

### Review Form 3

Journal Name:	<a href="#">Asian Journal of Probability and Statistics</a>
Manuscript Number:	Ms_AJPAS_129255
Title of the Manuscript:	Comparing ARFIMA and ARIMA Models in Forecasting Under Five Mortality Rate in Tanzania
Type of the Article	

#### **General guidelines for the Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only based on '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### **PART 1: Comments**

	<b>Reviewer's comment</b>	<b>Author's Feedback</b> <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<b>Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.</b>	This manuscript holds significant importance for the scientific community as it provides a rigorous statistical comparison between ARFIMA and ARIMA models for forecasting the Under-Five Mortality Rate (UFMR), a critical health indicator in Tanzania. By addressing the lack of accurate, data-driven projections, the study equips policymakers and stakeholders with reliable tools to set SMART targets aligned with national and global health objectives, including the Sustainable Development Goals (SDGs)	
<b>Is the title of the article suitable? (If not please suggest an alternative title)</b>	<b>THE PREDICTIVE ABILITY OF ARFIMA and ARIMA MODELS USING UNDER-FIVE MORTALITY RATE IN TANZANIA.</b>	

**Review Form 3**

<p><b>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.</b></p>	<p>Tanzania has been taking various measures to drop the Under-Five Mortality Rate (UFMR), but the pace of meeting national and global UFMR targets has been slow. Nevertheless, the decline for the past years has continued to be low as compared to the Sustainable Development Goals (SDGs) target which is set at 25 deaths/1000 live births by 2030. The lack of statistical modeling-based forecast values of UFMR results in setting targets that are not SMART towards the realization of national and international goals of the health sector. Thus, the current study uses both ARFIMA and ARIMA to make forecasts of UFMR in Tanzania from 2021 to 2030 by using data extracted from the World Databank - World Development Indicators (WDI). Also, an accuracy comparison between the ARFIMA and ARIMA best-fit models in forecasting UFMR was conducted. The forecasts from the best ARFIMA (1, 0.284243, 2) model indicate that by June 2026 the rate will on average be 41 deaths/1,000 live births as compared to the Tanzanian Five Year Development Plan Phase III (TFYDP-III) target of 40 deaths/1,000 live births. In contrast, the best fit ARIMA (1, 2, 0) model forecasts depict that the rate will be 40.1 deaths/1,000 live births as compared to the TFYDP-III target. With the UN SDGs target of 25 deaths/1,000 live births by 2030, the ARFIMA (1, 0.284243, 2) model forecast values indicate that by 2030, Tanzania will experience a decrease in UFMR to 35.2 deaths/1,000 live births. The ARIMA (1, 2, 0) forecast values indicate that by 2030, Tanzania will experience a reduction in UFMR to 32.9 deaths/1,000 live births. By using RMSE and MAPE forecasting model accuracy measures, the results reveal that the ARFIMA (1, 0.284243, 2) model performs better than ARIMA (1, 2, 0) in forecasting UFMR.</p>	
<p><b>Is the manuscript scientifically, correct? Please write here.</b></p>	<p>The methodology and results section should be put in order following George E. P. Box and Gwilym M. Jenkins procedure.</p> <p>Model Selection Model estimation Model Diagnostics Model Forecasting</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>Yes</p>	
<p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>No, please use Grammarly to correct the English.</p>	
<p><b>Optional/General</b> comments</p>		

**PART 2:**

	<p><b>Reviewer's comment</b></p>	<p><b>Author's comment</b> (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)</p>
<p><b>Are there ethical issues in this manuscript?</b></p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

**Reviewer Details:**

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