MBA24

In Search of Southern California's Inland Port in an Undergraduate Class of Business Analytics Foundations

Ardavan Asef-Vaziri
California State University, Northridge, Northridge, CA, USA

Abstract

This paper aims to identify prosperous locations for one or more inland ports in Southern California. We start with a dataset of 31,000 origin-destination (O/D) pairs between the Los Angeles and Long Beach combined ports, known as the San Pedro Bay (SPB) ports, and destinations in various U.S. states. After data cleaning, we focus on the O/D data associated with SPB ports and Southern California's processing and distribution centers (PDCs). We develop a model to identify the optimal location for the inland port(s), considering that some containers are delivered directly from SPB ports to PDCs. A modified single-facility (paired-facility) location model, a sensitivity analysis, and a paired-location-allocation model are implemented. This manuscript serves two purposes: (i) applied research and (ii) teaching. On the applied research side, it investigates the potential for and identifies locations of potential inland ports in Southern California. On the teaching side, it replaces some current materials in our undergraduate business analytics foundation course with real-life applications. We have learned that linking teaching materials to real-life applications enhances students' physical and mental engagement in physical and virtual classrooms. To ensure a pragmatic, general-purpose teaching and learning experience, we limit ourselves to Excel functions and formulas for computation, Excel graphs and charts for data visualization, Excel 3D maps for mapping, and the free version of SOLVER on Excel for optimization. This approach may significantly benefit graduates from State-Funded Teaching-Focused Business-Schools in Southern California, as other software may not be readily available in their first workplaces.

Conference Track

MIS and Business Analytics