

Stochastic programming in freight transportation: connecting theory and practice.

jeudi 31 juillet 2025 10:45 (45 minutes)

Freight transportation is one of the critical enablers of trade, both global and domestic. Given that, it regularly constitutes significant portions of the gross domestic product of countries. Due to its large scale, small percentage improvements in the efficiency of freight transportation operations can lead to large monetary savings as well as reduced environmental impacts. At the same time, freight transportation operations are fraught with uncertainty, making reliably achieving high levels of efficiency a challenge. The purpose of this talk is to illustrate how stochastic programming has, and can, effectively impact the planning of freight transportation operations. To do so, the talk will be divided into three parts. In the first, we will discuss the sources and types of uncertainty that impact freight operations in practice. In the second, we will review the classical optimization models that have been proposed to support the planning of freight transportation operations. We will also discuss when and how those classical models can accommodate the natures and types of uncertainty experienced in practical freight transportation operations. In the third, we will discuss new research on a stochastic program for effectively matching supply and demand that recognizes the different customer segments for freight transportation in practice. We will also present a decomposition-based solution method for solving large-scale instances of that model.

Author: HEWITT, Mike (Loyola University Chicago)

Orateur: HEWITT, Mike (Loyola University Chicago)

Classification de Session: Mini-symposium

Classification de thématique: Mini-symposium: Decomposition methods for solving Stochastic Programming problems in Logistics and Transportation