Review Form 3

Journal Name:	**Asian Journal of Probability and Statistics**
Manuscript Number:	**Ms_AJPAS_123551**
Title of the Manuscript:	**Trends And Forecast Of Prostate Cancer Incidences Using Arimax Models In Meru County, Kenya**
Type of the Article	**Original Research Article**

PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	• **This study provides valuable insights into the temporal trends and patterns of the disease in Meru County, Kenya.** • **This work can assist healthcare providers and policymakers in designing targeted interventions, improving screening, and allocating resources more efficiently.** • **The application of ARIMAX models, especially with exogenous variables like age, contributes to the methodological advancements in time series analysis.**	
Is the title of the article suitable? **(If not please suggest an alternative title)**	**The title of the article is suitable**	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	**The abstract is comprehensive**	
Are subsections and structure of the manuscript appropriate?	**They are appropriate**	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	• **ARIMAX(0,0,1) model was selected based on Akaike Information Criterion (AIC), which demonstrates a careful approach to model selection.** • **The manuscript includes comprehensive diagnostics such as the Ljung-Box test for residual autocorrelation, which helps ensure that the residuals from the ARIMAX(0,0,1) model are independent** • **The study applies advanced time series methods to real-world data, demonstrating technical competence and contributing to the field of cancer epidemiology and statistical modelling.**	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	**Yes**	

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Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	Yes	
Optional/General comments	1. **Trend Analysis:** The results of the trend analysis are currently missing. The researchers should estimate the trend of prostate cancer incidence. A linear regression method could be considered, with time as the independent variable and prostate cancer incidence as the dependent variable. 2. **Table 3 Caption:** Please revise the caption of Table 3 to: 'Comparison of ARIMAX Models with Corresponding AIC Values." 3. **Table 4 Caption:** The caption for Table 4 should be updated to: "Ljung-Box Test Results for Autocorrelation of Residuals in the ARIMAX(0,0,1) Model." 4. **Exogenous Variable Coefficient:** The researchers should interpret the coefficient for the exogenous variable (represented by xreg in Figure 6). Specifically, analysing the effect of age on prostate cancer incidence would provide additional insights. 5. **Section 3.5 Caption:** Section 3.5 should be titled: "Diagnostics and Evaluation of the ARIMAX Model for Prostate Cancer Incidence Data." 6. **Additional Plots and Tests:** The researchers should provide the following: (a) A Residuals vs. Time plot to assess the homoscedasticity of residuals in the ARIMAX model. (b) A histogram of residuals, a Normal Q-Q plot, or the results of a Shapiro-Wilk test to assess the normality of residuals in the ARIMAX model. (c) An ACF plot to assess the independence of residuals in the ARIMAX model. Although the Ljung-Box test is already provided in the manuscript, the researchers should revisit and refine its interpretation. Specifically, the Ljung-Box test interpretation in Table 4 should focus on autocorrelation in the residuals, concluding that there is no significant autocorrelation, given the p-value of 0.7192, which exceeds the conventional significance level of 0.05.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Christogonus Ifeanyichukwu Ugoh**
Department, University & Country	**Nnamdi Azikiwe University, Nigeria**