

This Week's Citation Classic

Johnston J. *Econometric Methods*,

New York: McGraw Hill, 1971 (1963) 437 p.

An exposition of the methods used by economists in the statistical estimation and testing of economic models is described. Major topics are linear regression model, including the complications due to autocorrelation, heteroscedasticity, multicollinearity, and lagged variables; and identification and estimation of simultaneous equation models. [The *Science Citation Index*® (SCI®) and the *Social Sciences Citation Index*™ (SSCI™) indicate that this paper has been cited over 435 times since 1963.]

Jack Johnston
School of Social Sciences
University of California
Irvine, CA 92717

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"Econometrics involves the application of mathematical and statistical methods to the formulation, estimation, and testing of economic models. Scientifically the subject is still in its infancy, but the last quarter century has seen an explosive growth, facilitated by the ever increasing abundance and power of modern computers, and spurred on by the desire of governments and businesses to gain increased understanding and control of the economic environment in which they function.

"This development did not come easily. It was hindered by two factors, one general and one specific. The general factor, which still persists, is the wide ranging nature of the intellectual demands on the econometrician in that he must have competence in economic theory, mathematics, and statistics and computing. He must also have a keen appreciation of the defects and limitations of his data and an understanding, of the institutional realities of the economic or social system that is the focus of his analysis. The specific factor was that classical statistical methods were basically geared to the experimental sciences and thus inappropriate in several crucial respects for observational rather than experimental situations. The first fundamental steps in the required theoretical development were mostly made at the Cowles Commission in Chicago in the years after

World War II. By the mid-fifties the stage was set for the first real flowering of the subject. The only difficulty was that only a handful of professional economists at that time had any real grasp of the subject.

"In 1957/58, as an assistant professor at Harvard University, I was teaching a course in quantitative methods for graduate economists. The following year I moved to the University of Wisconsin at Madison with one of America's most distinguished econometricians (Guy H. Orcutt, now of Yale). I had presumed that he would teach the graduate course in econometrics there, but to my horror I found myself charged with that responsibility. Horror is not an overstatement, for I had no strong professional base in econometrics. I had never taken a formal course in mathematical statistics, even as an undergraduate, nor indeed had I ever had the chance to take a graduate level course in any subject. To crown it all, the five graduate students in the class were outnumbered by Wisconsin economics professors, including Orcutt himself, ranged like an intellectual Mafia in the back row. This turned out to be a stimulating set of circumstances. The notes prepared for those three weekly lectures throughout the year were the basis for the first edition of *Econometric Methods*.

"The publishing decision was almost equally unusual. There was no outline, notable of contents, no specimen chapters. Over an indifferent sherry in a Madison bar the late Marty Hogan, then of the McGraw Hill Chicago office, asked some questions about the course, and on his next visit proffered a draft contract. The main reason, I am sure, for whatever success the book may have had is that my ignorance and lack of formal graduate training put me closer to the mind and difficulties of the average student than would have been the case had I been the fortunate product of a high-powered graduate school. The disadvantage, of course, is that the ignorance of the author shows through here and there in both editions, as discerning students in many countries have reminded me. I sincerely hope their comments will continue and help make the third edition, on which I am currently working, better than its predecessors."