

TRABAJOS DE ESTADISTICA

Review published by "Instituto de Investigaciones Estadísticas" of the "Consejo Superior de Investigaciones Científicas." Madrid, Spain.

Vol. VIII

CONTENTS

Cuaderno I

- E. CANSADO.....Sampling without replacement from finite populations.
M. J. BECKMAN.....A demand curve for luxuries.
D. E. BARTEN.....The modality of Neyman's contagious distribution of type A.
B. M. BENNETT.....Note on the method of inverse sampling.

NOTAS.

- R. PRO.....Sobre el ensayo de la vacuna del Dr. Salk de 1.954.
U. NIETO DE ALBA.....Elaboracion de un modelo biométrico, su interpretacion estadística y aplicaciones actuariales.

Crónicas.

Bibliografía.

For everything in connection with works, exchanges and subscription write to Professor Sixto Ríos, Instituto de Investigaciones Estadísticas of the Consejo Superior de Investigaciones Científicas (Serrano, 123). Madrid, Spain. The Review is composed of three fascicles published three times a year (about 350 pages), and its annual price is 100 pesetas for Spain and South America and \$4.00 U.S.A. for all other countries.

ESTADISTICA

Journal of the Inter American Statistical Institute

Volume XIV, No. 53

Contents

December 1956

ARTICLES

- La Integración Estadística de Grupos de Países.....OMAR DENG O.
The Interpretation of Origin Statistics.....N. B. RYDER
The SIC from the Viewpoint of the Census Bureau.....ROBERT W. BURGESS
Programación del Desarrollo Estadístico Nacional (traducción)
OFICINA DE ESTADISTICA DE LAS NACIONES UNIDAS
What Concepts Are Appropriate to Consumer Price Indexes?....IRVING H. SIEGEL
Observaciones sobre la Utilización del Registro Civil como Fuente Básica para las Estadísticas Vitales.....CARLOS A. URIARTE
El Papel de la Estadística en la Administración Hospitalaria (traducción)
HALBERT L. DUNN

Special Features. Legal Provisions. International Resolutions relating to Statistics.
Institute Affairs. Statistical News. Publications.

Published quarterly

Annual subscription price \$3.00 (U. S.)

INTER AMERICAN STATISTICAL INSTITUTE

Pan American Union
Washington 6, D.C.

BIOMETRIKA

Volume 44

Contents

Parts 1 and 2, June 1957

PEARSON, E. S. John Wishart, 1898-1956. Obituary and Bibliography. ARMITAGE, P. Restricted sequential procedures. BARTLETT, M. S. On theoretical models for competitive and predatory biological systems. PATIL, V. T. The consistency and adequacy of the Poisson-Markoff model for density fluctuations. HANNAN, E. J. Testing for serial correlation in least squares regression. KULLBACK, S. AND ROSENBLATT, H. M. On the analysis of multiple regression in k categories. BROWN, R. L. Bivariate structural relation. WILKINSON, J. W. An analysis of paired comparison designs with incomplete repetitions. MALLOWS, C. L. Non-null ranking models. I. AITCHISON, J. AND SILVEY, S. D. The generalization of probit analysis to the case of multiple responses. PEARCE, S. C. Experimenting with organisms as blocks. COX, D. R. The use of a concomitant variable in selecting an experimental design. BULMER, M. G. Approximate confidence limits for components of variance. BARTON, D. E. AND DAVID, F. N. Multiple runs. LINDLEY, D. V. Binomial sampling schemes and the concept of information. LINDLEY, D. V. A statistical paradox. HASKEY, H. W. Stochastic cross-infection between two otherwise isolated groups. MACKENZIE, J. K. AND THOMSON, M. J. Some statistics associated with the random disorientation of cubes. DARWIN, J. H. The difference between consecutive members of a series of random variables arranged in order of size. HARLEY, B. I. Relation between the distributions of non-central t and of a transformed correlation coefficient. COHEN, A. CLIFFORD, JR. On the solution of estimating equations for truncated and censored samples from normal populations. FOSTER, F. G. AND REES, D. H. Upper percentage points of the generalized beta distribution. I. *Miscellanea*—Contributions by D. J. BARTHOLOMEW, M. S. BARTLETT, H. A. DAVID, J. H. DARWIN, F. A. GRAYBILL AND J. L. FOLKS, J. GURLAND, B. I. HARLEY AND E. S. PEARSON, N. L. JOHNSON, M. G. KENDALL H. O. LANCASTER, E. S. PAGE, M. H. QUENOUILLE, G. P. SILLITO, A. STUART, A. WINTNER.

Corrigenda—I. J. GOOD

Reviews

Other Books Received

The subscription price, payable in advance, is 45s. inland, 54s. export (per volume including postage). Cheques should be drawn to Biometrika and sent to "The Secretary, Biometrika Office, Department of Statistics, University College, London. W.C. 1." All foreign cheques must be in sterling and drawn on a bank having a London agency

A New Colloquium Publication

VOLUME XXXVII

STRUCTURE OF RINGS

by NATHAN JACOBSON

In his preface, the author points out that a number of important developments have recently taken place in the theory of non-commutative rings. These include the structure theory of rings without finiteness assumptions, cohomology of algebras, and structure and representation theory of non-semi-simple rings. The main purpose of this volume is to give an account of the first of these developments.

\$7.70

263 pages

25% discount to members of the Society



Order from

AMERICAN MATHEMATICAL SOCIETY

190 Hope Street, Providence 6, R.I.

ECONOMETRICA

Journal of the Econometric Society
Contents of Vol. 25, No. 2 - April, 1957

V. N. MURTI AND V. K. SASTRY.....	Production Functions for Indian Industry
EDWIN S. MILLS.....	The Theory of Inventory Decisions
ROBERT A. BANDEEN.....	Automobile Consumption, 1940-1950
EARL O. HEADY.....	An Econometric Investigation of the Technology of Agricultural Production Functions
ROBERT H. STROTZ.....	The Empirical Implications of a Utility Tree
VERNON L. SMITH.....	Engineering Data and Statistical Techniques in the Analysis of Production and Technological Change: Fuel Requirements in the Trucking Industry
JULIAN H. BLAU.....	The Existence of Social Welfare Functions
HANS BREMS.....	Employment and Money Wages under Balanced Foreign Trade
DAVID ROSENBLATT.....	On Linear Models and the Graphs of Minkowski-Leontief Matrices
STANLEY REITER.....	A Note on Surrogates for Uncertain Decision Problems
HENRI THUIL.....	A Note on Certainty Equivalence in Dynamic Planning
REPORT OF THE SEATTLE MEETING	
REPORT OF THE DETROIT MEETING	
BOOK REVIEWS	
<i>A Study of Saving in the U. S., Vol. III</i> (Raymond W. Goldsmith, Dorothy S. Brady, and Horst Mendershausen). Review by L. R. Klein	
<i>The Cost of the National Health Service in England and Wales</i> (Brian Abel-Smith and R. M. Titmuss). Review by Jerome Rothenberg.	
<i>Structures et cycles économiques</i> (Johan Akerman). Review by Henri Guitton	
<i>Distribution's Place in the American Economy since 1869</i> (Harold Barger). Review by Robert Ferber.	
<i>British Incomes and Savings</i> (H. F. Lydall). Review by Raymond W. Goldsmith.	
<i>The Industrial Mobility of Labor as a Probability Process</i> (I. Blumen, M. Kogan, and P. J. McCarthy). Review by Thomas A. Mahoney	
<i>The National Income of Hong Kong, 1947-50</i> (R. A. Ma and Edward F. Szczepanik). Review by Phyllis Deane	
<i>International Bibliography of Economics</i> , Vols. I and II. Review by Otto H. Ehrlich	
<i>Resource Productivity, Returns to Scale, and Farm Size</i> (H. O. Heady, G. L. Johnson, and L. S. Hardin, eds.). Review by F. V. Waugh	
<i>Einführung in die symbolische Logik mit besonderer Berücksichtigung ihrer Anwendungen</i> (R. Carnap). Review by Eberhard Fels.	
<i>Urban Mortgage Lending</i> (J. E. Morton). Review by Ben B. Sutton	
<i>La Costruzione Economica Sovietica; Formazioni e Tendenze</i> (Giorgio Toletto). Review by Michele De Benedictus	
<i>Encyclopedia of Economics</i> (Ichiro Nakayama, ed.). Review by Hiroshi Takeda	

JOURNAL OF THE ROYAL STATISTICAL SOCIETY

Series B (Methodological)

Vol. XVIII, No. 2, 1956

Generalizations of Tochebycheff's Inequalities.....	C. L. MALLOWS. (With Discussion).
Some Statistical Problems in Experimental Psychology.....	VIOLET R. CANE. (With Discussion).
Generalized Hypergeometric Distributions.....	C. D. KEMP AND A. W. KEMP.
New Tables of Behrens' Test of Significance.....	R. A. FISHER AND M. J. R. HEALY.
Fiducial Distributions and Prior Distributions: An Example in which the Former cannot be associated with the Latter.....	P. M. GRUNDY.
Some Methods of Estimating the Parameters of Discrete Heterogeneous Populations.....	J. E. FREUND.
The Asymptotic Powers of Certain Tests based on Multiple Correlations.....	E. J. HANNAN.
Tests for Randomness in a Series of Events when the Alternative is a Trend.....	D. J. BARTHOLOMEW.
Regression Analysis of Relationships between Autocorrelated Time Series.....	J. WISE.
Expected Arc Length of a Gaussian Process on a Finite Interval.....	IRWIN MILLER AND JOHN E. FREUND.
Analysis of Dispersion with Incomplete Observations on One of the Characters.....	C. R. RAO.
On Limiting Distributions Arising in Bulk Service Queues.....	F. DOWNTON.
Some Equilibrium Results for the Queueing Process $E_k/M/1$	R. R. P. JACKSON AND D. G. NICKOLS
On Machine Interference.....	P. NAOR.
Note on an Article by Sir Ronald Fisher.....	JERZY NEYMAN.
Comment on Sir Ronald Fisher's Paper: "On a Test of Significance in Pearson's <i>Biometrika Tables</i> (No. 11)".	M. S. BARTLETT.
Note on some Criticisms made by Sir Ronald Fisher.....	B. L. WELCH.

The Royal Statistical Society, 21, Bentinck Street, London, W. 1

SANKHYĀ

The Indian Journal of Statistics

Edited by P. C. Mahalanobis

Vol. 17, Part 4, 1956

Some observations on input-output analysis	OSKAR LANGE
The use of short-term Econometric model for Indian Economic policy	J. TINBERGEN
Approximate distribution of certain linear function of order statistics	K. C. SEAL
On the unboundness of infinitely divisible laws	S. D. CHATTERJEE AND R. P. PAKSHIRAJAN
A note on the orthogonal latin squares	NIKHILESH BHATTACHARYYA
A new discrete distribution	AYODHYA PRADAD
An experimental method for obtaining random digits and per mutations	JOHN E. WALSH
On estimating parametric functions in stratified sampling designs	DES RAJ
A note on variance components in multistage sampling with varying probabilities	J. ROY
A note on two stage sampling	R. RANGARAJAN
Method of matching used for the estimation of test reliability	P. K. BOSE AND S. B. ROYCHOUDHURY
Recommendations for personnel selection in India based on the British selection methods in civil service and Industry	RHEA S. DAS
Isolation of some morale dimensions by factor analysis	H. C. GANGULI
Inversion of 25 x 25 matrix on a 602A calculating punch	D. BOSE AND A. ROY

ANNUAL SUBSCRIPTION: 30 rupees (\$10.00), 10 rupees (\$3.50) per issue.

BACK NUMBERS: 45 rupees (\$15.00) per volume; 12/8 rupees (\$4.50) per issue.

Subscriptions and orders for back numbers should be sent to

STATISTICAL PUBLISHING SOCIETY

204/1 Barrackpore Trunk Road

Calcutta 35, India

SKANDINAVISK AKTUARIETIDSKRIFT

1956 - Parts 1 - 2

Contents

S. NORDBOTTEN	Allocation in Stratified Sampling by Means of Linear Programming
PH. G. CARLSON	A Least Squares Interpretation of the Bivariate Line of Organic Correlation
B. M. BENNETT	On a Rank-Order Test for the Equality of Probability of an Event
P. G. MOORE	The Transformation of a Truncated Poisson Distribution
C. PHILIPSON	A Note on Different Models of Stochastic Processes Dealt with in the Collective Theory of Risk
H. L. SEAL	Erratum
J. E. WALSH	Actuarial Validity of the Binomial Distribution for Large Numbers of Lives with Small Mortality Probabilities
J. E. WALSH	Estimating Population Mean, Variance, and Percentage Points from Truncated Data
J. R. BLUM	On a Characterization of the Normal Distribution
C. PHILIPSON	Explicit Expressions for the First Four Moments of a Truncated Distribution defined by Pearson Type VI
U. GRENANDER	On the Theory of Mortality Measurement. Part I
H. E. STELSON	Laplace Transforms Applied to Interest Functions Eksamen i Forsikringsvidenskab og Statistik ved Københavns Universitet
Översikt av utländska aktuarietidskrifter	
De skandinaviske aktuarforeningers virksomhed i 1955	
De nordiska aktuarieföreningarnas pris för perioden 1948-1955	

Annual subscription: \$5.00 per year

Inquiries and orders may be addressed to the Editor.

GRANHÄLLSVÄGEN 35, STOCKSUND, SWEDEN

THE INSTITUTE OF MATHEMATICAL STATISTICS

(Organized September 12, 1935)

OFFICERS

President:

Alexander M. Mood, General Analysis Corporation, 710 Wilshire Blvd.,
Santa Monica, California

President-Elect:

L. J. Savage, Committee on Statistics, University of Chicago, Chicago 37,
Illinois

Secretary:

G. E. Nicholson, Jr., Department of Statistics, University of North Carolina,
Chapel Hill, North Carolina

Treasurer:

A. H. Bowker, Department of Statistics, Stanford University, Stanford,
California

Editor:

T. E. Harris, The RAND Corporation, 1700 Main Street, Santa Monica,
California

The purpose of the Institute of Mathematical Statistics is to encourage the development, dissemination, and application of mathematical statistics.

Membership dues including a subscription to the ANNALS OF MATHEMATICAL STATISTICS are \$10.00 per year for residents of the United States or Canada and \$5.00 per year for residents of other countries. There are special rates for students and for some other classes of members. Inquiries regarding membership in the Institute should be sent to the Secretary of the Institute.

(Continued from inside front cover)

mathematical formulae. The difference between capital and lower-case letters should be clearly shown; care should be taken to avoid confusion between such pairs as zero and the letter O, the numeral 1 and the letter l, numeral 1 used as superscript and prime ('), alpha and a, kappa and k, mu and u, nu and v, eta and n, etc. Subscripts or superscripts should be clearly below or above the line. Bars above groups of letters (e.g., $\log \bar{x}$) and underlined letters (e.g., \bar{x}) are difficult to print and should be avoided. Symbols are automatically italicized by the printer and should not be underlined on manuscripts. Boldface letters may be indicated by underlining with a wavy line on the manuscript; boldface subscripts and superscripts are not available. Complicated exponentials should be represented with the symbol exp. In writing square roots the fractional exponent is preferable to the radical sign. Fractions in the body of the text (as opposed to displayed expressions) and fractions occurring in the numerators or denominators of fractions are preferably written with the solidus; thus $(a + b)/(c + d)$ rather than $\frac{a + b}{c + d}$.

Authors will ordinarily receive only galley proofs. Fifty reprints without covers will be furnished free. Additional reprints and covers will be furnished at cost.

Contents (continued)

Notes (continued)

Metrics and Norms on Spaces of Random Variables.....	A. J. THOMASIAN 512
Divergent Time Homogeneous Birth and Death Processes.....	PETER W. M. JOHN 514
A Regression Analysis Using the Invariant Method.....	D. A. S. FRASER 517
On Discrete Variables Whose Sum is Absolutely Continuous..	DAVID BLACKWELL 520
A Proof that the Sequential Probability Ratio Test (S.P.R.T.) of the General Linear Hypothesis Terminates with Probability Unity.....	W. D. RAY 521
Abstracts of Papers.....	523
News and Notices.....	533
Report of the Washington Meeting.....	542
Publications Received.....	545

MEETINGS OF THE INSTITUTE TENTATIVE SCHEDULE

ANNUAL MEETING—*Atlantic City, New Jersey*

September 10–13, 1957

WESTERN REGIONAL MEETING—*Los Angeles, California*

December 27–28, 1957

Abstracts should be submitted in duplicate to the Editor, preferably on abstract blanks, which can be obtained from the IMS Secretary. Abstracts must be received at least 47 days before the first day of the meeting at which they are to be presented, indicating whether presented by title or in person. (Only one contributed paper may be given in person at any one meeting.) They may be printed prior to the publication of the report of the meeting. Those received by April 30 will appear in the September *Annals*, by July 31 in December, etc. Abstracts should be limited to 200 words or the equivalent, and should avoid displayed expressions and complicated formulae. They can be accepted from non-members of the IMS only if transmitted by members.