse of mathematics and quantitative methods and the lack of relevance and realism in its theorizing (e.g. 1938, 1954, 1959, 1971) are both lucid, sharp and still pertinent. It was for his development of input-output that Wassily Leontief won the [Nobel memorial prize](#) in 1973.

Major Works of Wassily Leontief

- "The Use of Indifference Curves in the Analysis of Foreign Trade", 1933, *QJE*.
- "Delayed Adjustment of Supply and Partial Equilibrium", 1934, *ZfN*.
- "[The Fundamental Assumption of Mr. Keynes's Monetary Theory of Unemployment](#)", 1936, *QJE*.
- "Composite Commodities and the Problem of Index Numbers", 1936, *Econometrica*.
- "Implicit Theorizing: a methodological criticism of the Neo-Cambridge school", 1937, *QJE*.
- "The Significance of Marxian Economics for Present-Day Economic Theory", 1938, *AER*.
- *The Structure of the American Economy, 1919-1939*, 1941.
- "The Pure Theory of the Guaranteed Annual Wage Contract", 1946, *JPE*.
- "Introduction to a Theory of the Internal Structure of Functional Relationships", 1947, *Econometrica*.
- "Wages, Profits, Prices and Taxes", 1947, *Dun's Review*.
- "Postulates: Keynes's General Theory and the classicists", 1947, in Harris, editor, *The New Economics*.
- "Note on the Pluralistic Interpretation of History and the Problem of Interdisciplinary Co-operation", 1948, *J of Philosophy*.
- "Input-Output Economics", 1951, *Scientific American*.
- "Machines and Man", 1952, *Scientific American*.
- *Studies in the Structure of the American Economy*, 1953.
- "Domestic Production and Foreign Trade: the American capital position re-examined", 1953, *Proceedings of American Philosophical Society*.
- "Mathematics in Economics", 1954, *Bulletin of the AMS*.
- "Factor Proportions and the Structure of American Trade: Further theoretical and empirical analysis", 1956, *REStat*.
- "Theoretical Note on the Time-Preference, Productivity of Capital, Stagnation and Economic Growth", 1958, *AER*.
- "The Problem of Quality and Quantity in Economics", 1959, *Daedalus*.
- "The Rise and Decline of Soviet Economic Science", 1960, *Foreign Affairs*.
- "The Economic Effects of Disarmament", with M. Hoffenberg, 1961, *Scientific American*.
- "The Rates of Long Run Growth and Capital Transfer from Developed to Underdeveloped Areas", 1963, *Proceedings of Conference on Role of Econometric Analysis*.
- "Modern Techniques for Economic Planning and Projection", 1963, *Scuola in Azione*.
- "Multiregional Input-Output Analysis", with A. Strout, 1963, in Barna, editor, *Structural Intedependence...*
- "The Structure of Development", 1963, *Scientific American*.
- "When Should History be written Backwards?", 1963, *Economic History Review*.
- "Proposal for Better Economic Forecasting", 1964, *Harvard Business Review*.
- "On Assignment of Patent Rights on Inventions Made under Government Research Contracts", 1964, *Harvard Law Review*.
- "Input-Output Analysis", 1965, *Scientific American*.
- *Input-Output Economics*, 1966.
- *Essays in Economics: Theories and theorizing*, 1966.
- *Essays in Economics*, 1966.
- "Theoretical Assumptions and Non-Observed Facts", 1971, *AER*.
- "[Structure of World Production: Outline of a simple input-output formulation](#)", 1974, *AER*
- *The Future of the World Economy*, with A.P. Carter and P. Petri 1977.
- *Military Spending*, with F. Duchin, 1983
- *The Future Impact of Automation on Workers*, with F. Duchin, 1986.
- "Money-Flow Computations", with A. [Brody](#), 1993, *Econ Systems Research*

Resources on Wassily Leontief

- HET Pages: [Classical Ricardian System](#): [Closed Leontief Model](#), [Open Leontief Model](#), Dynamic Leontief Model, Composite Commodities
- [Autobiography of Leontief](#) at Nobel site.
- [Press release](#) of Nobel award (1973).

- [Wassily Leontief Memorial Page](#) at MIT
 - "[Leontief: A Life in Economics](#)" by Turi McKinley
 - Wassily Leontief's [Sketches and Drawings](#)
 - [Photos from Leontief's Life](#)
- "[Our Wassily: W.W. Leontief \(1905-1999\)](#)" by Paul [Samuelson](#)
- "[Technological Advancement, Employment and the Distribution of Income between Labor and Capital](#)" by W. Leontief, 1994
- [Leontief Page](#) at Nobel Prize Internet Archive
- "[Wassily Leontief: A Note](#)" by James K. Galbraith
- The [International Input-Output Association](#) website
- [Biography of Leontief](#) at Nobels for the Future.
- Leontief's [Input-Output Model](#) - an example.
- [Leontief Center](#), in St. Petersburg, Russia
- [Leontief page](#) at Britannica.com
- [Leontief page](#) at Britannica Guide to the Nobel Prizes
- [Leontief bio](#)
- [Leontief page](#) in German
- "[The Leontief Paradox](#)" at Iowa State
- [Leontief Page](#) at Laura Forgette
- [Leontief entry](#) at Bartleby

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