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SKU demand forecasting in the presence of promotions

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NAICS/Códigos del sector: 413110 General-line food merchant wholesalers
424490 Other Grocery and Related Products Merchant Wholesalers
424410 General Line Grocery Merchant Wholesalers
445110 Supermarkets and Other Grocery (except Convenience) Stores
453999 All other miscellaneous store retailers (except beer and wine-making supplies stores)
453998 All Other Miscellaneous Store Retailers (except Tobacco Stores)
452999 All other miscellaneous general merchandise stores

Resumen: Abstract: Promotions and shorter life cycles make grocery sales forecasting more difficult, requiring more complicated models. We identify methods of increasing complexity and data preparation cost yielding increasing improvements in

forecasting accuracy, by varying the forecasting technique, the input features and model scope on an extensive SKU-store level sales and promotion time series from a European grocery retailer. At the high end of data and technique complexity, we propose using regression trees with explicit features constructed from sales and promotion time series of the focal and related SKU-store combinations. We observe that data pooling almost always improves model performance. The results indicate that simple time series techniques perform very well for periods without promotions. However, for periods with promotions, regression trees with explicit features improve accuracy substantially. More sophisticated input is only beneficial when advanced techniques are used. We believe that our approach and findings shed light into certain questions that arise while building a grocery sales forecasting system. [Copyright &y& Elsevier]

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