ON CHARACTERIZATION OF POWER SERIES DISTRIBUTIONS BY A MARGINAL DISTRIBUTION AND A REGRESSION FUNCTION

A. Kyriakoussis[1] and H. Papageorgiou[2]

[1]*Department of Mathematics, University of Athens, Panepistemiopolis, Athens 157 10, Greece*
[2]*Department of Mathematics, University of Kansas, Lawrence, KS 66045, U.S.A. and
Department of Mathematics, University of Athens, Panepistemiopolis, Athens 157 10, Greece*

Abstract. The conditional distribution of Y given $X = x$, where X and Y are non-negative integer-valued random variables, is characterized in terms of the regression function of X on Y and the marginal distribution of X which is assumed to be of a power series form. Characterizations are given for a binomial conditional distribution when X follows a Poisson, binomial or negative binomial, for a hypergeometric conditional distribution when X is binomial and for a negative hypergeometric conditional distribution when X follows a negative binomial.

Key words and phrases: Characterizations, regression function, Poisson, binomial, negative binomial, hypergeometric.