Review Form 3

Journal Name:	**Asian Journal of Probability and Statistics**
Manuscript Number:	**Ms_AJPAS_125477**
Title of the Manuscript:	**IMPUTATION METHODS FOR MISSING VALUES IN ESTIMATING POPULATION PROPORTION UNDER DIAGONAL SYSTEMATIC SAMPLING SCHEME**
Type of the Article	**Research article**

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.	It is significant for the scientific community as it addresses a crucial challenge in statistical analysis: handling missing data in population estimation. Accurate population proportion estimates are vital in fields such as epidemiology, social sciences, and survey research, where systematic sampling schemes are often employed. By proposing effective imputation methods tailored for diagonal systematic sampling, this work improves the reliability of statistical inferences, reduces bias in estimates, and enhances the robustness of sampling techniques, thereby contributing to the advancement of data quality and integrity in research.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	Title is suitable if the manuscript specifically focuses on imputation techniques for missing data within the context of estimating population proportions using a diagonal systematic sampling approach. The title clearly conveys the main topics: imputation methods, missing values, population proportion estimation, and the specific sampling scheme used. However, if the paper emphasizes a particular imputation technique or compares multiple methods in detail, specifying this in the title could make it more informative. For example, "Comparative Analysis of Imputation Methods for Estimating Population Proportion Under Diagonal Systematic Sampling" could be an alternative. But overall, the current title is appropriate for conveying the scope and purpose of the research.	
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 generally clear, but a few suggestions could enhance its comprehensiveness: 1. **Objective Clarification**: Explicitly state the motivation behind the proposed imputation methods. For example, mention the need to improve accuracy in estimating population proportions or handling missing data under diagonal systematic sampling. 2. **Highlight Key Findings**: Specify the extent of improvement in efficiency and practicability over existing methods. Mentioning the percentage improvement in efficiency or a comparative statistic could add more impact. 3. **Include Details on the Simulated Data**: Briefly describe the characteristics of the simulated data, such as sample size or specific conditions considered, to give readers more context on the scope of the numerical illustrations. 4. **Address Practical Implications**: Consider adding a line on how the proposed methods can be applied in real-world scenarios or their practical significance. 5. **Remove Ambiguity**: Instead of saying "up to first order approximation," clarify the approximation method used for deriving the biases and MSEs (e.g., Taylor series approximation).	
Are subsections and structure of the manuscript appropriate?	**Related or previous work may be added in the manuscript**	
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.	The manuscript demonstrates scientific rigor by proposing novel regression-type and exponential-type imputation methods that are free from unknown parameters, addressing a gap in the estimation of population proportions under a diagonal systematic sampling design. The derivation of the estimators, as well as their properties such as biases and mean squared errors (MSEs), is grounded in statistical theory, and the first-order approximations provide a solid basis for evaluating estimator	

	performance. The use of numerical illustrations with simulated data supports the empirical evaluation, demonstrating that the proposed methods are not only theoretically sound but also practically efficient compared to existing estimators. Overall, the manuscript's methodological contributions and thorough analysis enhance its scientific robustness.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	**Current and related references may be added.**	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	OK	
Optional/General comments	Minor revisions required	

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:	**Nitalaksheswara Rao Kolukula**
Department, University & Country	**GITAM University, India**