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Erratum to "Evaluation of the goodness of fit of new statistical size distributions with consideration of accurate income inequality estimation"

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Abstract

This erratum corrects typos in Okamoto (2012).

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Some formulas for the double-Pareto log-normal (dPLN) distribution in appendix of Okamoto (2012) contains some small mistakes. The results and other formulas in the main text and appendix are unaffected by these errors. Corrections should be made, as follows (the parts in rectangular boxes are the corrections):

1. The cumulative distribution function of the dPLN in (A1).

$$F_{\mathrm{dPLN}}(x;\mu,\sigma^2,\alpha,\beta)$$
$$=\frac{\alpha\beta}{\alpha+\beta}\left[\frac{1}{\beta}x^{\beta}\boxed{e^{-\beta\mu+\beta^2\sigma^2/2}}\Phi^{c}\left(\frac{\log x-\mu+\beta\sigma^2}{\sigma}\right)+\frac{1}{\beta}\Phi\left(\frac{\log x-\mu}{\sigma}\right)\right.$$
$$\left.-\frac{1}{\alpha}x^{-\alpha}e^{\alpha\mu+\alpha^2\sigma^2/2}\Phi\left(\frac{\log x-\mu-\alpha\sigma^2}{\sigma}\right)+\frac{1}{\alpha}\Phi\left(\frac{\log x-\mu}{\sigma}\right)\right],$$

2. The Lorenz curve of the dPLN in (A11).

$$L_{\mathrm{dPLN}}(c)=\Phi\left(\frac{\log y-\sigma^2}{\sigma}\right)-\frac{\beta+1}{\alpha+\beta}y^{-\alpha+1}e^{(\alpha^2-1)\sigma^2/2}\Phi\left(\frac{\log y-\alpha\sigma^2}{\sigma}\right)$$
$$+\frac{\alpha-1}{\alpha+\beta}y^{\beta+1}e^{(\beta^2-1)\sigma^2/2}\Phi^{c}\left(\frac{\log y+\beta\sigma^2}{\sigma}\right),\qquad 0<c<1,$$

$L_{\mathrm{dPLN}}(0)=0$, and $L_{\mathrm{dPLN}}(1)=1$,
where $y=\boxed{F^{-1}_{\mathrm{dPLN}}(c;0,\sigma^2,\alpha,\beta)}$.

References

Okamoto, M. (2012a) "Evaluation of the goodness of fit of new statistical size distributions with consideration of accurate income inequality estimation" *Economics Bulletin* **32**(4), 2969–2982.