A PROPERTY OF THE YULE DISTRIBUTION AND ITS APPLICATIONS

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ABSTRACT

The relationship \( Y = RX \) between two random variables \( X \) and \( Y \), where \( R \) is distributed independently of \( X \) in \((0,1)\), is known to have important consequences in different fields such as income distribution analysis, inventory decision models, etc.

In this paper it is shown that when \( X \) and \( Y \) are discrete random variables, relationships of similar nature lead to Yule-type distributions. The implications of the results are studied in connection with problems of income underreporting and inventory decision making.