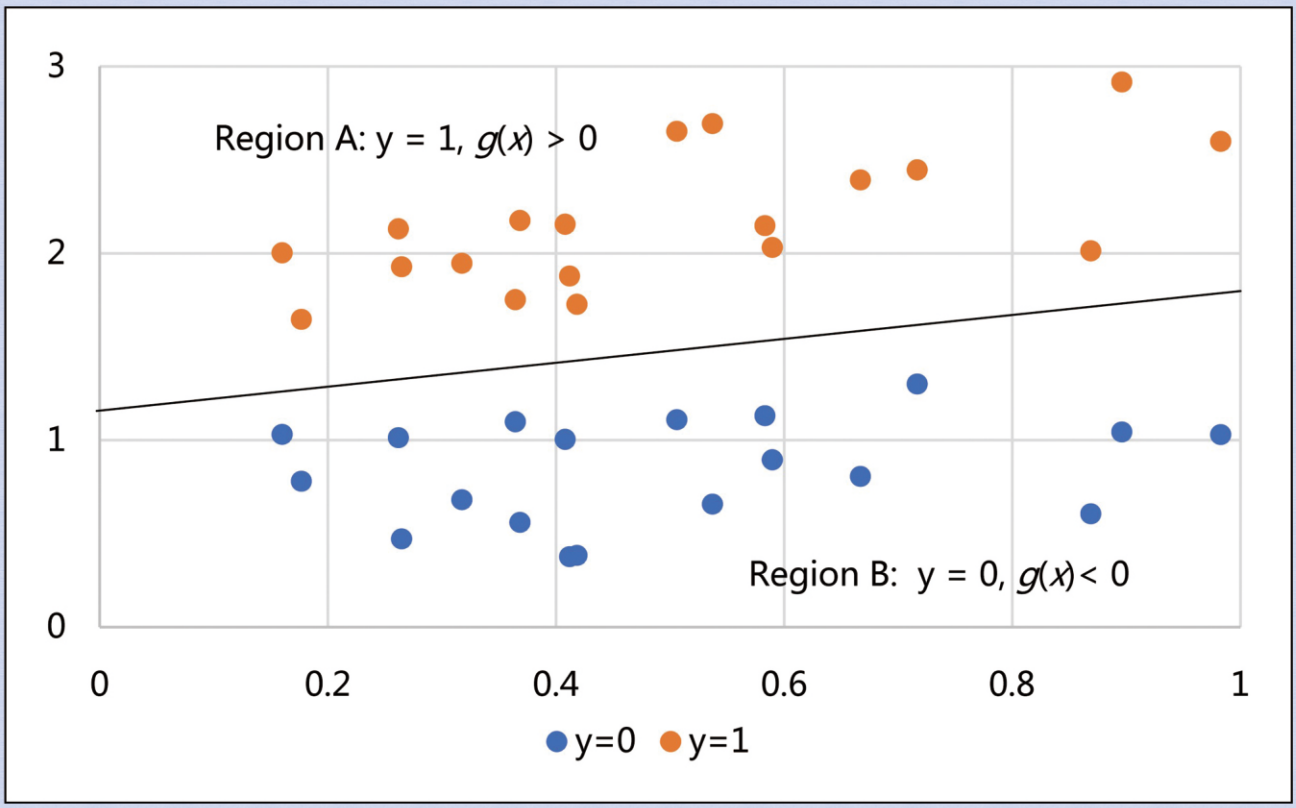
ISSN: 2161-718X Volume 12, Number 1, February 2022

Scientific Research Publishing

Open Journal of Statistics



ISSN: 2161-718X
9 772161 718001 01

https://www.scirp.org/journal/ojs

Journal Editorial Board

ISSN 2161-718X (Print) ISSN 2161-7198 (Online)
https://www.scirp.org/journal/ojs

Editor-in-Chief

Prof. Qihua Wang Chinese Academy of Sciences, China

Editorial Board

Prof. Ana M. Aguilera University of Granada, Spain
Dr. Hijaz Ahmad International Telematic University Uninettuno, Italy
Prof. Erniel B. Barrios University of the Philippines, The Philippines
Prof. Arthur Berg Pennsylvania State University, USA
Prof. Alexander V. Bulinski Lomonosov Moscow State University, Russia
Prof. Sara S. Dias Polytechnic Institute of Leiria, Portugal
Prof. Junsoo Lee University of Alabama, USA
Prof. Tae-Hwy Lee University of California, Riverside, USA
Dr. Qizhai Li Chinese Academy of Sciences, China
Dr. Xuewen Lu University of Calgary, Canada
Dr. Claudia Marin University of Bari Aldo Moro, Italy
Prof. Emilio Matricciani Telecommunications at Politecnico di Milano, Italy
Prof. Claudio Morana University of Milano-Bicocca, Italy
Prof. Felix Noyanim Nwobi Imo State University, Nigeria
Prof. Maria Helena Pestana ISCTE-IUL, Lisbon University, Portugal
Prof. Thu Pham-Gia University of Moncton, Canada
Dr. Sybil Prince-Nelson Washington and Lee University, USA
Prof. Gengsheng Qin Georgia State University, USA
Prof. Mohammad Z. Raqab University of Jordan, Jordan
Dr. Fathy H. Riad Minia University, Egypt
Dr. Jose Antonio Roldán-Nofuentes University of Granada, Spain
Dr. Sourav Santra Sarepta Therapeutics, USA
Prof. Sunil K. Sapra California State University, Los Angeles, USA
Prof. Biswajit Sarkar Yonsei University, South Korea
Prof. Raghu Nandan Sengupta Indian Institute of Technology Kanpur, India
Prof. Mohamed M. Shoukri University of Western Ontario, Canada
Prof. Siva Sivaganesan University of Cincinnati, USA
Prof. Jianguo Sun University of Missouri, USA
Prof. Aida Toma Academy of Economic Studies, Romania
Dr. Haiyan Wang Kansas State University, USA
Prof. Augustine Chi Mou Wong York University, Canada
Prof. Jingjing Wu University of Calgary, Canada
Dr. Peng Zeng Auburn University, USA
Prof. Tong (Tonia) Zeng University of La Verne, USA
Dr. Jin-Ting Zhang National University of Singapore, Singapore
Prof. Yichuan Zhao Georgia State University, USA

Scientific Research Publishing

Open Journal of Statistics, 2022, 12, 1-154
https://www.scirp.org/journal/ojs
ISSN Online: 2161-7198
ISSN Print: 2161-718X

Table of Contents

Volume 12 Number 1 February 2022

Quasi-Binomial Regression Model for the Analysis of Data with Extra-Binomial Variation

M. M. Shoukri, M. M. Aleid.....1

Meta-Analysis of Multi-Arm Trials Using Binomial Approach

H. Chootrakool, P. Treewai.....15

An Analysis of Two-Dimensional Image Data Using a Grouping Estimator

K. Nawata.....33

Minimum MSE Weighted Estimator to Make Inferences for a Common Risk Ratio across Sparse Meta-Analysis Data

C. Viwatwongkasem, S. Srisawad, P. Soontornpipit, J. Sillabutra, P. Satitvipawee, P. Kitidamrongsuk, H. Chootrakool.....49

Constructing Statistical Intervals for Small Area Estimates Based on Generalized Linear Mixed Model in Health Surveys

Y. Wang, X. Y. Zhang, H. Lu, J. B. Croft, K. J. Greenlund.....70

Probability Models with Discrete and Continuous Parts

J. E. Marengo, D. L. Farnsworth.....82

Improvement of Misclassification Rates of Classifying Objects under Box Cox Transformation and Bootstrap Approach

M. S. A. Sumy, M. Y. A. Parh, A. K. Majumder, N. B. Saifuddin.....98

Modeling the Impact of Girl Child Empowerment amid Boy Child Neglect on Singlehood in Kakamega County

O. E. Akoth.....109

Testing for Normality from the Parametric Seven-Number Summary

J. M. De La Rubia.....118

The figure on the front cover is from the article published in Open Journal of Statistics, 2022, Vol. 12, No. 1, pp. 33-48 by Kazumitsu Nawata.

Open Journal of Statistics (OJS)
Journal Information

SUBSCRIPTIONS

The *Open Journal of Statistics* (Online at Scientific Research Publishing, https://www.scirp.org/) is published bimonthly by Scientific Research Publishing, Inc., USA.

Subscription rates:
Print: $69 per issue.
To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements
Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)
Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.
E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:
Copyright © 2022 by Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY).
http://creativecommons.org/licenses/by/4.0/

Copyright for individual papers of the journal:
Copyright © 2022 by author(s) and Scientific Research Publishing Inc.

Reuse rights for individual papers:
Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

Disclaimer of liability
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:
E-mail: ojs@scirp.org

Call for Papers

Open Journal of Statistics

ISSN 2161-718X (Print) ISSN 2161-7198 (Online)
https://www.scirp.org/journal/ojs

Open Journal of Statistics (OJS) is an international journal dedicated to the latest advancement of statistics. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of statistics.

Editor-in-Chief

Prof. Qihua Wang Chinese Academy of Sciences, China

Editorial Board

Prof. Ana M. Aguilera
Dr. Hijaz Ahmad
Prof. Erniel B. Barrios
Prof. Arthur Berg
Prof. Alexander V. Bulinski
Prof. Sara S. Dias
Prof. Junsoo Lee
Prof. Tae-Hwy Lee
Dr. Qizhai Li
Dr. Xuewen Lu
Dr. Claudia Marin
Prof. Felix Noyanim Nwobi
Prof. Emilio Matricciani
Prof. Claudio Morana
Prof. Maria Helena Pestana
Prof. Thu Pham-Gia
Dr. Sybil Prince-Nelson
Prof. Gengsheng Qin
Prof. Mohammad Z. Raqab
Dr. Fathy H. Riad
Dr. Jose Antonio Roldán-Nofuentes
Dr. Sourav Santra
Prof. Sunil K. Sapra
Prof. Biswajit Sarkar
Prof. Raghu Nandan Sengupta
Prof. Mohamed M. Shoukri
Prof. Siva Sivaganesan
Prof. Jianguo Sun
Prof. Aida Toma
Dr. Haiyan Wang
Prof. Augustine Chi Mou Wong
Prof. Jingjing Wu
Dr. Peng Zeng
Prof. Tong (Tonia) Zeng
Dr. Jin-Ting Zhang
Prof. Yichuan Zhao

Subject Coverage

This journal invites original research and review papers that address the following issues in statistics. Topics of interest include, but are not limited to:

- Actuarial science
- Applied information economics
- Asymptotic statistics
- Bayesian statistics
- Biostatistics
- Business statistics
- Causal inference
- Chemometrics
- Computational statistics
- Data mining
- Decision theory
- Demography
- Descriptive statistics
- Design of experiments
- Econometrics
- Energy statistics
- Engineering statistics
- Epidemiology
- Estimation theory
- Geographic information systems
- Graphic models and related theory
- High dimensional data analysis
- Image processing
- Multivariate analysis
- Non-parametric statistics
- Parametric statistics
- Psychological statistics
- Regression analysis
- Reliability
- Reliability engineering
- Sample survey
- Sampling theory
- Semiparametric statistics
- Social statistics
- Statistical analysis with complex data
- Statistical computing
- Statistical inference
- Statistical methods
- Survival analysis
- Theoretic methods
- Time series analysis

We are also interested in short papers (letters) that clearly address a specific problem, and short survey or position papers that sketch the results or problems on a specific topic. Authors of selected short papers would be invited to write a regular paper on the same topic for future issues of the OJS.

Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

Website and E-Mail

https://www.scirp.org/journal/ojs Email: ojs@scirp.org