

October 2012

University of Illinois at
Chicago

Fall Events

Career and Internship Fair

October 13th, 4pm-6pm

In SCE, Cardinal Room

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Kouros Mohammadian

The Center for Supply Chain Management and Logistics

Fall Newsletter



A Message from the Director

Raising the Research Profile of the CBA and the Impact-Value of CBA Research

By Dr. Anthony Pagano

The Center for Supply Chain Management and Logistics began in 2006 with a \$75,000 grant from the Office of the Vice Chancellor for Research. Faculty from seven different departments located in the University's Colleges of Business Administration, Urban Planning and Public Affairs, and Engineering form an interdisciplinary resource housed within the Center. The Center has accomplished a variety of goals. We have implemented two symposia, one entitled "Making the Chicago Region More Competitive in the Global Supply Chain," which was held in 2006 and the 2009 "UIC Supply Chain and Freight Transportation Symposium." Details can be found on the Center website: www.supply-chain.uic.edu The Center has assisted faculty in the purchase of software for research projects, has implemented several supply chain internship and career fairs on campus, has made a variety of contacts in the industry that consists of a network companies and is in the process of developing a supply chain and logistics certificate program. In addition, the faculty members associated with the Center have published supply chain related articles in a variety of journals. In this season's newsletter we will outline the four research focuses for the upcoming year that have the potential to have major impacts on the supply chain field. The conduct of these projects is designed to move the Center for Supply Chain Management forward and have a lasting impact on UIC supply chain research.

Proposed Study Designs, 2012

1 Public-Private Partnerships in Transportation (Efficiency Implications)

2 Economic Development and Transportation and Logistics Clusters with Emphasis on China Faculty

3 Electronic Commerce and Technology in Logistics and Supply Chain Management

4 Social Logistics (Not for Profit Logistics and Green Supply Chains)

Economic Development and Transportation Logistics Clusters with Emphasis on China

Transportation and logistics clusters exist across the world. These can serve as engines of economic growth. However, it is not clear what public policies should be implemented to foster the growth and competitiveness of these clusters. Clusters are a different way of looking at drivers of economic activity. For example, the Republic of Panama relies heavily on its maritime cluster surrounding the Canal to foster economic growth. In his classic work on clusters of economic activity, Porter (1998, 2000) defines clusters as "... geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition." (1998, p. 78) One type of cluster is related to transportation and logistics. These clusters abound throughout the world, but little work has been done to understand how to enhance these for economic development. This project is designed to examine these clusters in the US and in China. The results of this project will be a detailed set of guidelines as to how to enhance transportation and logistics clusters to grow production and employment.

Public-Private Partnerships in Transportation

The City of Chicago has been in the forefront of Public-Private partnerships (PPP's) with the long-term lease of the Chicago Skyway to a private entity in 2004. For many in the US, PPP's are synonymous with long-term leases. But, this is only one type of PPP. With federal, state and local governments all having budgetary problems, PPP's can help to provide transportation services through private sector involvement in a variety of ways.

One reason for employing PPP's, and for choosing the optimal PPP, is to maximize efficiency. However, for publicly provided services, there are almost always multiple outputs and inputs, which cannot be summarized into a single efficiency indicator, because their values cannot be measured in dollars. One increasingly common solution to this measurement problem is the use of Data Envelopment Analysis (DEA), which reduces multiple outputs and inputs into one overall efficiency measure, using economically valid methodologies. We will use DEA efficiency indicators, and other indicators as appropriate, as our criteria variables for evaluating various alternatives and analyzing the unresolved issues surrounding this approach.

Electronic Commerce and Technology in Logistics and Supply Chain Management

The goal of this project is to provide an institutional structure that encourages new theoretical and empirical studies in global internet commerce to understand the future of e-commerce innovation, and to define appropriate local Chicago area and nationwide competitive responses. The project will define business models for e-commerce, compare East

vs. West e-commerce strategies and define Chicago area and national responses. Specific topics to be investigated include: successful and unsuccessful business models for e-commerce; electronic security market models; high-frequency trading in electronic markets; advanced logistics for e-commerce user interfaces and for pure information products; logistics and search for 3D printed-output additive manufacturing; and multi-agent-based supply chain management.

Social Logistics (Not for Profit Logistics and Green Supply Chains)

A recent study (Bradley, Jansen and Silverman, 2003) projected that the nonprofit sector can save about \$100 billion by challenging the operating practices and notions of stewardship that currently govern the sector. The number of nonprofit organizations in Illinois has

grown by 22% from 1999 to 2009, to a record number of 67,343. US nonprofit organizations control \$2 trillion in assets and they spend three-quarters of a billion dollars annually. Despite the huge operational volume of this sector in Illinois, there has not been a single entity providing logistics decision support to these organizations. Most of these organizations (especially Illinois small nonprofit organizations such as local charities) act alone and therefore have their own independent supply and distribution networks. Moreover, these organizations are usually governed by local volunteers who do not have expertise in supply chain management and performance optimization. We propose the creation of a research-working group within the CSCML to fill this gap. The group consists of supply chain optimization experts who can make a significant improvement in the performance of Illinois nonprofit organizations. Since this group is the first of its kind in Illinois and the goal is to help organizations that are not for profit, it is expected to raise the COB research profile significantly and to introduce UIC as a pioneer in design and improvement of nonprofit organization logistics systems.

Within the theme of green supply chain and logistics, we focus on the entire energy and material flow and thus costs throughout the supply chain, namely from raw material input to manufacturing to distribution to final con-



-sumption. At each stage of the supply chain, one big question constantly asked by the companies involved is "How does energy (material) flow in the supply chain? What are the activities in the supply chain that render room for improvements in efficiency?" By improving the efficiencies of both energy consumption and materials flow throughout the supply chain, companies can in fact become more competitive.

Supply Chain Center Faculty Highlights

Introducing
Associate Professor
Kouros Mohammadian
B.Sc., M.Sc., Ph.D. (Uni. of Toronto)



Kouros Mohammadian is an assistant professor of Transportation Engineering at UIC. Before joining UIC, Kouros held a faculty position in Civil Engineering at California State University. He earned his Ph.D. degree from the University of Toronto and worked as a post-doctoral research associate at McMaster University.

Kouros has a broad range of expertise in transportation engineering, planning, design, and operations. His primary scientific effort has been in the areas of micro simulation, demand modeling, land-use modeling, spatial analysis, transportation cost analysis, and transportation systems optimization. He directs several research projects funded by various agencies including US Federal Highway Administration and Illinois Department of Transportation. He has been an active member of several

national and international transportation organizations including TRB committee on traveler behavior and values and committee on statistical methodology and software in transportation research.

Expertise:

Transportation Planning and Travel Demand, Forecasting, Transportation Cost Modeling, Performance Evaluation of Transportation Systems, Traffic Engineering and Signal Control, Applications of New Technologies in Transportation, Micro-simulation of Urban Activities, Urban Transportation and Land-Use Systems, Applied Econometrics and Data Mining.

Research Interests:

Transportation systems analysis, modeling, and management
Travel demand modeling
Microsimulation of urban travel activities
Discrete choice modeling, decision making process and choice behavior
Data mining, and applied econometrics.

Center for Supply Chain Management at University of Illinois at Chicago

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Teaching:

CME 508: Urban Travel Forecasting (Fall semesters)
CME 503: Advanced Transportation Demand Analysis (Spring semesters)
CME 408: Traffic Engineering and Design (Fall semesters)
CME 402: Geometric Design of Highway Facilities