Reply to Reviewer's Comments on

"On a new extended Burr XII distribution: properties and associated inference"

By Indranil Ghosh* and Marcelo Bourguignon

To

The Editor

Austrian Journal of Statistics

Dr. Matthis Templ

Dear Sir,

We are delighted that both the referee's comments were basically positive, constructive. Consequently, we have prepared the revision taking into account all these comments. For your convenience, we have provided itemized response regarding our course of actions taken based on each of the referee's to the paper during the revision process. Below, please find all comments made by the referee in the order they appeared in the report and outline also some important changes made in the paper. All the changes are highlighted in red color.

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Reviewer #1

1. *The derivations in the paper seem to be correct. However, I feel that this paper is too long compared to its content. Some sections could be shortened. Some proofs could be reduced without omitting essential elements. A reduction in length of the paper to a maximum of 11 pages without omitting essential elements is required. This point is of particular concern to me, since some sections of the text could be reduced.*

   Answer: Thank you for the comments. As suggested, we have reduced the length of the paper considerably. Now, the revised version has 11 pages. We have also checked and omitted unnecessary parts from all the mathematical expressions, proofs, wherever necessary for the whole manuscript. Trust this is a much better version.

2. *There are several references in Section 2.1. Please keep only the most important ones.*

   Answer: As suggested, it has been done. See Subsection 2.1.

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3. *Equation (3) holds only if λ is real non-integer. If this is not the case the beta function is not defined.*

   Answer: Thank you for the observation. In the revised version it is corrected now.

4. *Equations (4) and (5) are well-known results. There is no need to derive them and the main formulae could be inserted in the text. The authors need only to derive the first incomplete moment.*

   Answer: As suggested, it has been done. See Subsection 4.2.

5. *Please reduce Section 5.*

   Answer: As suggested, it has been done.

6. *In all equations of Section 6, please change X_i by x_i.*

   Answer: It has been done as suggested.

7. *The English language could be improved in some parts.*

   Answer: Many thanks for this comment. We have improved the English language and the general presentation. Trust this version is much better now.

8. *A number of small typos should be corrected.*

   Answer: We have revised the paper throughout mainly correcting some sentences as necessary as well as other types of typos.

Reviewer #2

1. *Let Y be continuous random variable with distribution function $F(y) = \frac{y}{2+y}, y > 0$ and let $X = [(1+Y)^{1/\lambda} - 1]^{1/c}$. Then the distribution function of X is (2) given on page 2 of the paper under review. Thus, X is a transformation of the simple random variable Y.*

   Answer: Yes, this observation is correct. In this paper, we consider the particular case of the general Type I half logistic family of distributions, studied by Cordeiro et al. [2].

2. *The paper is very poorly written in the sense that some parts of the papers are not even connected to the content of the paper. For example, on page 4, there are two subsections 2.1. The first one talks about: (i) "characterizations of gamma-Cauchy distribution in terms of a simple relationship between two truncated moments"; (ii) refers to some references which are not relevant ; (iii) mentions "The following theorem was presented by Glanzel [3]". There is no Theorem due to Glanzel there.*

Answer: Many thanks for this comment. We have removed all those unnecessary parts from the paper and also have revised the whole manuscript accordingly.

3. *The authors apply two characterizations of Hamedani to their distribution. It hardly merits to use a subsection for that and calling it "characterizations".*

   Answer: We agree with the referee. We have removed this subsection of the paper in the revised version.

4. *Two Lemma 1.s and two Theorems on page 4 are ONLY simple observations and there is no need to have this page at all. The same goes for pages 4-7.*

   Answer: Thank you for the comment. As suggested, it has been done.

5. *The best presentation of this work should be as follows: a) 1 page for "Introduction" written correctly to the point. b) Delete everything on pages 3-7. c) Order Statistics; Maximum Likelihood Estimation (not distribution, which is clearly a typo) and Applications should constitute the short note of 5 to 6 pages.*

   Answer: Very good point. As suggested, we have combined the old Sections 3, 4 and 5 to be merged onto a new Section 2 taking into account all the suggestions. Now, the revised version has 11 pages.

We have checked all the computations in all sections and they are all good now. We have also improved the English language and the general presentation of this paper. All minor corrections have been considered and acted upon.

We thank the reviewers again for the constructive comments and hope that the revised version will be acceptable to you as well as to both the referees for a possible publication in *Austrian Journal of Statistics*. Please, do not hesitate to contact me at the address above or by e-mail if you have any questions. I look forward to hearing from you on this revised version.

Yours' sincerely,

Indranil Ghosh