

Chaos and Nonlinearities in Econometrics: Empirical Results

Financial and economic policy is dependent on the development and understanding of models which represent experience. Consequently, econometric modeling is maturing rapidly with emphasis on nonlinearities and chaos in dealing with time series data.

Our February luncheon speaker, Dr. Blake LeBaron, will present and interpret some recent evidence on nonlinearities and chaos in economic and financial time series, and discuss some of the problems nonlinearities present for standard time series analysis. He will introduce some new tools used to analyze macroeconomic and financial data. Interpretations of the results of these studies will emphasize questions of stationarity and whether the observed structure is clearly chaotic.



Dr. LeBaron will also discuss the qualitative aspects of nonlinearities in financial time series and their usefulness in forecasting and understanding the economic processes behind financial markets. He will conclude by addressing the implication and future direction of this research for economic modeling.

The luncheon will be held Tuesday, February 12, 1991, at the Midland Hotel, 172 W. Adams at LaSalle in downtown Chicago. Registration will start at 11:45 a.m. and lunch will be served, starting at noon.

Dr. LeBaron is Assistant Professor at the University of Wisconsin—Madison, where he teaches economics. In addition, he is a research collaborator for the Los Alamos National Laboratory. Presently, his research is focused in financial economics and international economics. In both these areas, Dr. LeBaron has been studying the behavior of financial time series with special emphasis in the areas of nonlinear dynamics and chaos.

Dr. LeBaron completed his graduate work at the University of Chicago, earning his M.A. and Ph.D. in economics. He has presented conference papers, both here and abroad, and has authored a number of recent publications on nonlinearities and chaos. Dr. LeBaron is also co-author of a forthcoming book, *Nonlinear Dynamics, Chaos and Instability*, with William Brock

and David Hsieh.

To make reservations, call Sheila Proietti, (312) 727-4373, or Kenneth Wollenberg, (312) 727-7575, by **noon**, Friday, February 8, 1991. The cost is \$20 for members and \$22 for non-members. If you make reservations and then are unable to attend, please let Kenneth know, since the Chapter must pay for luncheons prepared for no-shows.

As usual, the Chapter's Lucile Derrick Fund will purchase a limited number of luncheon tickets for students who wish to attend.

Time to Renew Membership

The 1991 membership campaign for the Chicago Chapter ASA began with a mailing to all Chicago area members of the ASA at the national level. The 895 members were mailed an invitation and application for membership in the Chicago Chapter and encouraged to invite associates to join. Membership reached a record level in 1989 with the new members attracted by Statfair. With a strong response, our current membership of almost 700 could reach 1,000.

Enclosed again with this month's *Parameter* is a membership information form, and it has something new — a survey on the back side. This is not a long survey, but it has been designed to collect enhanced information for the 1991 Membership Directory and to help the Chapter identify and serve the diverse interests of its members. You may wish to use this form as an invitation that you can copy and give to an associate who may benefit from the Chicago Chapter. You can help to make the Chicago Chapter grow.

If you haven't already sent in your annual membership dues for **calendar year 1991**, they are now payable. To renew your membership and continue to receive *Parameter* and other benefits, please complete the membership form and mail with a check drawn to Chicago Chapter ASA to the address listed. Dues are \$10 (\$5 for students).

Even if you have paid your dues through the national ASA, you should return the membership information form with complete information for the Chicago Chapter 1991 Membership Directory.

For additional membership information forms, contact the Vice-President of Membership: Merl Kardatzke, AIM — Suite 203, 907 N. Elm, Hinsdale, IL 60521.

Conference Set For March 15

- A firm has decided to reorganize its engineering operations, grouping the engineers by the types of work they perform and the types of customers they support. Unfortunately, work and customers vary on a large number of dimensions. Which are the factors that provide the most efficient groupings?

- A financial services company serves clients through branch offices and brokers in all 50 states. Because the firm's customers differ significantly across states, the firm's products and marketing strategies need to vary. How can the firm effectively divisionalize its marketing operations?

- A marketing research firm is searching for natural groups of consumers. How can the appropriate demographic, geographic, and economic factors be considered simultaneously?

The answers to these questions may be found through the use of statistical cluster analysis, the topic of our 1991 conference. The conference, scheduled for Friday, March 15 at the Amoco Building, will have speakers covering various aspects of the technique and will especially focus on the problems that an applied data analyst will encounter while using the technique. More information about the conference can be obtained by calling Richard Smiley at (312) 856-5923.

Position Desired

Extensive experience managing Marketing Research and Quality Improvement and can cost-effectively consolidate both. Highly developed skills in evaluating customer product and service needs, measuring customer satisfaction and stimulating performance improvement.

Background covers a variety of industries from merchandise hard and soft lines to financial services. Trained in Crosby Quality System and Statistical Process Control. Edward M. Samson, (708) 948-8440.

Editor: Kathy Morrissey (708) 564-6380

Parameter, the official newsletter of the Chicago Chapter of the American Statistical Association, is published 11 times per year as a service for its members. Materials for publication should be submitted to the editor at Household Bank — 2N, 2700 Sanders Rd., Prospect Heights, IL 60070. **Deadline for the March Parameter is Feb. 19.**

Parameter offers a free placement service for ASA Chicago Chapter members. Job applicants should send a draft of their advertisement and a resume to the editor at the above address. Applicant names will remain confidential if requested.

Probably a Probability Problem

Contributed by Ken Wollenberg

Suppose you're on a game show and are given a choice of three doors. Behind one is a car; behind the others are goats. You pick Door No. 1, and the host, who knows what's behind them, opens Door No. 3, which has a goat. He then asks if you want to pick Door No. 2. Should you switch?

In her column "Ask Marilyn," Marilyn vos Savant (listed in the *Guinness Book of World Records* Hall of Fame for "Highest IQ") responded as follows: "Yes. The first door has a 1/3 chance of winning, but the second has a 2/3 chance."

Mathematicians disagree with Ms. vos Savant (see quotes below). Who is right? Explain.

Quotes From Letters

"I'll come straight to the point. In the following question and answer, you blew it! (See the question and answer above.)

"Let me explain: If one door is shown to be a loser, that information changes the probability to 1/2. As a professional mathematician, I'm very concerned with the general public's lack of mathematical skills. Please help by confessing your error and, in future, being more careful."

Robert Sachs, Ph.D., George Mason University

"You blew it, and you blew it big! I'll explain: After the host reveals a goat, you now have a one-in-two chance of being correct. Whether you change your answer or not, the odds are the same. There is enough mathematical illiteracy in this country, and we don't need the world's highest IQ propagating more. Shame!"

Scott Smith, Ph.D., University of Florida

"Your answer to the question is in error. But if it is any consolation, many of my academic colleagues also have been stumped by this problem."

Barry Pasternack, Ph.D., California Faculty Association

Position to be Filled

Senior Statistician — Searle, a worldwide leader in the research and development of high-quality pharmaceuticals, has an excellent opportunity for a Senior Statistician. Primary responsibilities of this position include consulting with scientists in the R&D division in such areas as gastrointestinal, central nervous system, and cardiovascular drug discovery and development. Client interactions will include defining specific problems, developing methods, analyzing data, interpreting results, preparing reports, and training clients in statistical methods. The employee may also participate in preparing formal specifications for development and testing of statistical software.

Ideal candidates will possess Ph.D. in biostatistics or equivalent, or an M.S. with a minimum of two years of statistical consulting experience, preferably in the pharmaceutical industry. Experience with computer packages such as SAS or BMDP and personal computer packages is highly desirable. Excellent oral and written communication skills are required. For consideration, please send your resume, in confidence, to Searle, Human Resources, Dept. KK18, 4901 Searle Pkwy., Skokie, IL 60077. *Equal opportunity employer M/F/H.*