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Volume 45, 2016 - Issue 7

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An Explicit Distribution to Model the Proportion of Heating Degree Day and Cooling Degree Day

Muhammad Mohsin 🔄, Jürgen Pilz & Albrecht Gebhardt

Pages 2617-2624 | Received 22 Jan 2014, Accepted 07 Apr 2014, Accepted author version posted online: 15 Sep 2014, Published online: 15 Sep 2014

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Abstract

With a view to estimating the energy consumption, we derive the explicit distribution of the proportion X/(X + Y) when X and Y follow the new Bivariate Affine-Linear Exponential distribution. An application of this distribution to model the proportion of heating using the heating degree day and the cooling degree day data in the State of Alabama for Appalachian Mountain is provided. Using intensive computations based on R-program, tabulation of some quantiles associated with this particular distribution of proportion is also provided, which is quite useful in estimating the proportion of energy required to heat a building.

Keywords:

Bivariate Affine-L	inear Exponentia	al (BALE) distribution	Cooling degree day (CDD)	Heating degree day (HDD)				
Proportion of ran	dom variables	Quantiles						
Mathematics Subject Classification:								
Primary 62E15	Secondary 60E	205						

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