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Journal Name:	British Journal of Mathematics & Computer Science
Manuscript Number:	2014_BJMCS_10890
Title of the Manuscript:	Estimation of Pareto Parameters Using a Fuzzy Least-Squares Method and Other Known Techniques with a Comparison
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	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)
Compulsory REVISION comments	All the equations must be numbered to recognize.	Ok, in the final Modification, all the equations will be numbered
Minor REVISION comments	1- All parameters of equation (1) and others must be defined like α, k and etc... and 2- Also about these symbols L and TL-LQ-moments..... 3- In the special case (The TL-Moments with the first trimmed, $s=t=1$) and according to equation (4) for the Pareto Distribution the λ_3 must be $\lambda_3^{(1)} = \frac{10}{3} k \left[2B\left(4, 2 - \frac{1}{\alpha}\right) - 3B\left(3, 3 - \frac{1}{\alpha}\right) + 2B\left(2, 4 - \frac{1}{\alpha}\right) \right]$ 4- - In the special case (The TL-Moments with the first trimmed, $s=t=1$) and according to equation (5) for the Pareto Distribution the λ_4 must be $\lambda_4^{(1)} = \frac{15}{2} k \left[B\left(5, 2 - \frac{1}{\alpha}\right) - 4B\left(4, 3 - \frac{1}{\alpha}\right) + 4B\left(3, 4 - \frac{1}{\alpha}\right) - B\left(2, 5 - \frac{1}{\alpha}\right) \right]$ 4- Also in the special case (The L-Moments with the first trimmed, $s=t=0$) and according to the eq. (4) for the Pareto Distribution the λ_3 must be	1-The parameters will be defined in the equation or after the equation 2- L-Moments : Linear Moments LT-Moments : Linear Trimmed Moments LQ-Moments : Linear Quantile Moments 3- Equation (4) will be (there is 2 multiply to the second term): $\lambda_3^{(s,t)} = \frac{k}{3} \left[\frac{(s+t+3)!}{(s+2)!(t)!} B\left(s+3, t+1 - \frac{1}{\alpha}\right) - 2 \frac{(s+t+3)!}{(s+1)!(t+1)!} B\left(s+2, t+2 - \frac{1}{\alpha}\right) + \frac{(s+t+3)!}{(s)!(t+2)!} B\left(s+1, t+3 - \frac{1}{\alpha}\right) \right],$ - The TL-Moments with the first trimmed, $s=t=1$ will be $\lambda_3^{(1)} = \frac{20k}{3} \left[B\left(4, 2 - \frac{1}{\alpha}\right) - 3B\left(3, 3 - \frac{1}{\alpha}\right) + B\left(2, 4 - \frac{1}{\alpha}\right) \right],$ 4- The TL-Moments with the first trimmed, $s=t=1$ will be $\lambda_4^{(1)} = \frac{15k}{2} \left[B\left(5, 2 - \frac{1}{\alpha}\right) - 6B\left(4, 3 - \frac{1}{\alpha}\right) + 6B\left(3, 4 - \frac{1}{\alpha}\right) - B\left(2, 5 - \frac{1}{\alpha}\right) \right]$ 5- we can't replace α by d,



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	$\lambda_3 = k \left[B\left(3, 1 - \frac{1}{\alpha}\right) - 2B\left(2, 2 - \frac{1}{\alpha}\right) + B\left(1, 3 - \frac{1}{\alpha}\right) \right]$ 5- In the section LQ- Moments and for the functions ξ_1, ξ_2, ξ_3 and ξ_4 change all $\frac{1}{\alpha}$ to $\frac{1}{d}$ or change the function from d to α. 6- Also change ξ_2 to this form $\xi_2 = \frac{k}{8} \left[2 \left(1 - (0.866) \right)^{\frac{-1}{\alpha}} - 2 \left(1 - (0.707) \right)^{\frac{-1}{\alpha}} + \left(1 - (0.293) \right)^{\frac{-1}{\alpha}} - 1 \right]$ 7- Also change ξ_2 to this form $\xi_2 = \frac{\hat{k}}{8} \left[2 \left(1 - (0.866) \right)^{\frac{-1}{\hat{\alpha}}} - 2 \left(1 - (0.707) \right)^{\frac{-1}{\hat{\alpha}}} + \left(1 - (0.293) \right)^{\frac{-1}{\hat{\alpha}}} - 1 \right]$	by using the definition of linear quantile moments (LQ-Moments) that contains d, we have three cases for the value of d, and at every case we take the appropriate value of d. but α is the shape parameter of the two-parameter Pareto distribution, and by using the quantile function $Q(u) = k(1-u)^{\frac{1}{\alpha}}, \quad 0 < u < 1$ in the definition of the LQ-Moments we substituted by the values of u (see table 3, 4, and 5 in the reference of G.S. Mudholkar and A.D. Hutson, LQ-moments: Analogs of L-moments, Journal of Statistical Planning and Inference, 1998; 71, 191–208.) and α is the unknown parameter of the two-parameter Pareto distribution. 6-Also, we can use another formula for the LQ-Moments as follows (Mudholkar and Hutson):
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		$\xi_1 = \frac{k}{4} [Q_0(0.25) + 2Q_0(0.5) + Q_0(0.75)],$ $\xi_2 = \frac{k}{8} [Q_0(0.866) + 2Q_0(0.707) - 2Q_0(0.293) - Q_0(0.134)],$ and $\xi_3 = \frac{k}{12} [Q_0(0.909) + 2Q_0(0.794) - 2Q_0(0.674) + Q_0(0.630) -$ $+ Q_0(0.370) - 2Q_0(0.326) + 2Q_0(0.206) + Q_0(0.091)]$ where $Q_0(u) = (1-u)^{-\frac{1}{\alpha}}, \quad 0 < u < 1$ In final modification, we can use the previous formulas in the three cases of LQ-Moments to be more convenient. 7- the LQ-Moments Estimators will be: $\hat{\xi}_1 = \frac{\hat{k}}{4} [\hat{Q}_0(0.25) + 2\hat{Q}_0(0.5) + \hat{Q}_0(0.75)],$ and $\hat{\xi}_2 = \frac{\hat{k}}{8} [\hat{Q}_0(0.866) + 2\hat{Q}_0(0.707) - 2\hat{Q}_0(0.293) - \hat{Q}_0(0.134)],$ where $\hat{Q}_0(u) = (1-u)^{-\frac{1}{\hat{\alpha}}}$ (Mudholkar and Hutson)
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<u>Optional/General</u> comment s		