

A simple heuristic for obtaining pareto/NBD parameter estimates

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Abstract

In an influential study, Schmittlein et al. (1987) proposed the pareto/negative binomial distribution (P/NBD) model to predict purchase behavior of customers. Despite its recognized relevance, this model has some drawbacks as follows: (1) it does not allow a zero transaction rate, (2) it assumes convenient but not necessarily realistic gamma distributions for the transaction and drop-out rates across customers, and (3) the estimation procedure requires complicated computations. The purpose of this study is to relax the assumption that purchases and drop-out rates are distributed according to a gamma distribution and propose a simple estimation procedure for the individual parameters that can be applied even if the number of customers is large. A simulation exercise and empirical applications to real datasets compare the simple model proposed with the P/NBD model. The results show that the simple procedure is better in cases where the number of transactions and/or the observation period is large.