

Industrial and Systems Engineering Seminar

Process Flexibility: A Distribution-Free Bound on the Performance of K-Chain

Wednesday, September 11

3:15 PM – Refreshments before the Seminar

3:30 PM – Graduate Seminar

Mechanical Engineering Room 4125 A & B



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Process flexibility has been widely applied in many industries as a competitive strategy to improve responsiveness to demand uncertainty. An important flexibility concept is the long chain proposed by Jordan and Graves. The effectiveness of the long chain has been investigated via numerical as well as theoretical analysis for specific probability distributions of the random demand. In this paper, we obtain in closed-form a distribution-free bound on the ration of the expected sale of the long chain relative to that of full flexibility. Our bound depends only on the mean and standard deviation of the random demand, but compares very well with the bound that uses complete information of the demand distribution. This suggests the robustness of the performance of the long chain under different distributions. We also prove a similar result for k-chain, a more general flexibility structure. (Joint work with Xuan Wang, Ph.D. student at NYU Stern)

Bio: Jiawei Zhang is an Associate Professor of Operations Management and Harold MacDowell Faculty Fellow at the Stern School of Business, New York University. He received a B.S. degree in Applied Mathematics and an M.S. degree in Operations Research from Tsinghua University, and a Ph.D. in Operations Research from Stanford University. His research interests include mathematical programming and its applications in operations management. He was a recipient of the INFORMS Optimization Prize for Young Researchers in 2004. He currently serves as an Associate Editor for Operations Research and Mathematics of Operations Research.

For more information on Professor Zhang's research, please visit:

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2311268