



NIGERIA STATISTICAL SOCIETY



NO 15 2P 4X

1st INTERNATIONAL CONFERENCE

APRIL 2017

Pages 13, 14

Theme:

STATISTICAL RESEARCH AND IT'S APPLICATIONS

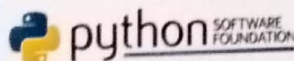
DATE :

APRIL 3-6, 2017

VENUE:

**CONFERENCE CENTRE,
University of Ibadan, Ibadan, Nigeria.**

Book of Abstracts





seeks to suggest the use of Statistical Process Control (SPC) tools to monitor and Control quality characteristics of seeds.

Keywords: Manufacturing Process, Statistical Process Control, Control Chart, Exponentially Weighted Moving Average (EWMA).

C12

The Statistical Periscope for Analysing the effects of Selected University Ranking Indicators on Citations Directed to the Scientific Activities in the University of Technology, Minna

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Abstract

The university's research performance evaluation is often left to the external evaluators while only few of the higher institutions have internal mechanism of bibliometrics-like. The mechanism presented in this research is to help the University have a personal assessment to answer questions such as how competitive is their research and how can they demonstrate their research influence? However, bibliometrics is a valid form of assessment only it is of generalized approach; the model obtained in this work is expected to be able to periscope the unique nature of scientific activities in FUT Minna. The university raking indicators used in this research were sourced from google scholar, research gate, the University respository and through questionnaire. The observations were treated as quasi-experimental designs. The linear method of response surface methodology and Pgf plots graphical method were used. Pgf plots are visualization tool package in Latex Editor, based on tikz, a parametric plot. From the adequacy of model analyses, the causal effect of independent variables (x_i); funding, international collaboration, Staff Ranking, Equipments, number of publication on Citation were highly significant. The obtained model was used to fit possible number of citation (y) for differently assumed factors' state (values) and graphical method was used to compare each paired factors to the number of citation on 3D plots. The Citation analysis from the obtained model indicates the Expected Citation Rate (ECR) is low among the staff with high number of publications and 12% of research publication is responsible for 78.9% of citation accrued to the University. Multidisciplinary citation effect is low, however, when assumed to be high the possible number of citation increased greatly on the Pgf plots. H-index for individual staff scientific research output is little above average with ratio 1:2.6 in a year. Using contours and 3D plots, the factors; funding, international collaboration and multi-disciplinary research is at saddle point. The ratio of number of publication to citation is on the average low. Author on open access journals with high impact factor attracted more citation than authors on non-open access journals.

Keywords: Pgf plots graphical method, University ranking indicators, bibliometrics, Open Access journal, Polynomial Regression method and probability plots

C13

Statistical Neural Network Analysis of Impact of Oil Spill on Land Degradation in the Niger Delta Region of Nigeria

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Abstract

Oil spillage is one of the greatest environmental problems Nigeria is currently battling with especially in the Niger Delta region. It has resulted into widespread contamination of the environment with severe threat to immediate communities as well as sustainable development. Oil spill are major source of chemical pollution, with at least 300 different chemicals that negatively affect the surrounding soils, and hence agricultural productivity as well as quality of life. The data for this present study were obtained from the Department of Petroleum Resources as well as the Food and Agriculture Statistics 2014 Yearbook. In this paper, we forecast future spills and its corresponding effects on forest degradation using the Artificial Neural Network. The results show an alarming future unless appropriate measures are taken by the government oil companies, as well as the communities under threat. Furthermore, this



CATEGORY B
STATISTICAL MODELING AND APPLICATIONS

B1
A Binary Logistic Regression Analysis Predicting Discharge Status of Hypertensive Patients in Hospital

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Abstract

Hypertension is one of the important public health challenges worldwide because of its high frequency and concomitant risks of cardiovascular and kidney disease. It is a chronic medical situation in which the blood pressure in the arteries is raised up over time. This requires heart to work harder than normal to circulate blood through the blood vessel. When blood pressure is extraordinary, each heart beat can damage the vessel and hamper blood flow to vital organs. This research work sampled 400 hypertensive patients from University of Ilorin Teaching Hospital and examined the relationship and strength of different variables such as sex, age and length of stay of admitted hypertensive patients in the hospital into one of the outcome categories (Dead or Alive) as well as the likelihood of living in relation to the likelihood of dying of individuals with hypertension by using a binary logistic regression analysis. The result of the studied shown that the gender of the patient is not necessarily important but the older the patient is, the less the likelihood of being discharged alive and the more days spent on admission, the more the likelihood of being discharged alive.

Keywords: Hypertension, cardiovascular, Chronic, Heart, Outcome, Binary, Dead, Alive and Likelihood.

B2
Investigation of the Impact of some Determinant on Attainment of PhD Grade using Ordinal Logistic Regression

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Abstract

The failure of achieving PhD grade at master level by post graduate students has become a matter of concerned. Thus, this research work investigates failure of achieving PhD grade at master level by post graduate students using ordinal logistic regression analysis. The result of the analysis showed that the age, institution, waiting period and sex were not good predictors of the students' performance while the predictors which actually influence students' performance are class of degree, marital status and sponsorship.

Keywords: Logistic regression, Predictor, Determinant, Variable.

B3
Power and Type I Error Rate Comparison of Some Multivariate Analysis of Variance Tests

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Abstract

Four test statistic of multivariate analysis were compared when null hypothesis is true. The four compared test statistic were: Wilks' lambda, Pillai's trace, Lawley-Hotelling trace and Roy's largest Root. Data were simulated to compare the four test statistic under two different distributions (multivariate Gamma and multivariate normal), sample size (10, 20, 30, 40, 100, 200, 300, 400, 600, 700, 800, 1000), number of variables ($p = 2, 3, 4$), equal and unequal sample and variance co-variance matrices. The comparisons were done at two levels of significance ($\alpha = 0.01$ and 0.05) using power of the test and type I error rate. The results showed that Roy's largest Root test statistic is better than all other test statistic considered when $p = g = 2$ because it has lowest power with type I error rate. But when $p = g =$



C26

Application of AR Model on Nigerian Stock Exchange Annual Capitalization

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Abstract

Stock Market Returns are predictable from variety of financial and macroeconomic variables which is of interest to equity investors. There are lots of irregularities defining the Stock Market Index, making it difficult to define the path of the process. The sudden changes can be reduced by the use of a structural model. This paper applied AR structural model to capture the salient features of Nigerian Stock Exchange Annual Capitalization for the period of 29 years. Base on ACF and PACF analyses, AR of order one was at the optimal.

Key words: Capitalization, Structural, Model, AR, Log-transformation, Stock

C27

Sufficient Dimension Reduction and Prediction of Crime Rates in Nigeria

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Abstract

Following interests in achieving informative data visualization and better prediction of future observations among known advantages of dimension reduction, this study compares performances of the recently proposes single index principal fitted component regression (PFCR) to forward dimension reduction models including principal component regression, partial least squares, LASSO and ridge regressions, in terms of predicting crime rates in Nigerian cities. The result shows that the proposed method with relatively high prediction accuracy outperformed some of the existing methods considered.

Keywords: Lasso, Partial least squares, Principal components, Principal component regression, Principal fitted components

C28

PLS-REBUSS Based Identification of Unobserved Groupings of Related Crime Types in Nigerian Cities

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Abstract

We are certainly living in a time when moving is a second nature to us and among questions that we need to be able answer in order to plan such movement in terms of crime safety is whether there exist some crime types we could not identify from a city based on actual figure of crimes committed therein. Because such analysis is not suitable in this context because this study seeks