

Agrawal, Narendra; Smith, Stephen A.

Estimating negative binomial demand for retail inventory management with unobservable lost sales. (English) [Zbl 0857.90021](#)

Nav. Res. Logist. 43, No. 6, 839-861 (1996).

Summary: The importance of effective inventory management has greatly increased for many major retailers because of more intense competition. Retail inventory management methods often use assumptions and demand distributions that were developed for application areas other than retailing. For example, it is often assumed that unmet demand is backordered and that demand is Poisson or normally distributed. In retailing, unmet demand is often lost and unobserved. Using sales data from a major retailing chain, our analysis found that the negative binomial fit significantly better than the Poisson or the normal distribution. A parameter estimation methodology that compensates for unobserved lost sales is developed for the negative binomial distribution. The method's effectiveness is demonstrated by comparing parameter estimates from the complete data set to estimates obtained by artificially truncating the data to simulate lost sales.

MSC:

[90B05](#) Inventory, storage, reservoirs

Cited in **25** Documents

Keywords:

[inventory management](#); [parameter estimation methodology](#)

Full Text: [DOI](#)