

Confirmation of Abstract

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Abstract Information

Abstract Type: Contributed

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Sponsor: Section on Statistical Education

Track: Miscellaneous

Title: Statistical Literacy and the Log-Normal Distribution

Abstract: The log-normal distribution models financial items such as the distribution of incomes, orders, losses and investment returns. This paper shows six things. 1) This distribution arises naturally from any random process with multiplicative changes. 2) The shape of the log-normal distribution and the amount of income inequality are determined by the mean-median ratio. 3) The parameters used to model the distribution of subjects by income determine those used to model the distribution of total income by subject income. 4) The percentage of subjects with below-average incomes always equals the percentage of total income earned by subjects with above-average incomes. 5) These percentages can be used to measure income inequality in a way that is much more accessible than the Gini coefficient. 6) The product of two log-normal distributions can model the product of a normal times a log-normal. This paper reviews the asymmetric nature of confidence and prediction intervals. It presents the results of student exercises using the log-normal in Excel. Finally, it argues that the log-normal distribution should be included in a statistical literacy class for decision makers.

Key words: statistical education, Excel, , , ,

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