Aalto-yliopisto
Perustieteiden
korkeakoulu

Clearance price optimization of seasonal products

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Työn saa tallentaa ja julkistaa Aalto-yliopiston avoimilla verkkosivuilla. Muilta osin kaikki oikeudet pidätetään.

Systeemianalyysin
laboratorio

Background

- Research project in pricing optimization for Relex solutions
  - Finnish company offering retail planning solutions
- Seasonal products
  - Limited selling period
  - Stock has to be sold by the end of season
- Challenges in forecasting demand
  - Demand is uncertain and depends on many factors
  - Limited sales data

Objectives

- Review earlier research on clearance price optimization
- Formulate an optimization model based on earlier research and the current model
  - Empty inventories at the end of season
  - Maximize potential revenue
- Evaluate the resulting model against the current one
  - Data from retail customer
  - Metrics to measure effectiveness

Scope

- Non-food products with time of year seasonality
  - Summer seasonal products with clearance periods in the early winter
- Only permanent markdowns considered
  - One price for the whole clearance period
  - Frequent price changes are undesirable in practice
- Price optimization only
  - Estimating optimal inventory levels and orders are out of scope

Sources and materials

- Online research data and Aalto university library
  - Research articles
  - Literature on pricing and markdown optimization
- European grocery chain data transactions and price data for model testing
  - Highly seasonal products
  - Data aggregated to daily level
  - Length of data varies between products

Tools and methods

- R
  - Preparing and analysing the data
  - Formulating a regression model according to literature review
  - Testing the model
  - Evaluating the model with statistical tests and metrics
- Relex
  - Data inquiry and processing
  - Modeling using current integrated model

Schedule

- Subject presentation 26.02.2019
  - Literature review completed
  - Model building and testing
  - Writing in progress
- Final presentation 17.04.2019