

SEMINAR SERIES
Department of Quantitative Analysis and Operations Management
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Retail Inventory and Shelf Space Allocation

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To date, inventory costs have largely been ignored in the assortment and shelf-space allocation decisions at large retail chains. In this talk, we explicitly consider the inventory holding and review costs and stockout risk incurred by following a periodic review order-up-to inventory policy. Demand is assumed to be elastic with shelf space and to follow a stationary Poisson arrival process. We characterize the properties of the objective function to provide new, and somewhat surprising, insight on the composition of the optimal assortment. We then use a disguised data set from a regional convenience store chain to look at the potential cost savings and strategic implications of adhering to such a policy. From this analysis, we show that inventory costs are not a minor issue that the retail manager can safely ignore. To the contrary, service level and space elasticities can have a profound effect on basic retail stocking strategy.

Hirofumi Matsuo is a professor of operations management at the Department of Management at the University of Texas at Austin, holds the Fred H. Moore Professorship in international management, and is a Research Fellow of the IC2 Institute. He was a visiting associate professor of operations and information management at the Wharton School of the University of Pennsylvania, and a visiting professor of operations research at Massachusetts Institute of Technology. He is currently serving as the Director of the MBA concentration in operations management at the University of Texas at Austin. He received his bachelor and master degrees in applied mathematics and physics from Kyoto University, Japan, and his Ph.D. in management from Massachusetts Institute of Technology. He has served as an associate editor of *Management Science* and *Operations Research*, and is currently an area editor of *Production and Operations Management*. His research field is operations management. He studies supply chain coordination of high technology firms. Research topics include: supply chain strategy and demand management to match productive capacity and demand for high technology firms; marketing and supply chain integration; flexibility and adaptability; production planning, scheduling, and control; lean manufacturing; service operations management. His research projects and consulting activities have addressed manufacturing and logistics problems at Advanced Micro Devices, Applied Materials, Data General, Dell Computer, Hitachi, IBM, Motorola, and Frito-Lay.