Volume Title: Annals of Economic and Social Measurement, Volume 6, number 1

Volume Author/Editor: NBER

Volume Publisher:

Volume URL: http://www.nber.org/books/aesm77-1

Publication Date: 1977

Chapter Title: NBER Computer Research Center Notes

Chapter Author: NBER

Chapter URL: http://www.nber.org/chapters/c10508

Chapter pages in book: (p. 135 - 136)

NBER COMPUTER RESEARCH CENTER NOTES

The NBER Computer Research Center for Economics and Management Science has been engaged, since its formation in 1971, in developing new software systems for quantitative social science research. New systems for exploratory data analysis, mathematical programming, and econometrics are currently available to the academic research community via a data-communication network that links the NBER's computer facility with "nodes" in over forty cities in the U.S.A. Virtually all of the Computer Research Center's systems are interactive.

The TROLL system was the principal environment for the Computer Research Center's research and development through January 1976. TROLL now provides a wide range of econometric, data-analysis, and numerical-analysis subsystems. Over thirty manuals describing TROLL and its subsystems are available. Request the complimentary "TROLL Bibliography" (address below).

Other Computer Research Center systems, available or under development, include:

FIXPOINT: performs fixed-point (simplicial) approximation using the method of H. Scarf.

ACOS: an operating system designed to support the development and use of interactive programs for quantitative research. Features a shared hierarchical file system for on-line storage of user's programs, data, and models; and a language for specifying the user interface of application subroutines.

DASEL: a language for programming mathematical and statistical algorithms. Features APL-like capabilities plus the use of multidimensional arrays as the basic data type.

ACOS and DASEL are now being used at the Computer Research Center in the development of an energy-modeling system. When completed, this system is intended to provide the computational and data-management capabilities needed for current energy-modeling research—including a capability for linking econometric and optimization models. A prototype of the system is nearing completion and will soon be available for test use by appropriate research groups.

For information about using the Computer Research Center's sys-

tems, as well as for documentation, please write to:

Support Staff Manager
NBER Computer Research Center for
   Economics and Management Science
575 Technology Square
Cambridge. MA 02139

Following is an abstract of a recent working paper of the NBER Computer Research Center. The complete text is available for $1.50 per copy (address above).

Belsley, David A., "Multicollinearity: Diagnosing its Presence and Assessing the Potential Damage It Causes to Least-Squares Estimation", NBER Working Paper 154 (October 1976).

This paper suggests and examines a straightforward diagnostic test procedure that 1) provides numerical indexes whose magnitudes signify the presence of one or more near dependencies among columns of a data matrix X, and 2) provides a means for determining. within the linear regression model, the extent to which each such near dependency is degrading the least-squares estimation of each regression coefficient. In most instances this latter information also enables the investigator to determine specifically which columns of the data matrix are involved in each near dependency.

The diagnostic test is based on an interrelation between two analytic devices, the singular-value decomposition (closely related to eigensystems) and a matching regression-variance decomposition. Both these devices are developed in full. The test is successfully given empirical content through a set of experiments that examine its behavior when applied to several different series of data matrices having one or more known near dependencies that are weak to begin with and are made to become systematically more nearly perfectly collinear. The general diagnostic properties of the test that result from these experiments and the steps required to carry out the test are summarized, and then exemplified by application to real economic data.

B U S I N E S S   R E P L Y   M A I L

Postage will be paid by the

NATIONAL BUREAU OF ECONOMIC RESEARCH

261 Madison Avenue

New York, New York 10016

Att: Subscriptions, Leslie Munsic

Please enter _____ subscription(s) to ANNALS OF ECONOMIC AND SOCIAL MEASUREMENT. Subscriptions to this quarterly journal will begin with Winter 1977. The subscriber will also receive a complimentary copy of each *National Bureau Report* and the *Annual Report* plus an option to purchase any National Bureau publication at a 33⅓% discount.

    Payment of $10.00; $11.00 outside U.S.A. (Individual Rate) or

    Payment of $15.00; $16.00 outside U.S.A. (Institutional Rate) for each subscription is enclosed.

    Please bill me.

Please enter a Standard subscription to NBER beginning January 1977—$120 publications per year. Subscribers receive *all* NBER publications—books, conference volumes, *Explorations in Economic Research, Annals of Economic and Social Measurement, National Bureau Reports*, and the *Annual Report*—in advance of release to the public for the duration of the subscription, plus an option to purchase any available National Bureau title at a 33⅓% discount.

Name

Organizational Affiliation

Address

City   State or Country   Zip

Signature   Date