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Comparative Analysis of ARMA, DR-ARMA, and Adaptive DR-ARMA Methods for Safety Stock Prediction of Disposable Food Containers

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Abstract
Companies need to quickly adapt to technology in order to determine the strategies for identifying market demand trends. There are several strategies, one of the strategies is to determine safety stock. Safety stock is a buffer stock calculated based on sales data to avoid various risks, such as delivery delays. This study aims to find a method can provide accurate prediction results, in particular to determine safety stock by comparing these three methods: ARMA, DR-ARMA, and Adaptive DR-ARMA when the data exhibits varying daily sales trends and the data majority is 48% is sparse. The result show that the Adaptive DR-ARMA method provides the most accurate results compared to the ARMA and DR-ARMA methods, with a Mean Absolute Percentage Error (MAPE) of 15.85%.

Keywords: Adaptive DR-ARMA, safety stock, big data analytics, demand