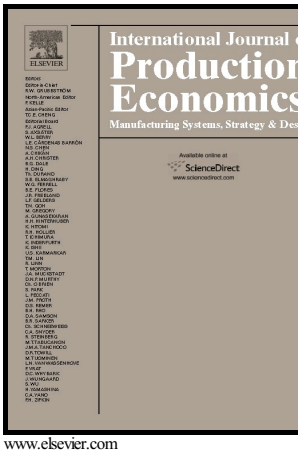

Forecasting with multivariate temporal aggregation: The case of promotional modelling

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Forecasting with multivariate temporal aggregation: The case of promotional modelling

Abstract

Demand forecasting is central to decision making and operations in organisations. As the volume of forecasts increases, for example due to an increased product customisation that leads to more SKUs being traded, or a reduction in the length of the forecasting cycle, there is a pressing need for reliable automated forecasting. Conventionally, companies rely on a statistical baseline forecast that captures only past demand patterns, which is subsequently adjusted by human experts to incorporate additional information such as promotions. Although there is evidence that such process adds value to forecasting, it is questionable how much it can scale up, due to the human element. Instead, in the literature it has been proposed to enhance the baseline forecasts with external well-structured information, such as the promotional plan of the company, and let experts focus on the less structured information, thus reducing their workload and allowing them to focus where they can add most value. This change in forecasting support systems requires reliable multivariate forecasting models that can be automated, accurate and robust. This paper proposes an extension of the recently proposed Muliple Aggregation Prediction Algorithm (MAPA), which uses temporal ag-