

**Title:** Inventory Management with Advanced Warning of Disruptions

**Abstract:** In recent years, growing attention has been paid to the role that supply disruptions should play in strategic and operational decision making. Disruptions may be caused by natural disasters, labor strikes, manufacturing defects, machine breakdowns, or other events. The risk of a disruption may change over time—for example, the risk of disruption from a hurricane is greater in late summer than at other times. Moreover, we may have some advanced warning of a disruption, i.e., knowledge about the changing disruption risk, in the form of weather forecasts, feedback on the progress of labor negotiations, or the Department of Homeland Security's terror alert level.

In this talk, we investigate how such advanced warning affects the optimal strategy for mitigating supply disruptions. We consider both strategic questions of *how* a firm should protect against disruptions (holding extra inventory, dual sourcing, etc.) and operational questions of *how much* protection the firm needs. We explore how the policy changes in response to changes in the supplier capacity, the disruption profile (e.g., short but frequent vs. long but rare), and the relative difference in risk between low-risk and high-risk scenarios. In addition, we provide some general insight about the benefits and costs of planning for disruptions, and the differences between strategies for protecting against supply and demand uncertainty.

(This is joint work with Brian T. Tomlin, Kenan-Flagler Business School, University of North Carolina—Chapel Hill.)

**Bio:** Lawrence V. Snyder is an Assistant Professor in the Department of Industrial and Systems Engineering at Lehigh University in Bethlehem, PA. He is also the co-director of Lehigh's Center for Value Chain Research. He received his Ph.D. from Northwestern University. Dr. Snyder's research interests include modeling and solving problems in supply chain management, facility location, and logistics, particularly when the problem exhibits significant amounts of uncertainty. He has worked as a supply chain engineer and consultant for major producers of both perishable and durable goods.