

CORAL Seminar

22 March

Fuglesangs Allé 4, 8210 Aarhus V, building M, room 323

Programme:

14:00 Stefan Minner: A One Warehouse Multiple Retailer Distribution Inventory System for Perishable Products

Stefan Minner is Professor at University of Vienna. He studied Business Administration at the University of Bielefeld and received his doctoral degree from the University of Magdeburg. He was a postdoctoral researcher at the University of Calgary and held positions at the Universities of Paderborn, Mannheim, and Vienna. His primary research interests are logistics network design, supply chain coordination, and inventory management. Currently, Stefan Minner is the Editor-in-Chief of OR Spectrum and serves as editorial board member and reviewer for many other academic journals.

Abstract: Inspired by a food distribution problem for perishable products, we develop a periodic review multi-echelon inventory control approach. Although in perishable item inventory systems simple base-stock policies are no longer optimal, the combination of multi-echelon and perishable item problems in food distribution has not received much attention. We determine optimal order quantities and the allocation of incoming orders under service level constraints, compare different rationing policies, and analyze the impact of perishability on the optimal degree of inventory centralization.

Short coffee break

15:00 Refik Güllü: Optimal Inventory Policies with Non-stationary Supply Disruptions and Advance Supply Information

Refik Güllü: University, Industrial Engineering Department, Istanbul, Turkey

Abstract: We consider the production/inventory problem of a manufacturer (or a retailer) under non-stationary and stochastic supply availability. Although supply availability is uncertain, the supplier would be able to predict her near future shortages -and hence supply disruption to (some of) her customers- based on factors such as her pipeline stock information, production schedule, seasonality, contractual obligations, and non-contractual preferences regarding other manufacturers. We consider the case where the information on the availability of supply for the near future, which we refer to as advance supply information (ASI), is provided by the supplier. The customer demand is deterministic but non-stationary over time, and the system costs consist of fixed ordering, holding and backorder costs. We consider an all-or-nothing type of supply availability structure and we show the optimality of a state-dependent (s,S) policy. For the case with no-fixed ordering cost we prove various properties of the optimal order-up to levels and provide a simple characterization that leads to an efficient computation. For the model with fixed ordering cost, we propose a heuristic algorithm for finding a good ordering strategy. Finally, we numerically elaborate on the value of ASI and provide managerial insights. **Joint work with:** Bilge Küçük, Ecole Polytechnique Fédérale de Lausanne (EPFL) and Tarkan Tan, Eindhoven University of Technology.