

SUBHRO MITRA

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1. BACKGROUND

1.1 Education background

Ph.D. Transportation and Logistics	<i>North Dakota State University, 2007</i>
M.B.A. Marketing (Major), Operations (Minor)	<i>Calcutta University, 1997</i>
B.S. Civil Engineering	<i>North Bengal University, 1993</i>

1.2 Professional registration

Professional Engineer (**PE**), State of North Dakota, Registration no. 6250

1.3. Executive Education

- Discrete Choice Modeling
Modeling of Transportation Networks *Massachusetts Institute of Technology, 2008*
- Logistics in Supply Chain *Arizona State University, 2009*
- GIS analysis and Geodatabase management *ESRI, 2007*
- Model building in CUBE *Citilabs, 2005*

1.4. Positions Held/Employment History

05/2015 – Present	<i>Associate Professor, Business (Logistics and Supply Chain), University of North Texas - Dallas</i>
08/2010 – 05/2015	<i>Assistant Professor, Business (Logistics and Supply Chain), University of North Texas - Dallas</i>
11/2006 – 8/2010	<i>Faculty “Transportation and Logistics PhD program”, Associate Research Fellow, Upper Great Plains Transportation Institute, North Dakota State University, Fargo, ND</i>
08/2003– 11/2006	<i>Research Assistant, Upper Great Plains Transportation Institute, North Dakota State University, Fargo, ND</i>
09/1996– 08/2003.	<i>Transportation Planner, W.B. Roads Directorate, India</i>
08/1994 – 09/1996	<i>Engineer Planning, Trafalgar House Construction, India</i>

2. RESEARCH

2.1. Research Interests

Freight Travel Demand Modeling. My research in this field includes statewide freight modeling, shipper behavior analysis and mode choice modelling. My interest lies in implementing GIS, GPS, remote sensing technologies, and transportation modeling tools like CUBE to expand the scope of this area.

Corridor improvement study. My research in this area includes studying freight movement in broader perspective i.e. within a number of adjacent states in a multimodal perspective. This research assess existing infrastructure in terms of system capacity to handle existing and future freight traffic. Judicious use of investment funds for infrastructure development is an important outcome of this project.

Integrating intermodal facilities in statewide freight planning. I have embarked on this research to analyze existing intermodal facilities, and identify ways to augment its capacity to the fullest. This research will assist freight planners in their statewide freight planning endeavor. This will also help other stakeholders like railroad companies, shippers, and transportation service providers to make informed decision in connection to intermodal facilities in the state.

2.2. Research Grants Received

2.2.1. Title of project: Integrate supply chain model in urban freight planning (\$95,000)

Role: Principal Investigator

Funded by: Fargo/Moorhead Metropolitan Planning Organization and Mountain Plains Consortium

Brief description: This project aims to incorporate supply chain process in Urban Transportation Planning and integrate logistics decision of the individual firm or firm group to determine shipment size, consolidation and distribution center, mode of transport.

2.2.2. Title of project: Study of air cargo industry and possibilities of future growth (\$70,000)

Role: Principal Investigator

Funded by: North Dakota Aeronautics Commission

Brief description: Critically analyze the freight aviation industry in the state and advise the Aeronautics Commission on ways of expanding this industry by making it more attractive to the shippers and carriers of the state. Investment opportunities in the sector are scrutinized to choose alternative based on multi performance criteria.

2.2.3. Title of project: Development of GIS Multimodal Capacity Model for Northern Tier Freight Corridor (\$30,000)

Role: Principal Investigator

Funded by: Mountain Plains Consortium and North Dakota Department of Transportation

Brief description: Objectives of this project are i) Identify bottleneck locations in the freight corridor. ii) Justify infrastructure investment for capacity expansion. iii) Identify Intermodal locations for capacity enhancement.

2.2.4. Title of project: Forecasting bridge deterioration rates and improvement costs for North Dakota (\$ 120,000)

Role: Principal Investigator

Funded by: Mountain Plains Consortium and North Dakota Department of Transportation

Brief description: The goal of this project is to develop a fully functional bridge life-cycle cost and asset management system. This project provides North Dakota Department of Transportation with an enhanced bridge management tool.

2.2.5. Title of project: A GIS Model for bridge management and routing (\$90,000)

Role: Principal Investigator

Funded by: Mountain Plains Consortium and North Dakota Department of Transportation

Brief description: The objective of this project is to build a comprehensive statewide GIS model that can be used to quantify the economic value of bridges, and provide optimal routes for commercial trucks including oversize, overweight, and hazmat loads.

2.2.6. Title of project: North Dakota Highway Study Needs (\$100,000)

Role: Collaborator

Funded by: North Dakota Department of Transportation

Brief description: The objective of this project was to analyze the investment needs and benefits of high-priority corridors. It also looked into highway needs and benefits associated with ethanol or bio-fuel development and oil-hauling roads.

2.2.7. Title of project: Study to analyze highway needs for an Ethanol processing plant at Spiritwood (\$60,000)

Role: Collaborator

Funded by: North Dakota Department of Transportation

Brief description: This study was conducted to estimate impacts of Spiritwood Energy Park expansions, on county roadways. The purpose of the study was to: i) identify county roads that might be adversely impacted. ii) estimate the additional costs to maintain those roadways to the present service level.

2.2.8. Title of project: Study on Impacts of Transportation Infrastructure on the Economy of North Dakota (\$100,000)

Role: Collaborator

Funded by: North Dakota Department of Transportation

Brief description: Study to assess how improvements to the transportation infrastructure of the state might enhance the business climate and the state's competitive position in the economic development. Specifically, the study calls for an analysis of the benefits and costs of potential enhancements to the state's highways to allow load limits to be raised, to move goods to market more efficiently. In this project statewide freight model was develop to analyze scenarios.

2.2.9. Title of project: Transshipment improvement and optimization of supplies to the production plants (\$70,000)

Role: Collaborator

Funded by: Border States Electric

Brief description: Improve manufacturing performance and return on net asset by optimizing the flow of inputs to production plant. GIS models of the system integrated with optimizing tools were used in this project.

2.2.10. Title of project: Analyzing of Sugar beet logistics network from farm to piling stations and factories

Role: Collaborator

Funded by: American Crystal Sugar

Brief description: Modeling the flow of sugar beet from farm to piling station and factory using a Network flow model. In this project logistics cost component along with transportation cost was used to optimize freight flow.

2.3. Research Publications

2.3.1. Referred Journal Papers - Published

1. Mitra, S. and Shaqlaih, A. "Model selection of Agricultural Shipper's Mode choice by Information Theory Approach" *Annals of Management Science*, accepted for publication.
2. Mitra, S. "Analysis of truck accidents using structural equation models" *Transportation Journal*. Vol. 55, No. 4, 2016, pp. 382-399
3. Mitra, S. "Logistics concepts in freight modeling." *Journal of Transportation Management*. Vol 26, No: 1, 2015, pp 29-42.
4. Kar, N and Mitra, S. "Recruiting a Project Manager – A Hiring Manager's Perspective" *International Journal of Information Management and Project Management*. Vol. 6, Iss: 2015, pp. 54-65.
5. Mitra, S. "Discrete choice model for air-cargo mode selection." *International Journal of Logistics Management*. Vol. 25 Iss: 3, 2014, pp.656 – 672
6. Mitra, S., Bezbaruah, A "Railroad Impacts on Wetland Habitat: GIS and Modeling Approach," *The Journal of Transport and Land Use*. Vol. 1, No. 1, 2014, pp. 15-28.
7. Mitra, S., Tolliver, D., and Dybing, A. "Analyzing Investments Needed to Support Oil and Gas Production and Distribution", *Transportation Research Record*. Vol. 2307, 2012, 1-8.
8. Mitra, S. "Modeling shipper's mode choice for agricultural freight," *Transportation Journal*, Vol. 52, No. 1, 2013, 6-25.
9. Mitra, S., Dybing, A. and Tolliver, D. "Analyzing Impact of Ethanol plants on the highway network of North Dakota," *The Journal of Transport and Land Use*. Vol. 4, No. 1, 2011, 71-81.
10. Mitra, S., Szmerekovsky, J. and Barabanov, N "A stochastic truck routing model for agricultural freight," *International Journal of Operations Research and Information Systems (IJORIS)*, Vol. 2, No. 4. 2011, 1-18
11. Szmerekovsky, J.G., Tolliver, D. and Mitra, S. "Security of Container Movements in Multimodal Freight Networks," *Logistics Spectrum* 44(1), 2010, 24-30
12. Mitra, S. and Tolliver, D. "Estimation of railroad capacity using parametric method," *Journal of Transportation Research Forum* Vol. 49, No. 2. 2010, 111-125
13. Mitra, S., Tolliver, D. and Mitra, S. "Framework for modeling statewide freight using publicly available data", *Journal of Transportation Research Forum*, Vol. 48, No. 2, 2009, 83-102.
14. Mitra, S., Bezbaruah, A. and Talukdar, B. "Environmental Impacts of Deepor Beel Railroad on Elephant Habitats: GIS and Modeling Approach", *Journal of GIS-India*, Vol 18, NO. 2, February 2009, pages 5-7
15. Mitra, S., Tolliver, D., Varma, A. and Dybing, A. "Analyzing the Effects of Spring Highway Load Restrictions on North Dakota's Agricultural Freight Flows", *Transportation Research Record* 2008, 2007, pp. 92-99.
16. Tolliver, D., Dybing, A. and Mitra, S. "Trip Generation Rates for Large Elevators: A North Dakota Case Study", *Transportation Research Record* 1966, 2006, pp. 88-95.

2.3.2. Journal Papers – in prepatation

1. Mitra, S. and Barabanov, N "Implementing bridge asset management using Markov transition matrix."
2. Rao, K. R. and Mitra, S. "Transit Network Structure Selection with Multiple Objectives."

2.3.4. Book Published

1. Mitra, S. "Statewide freight flow model to assess spring load restrictions," Publisher: *VDM Verlag* (October 30, 2008), ISBN: 978-3639089073

2.4. Presentations at Conferences

1. "Value Chain Analysis to Improve Productivity" Academy of Business Research Fall 2016 Conference, September 21-23, 2016
2. "Role of Intermodal Transportation in Optimizing Supply Chain Network" Academy of Business Research Fall 2015 Conference, November 10-12, 2015
3. "Analyzing Compliance, Safety and Accountability using Structural Equation Modeling" presented at SCSUG Educational Forum, November 10-11, 2014
4. "Logistics Clusters Analysis: Southern Dallas County and Northern Ellis Counties" presented at 2014 International Transportation and Economic Development Conference, April 9-11, 2014
5. "Predictors of Hispanics' Intentions to Purchase Health Care Insurance: A Conceptual Model" presented at Forty-First Annual Meeting Federation of Business Disciplines, March 11 –15, 2014
6. "Real Life Variables Impacting the Stakeholders" presented at the 6th Project Management Symposium, UT - Dallas, Texas, August 16-17, 2013
7. "Industry adaptation of Green Supply Chain Management" accepted for presentation at 7th ISDSI & 5th OSCM International Conference at IMI, December 28 – 30, 2013
8. "Greener Supply Chains in Regards to the European Automotive and Asian Electrical Industries" presented at the 46th Annual International Logistics Conference, Jacksonville, Florida, August 14-15, 2012
9. "Recruiting a Project Manager – A Hiring Manager's Perspective" presented at the 6th Project Management Symposium, UT - Dallas, Texas, August 16-17, 2012
10. "Stochastic Truck Assignment" presented at 2011 INFORMS, Charlotte, November 14-16, 2011.
11. "Sustainable Development of Ramsar Wetland of Deepor Beel in Northeast India: A Modeling Approach to Evaluate Degradation" presented in at the Annual conference in Palm Springs, CA, May 2011
12. "Harnessing Truck Count Data from Diverse Sources to Improve Freight Planning" presented at TRB conference on Toward Better Freight Transportation Data a Research Road Map, Irvine, California, USA, May 19-20, 2010.
13. "Security of Container Movements in Multimodal Freight Networks" presented at the SOLE Annual Conference on The Logistics of Global Security, Dallas, Texas, August 18-20, 2010
14. "Improving transportation planning of freight flows by accounting for multiple truck types" presented at 2009 INFORMS, San Diego, October 11-14, 2009.
15. "Evaluating the Impact of Mass Transit Changes on Urban Land Use for the City of Kolkata" presented at Jadavpur University, India, August 1, 2009.
16. "Use of Geographic Information System in Transportation Planning," presented at the International Conference on Transportation and Highway Engineering, Jalpaiguri Government Engineering College, India, February 21-22, 2008.
17. "Development of Statewide Freight Transportation Model to Assess Impact of Highway Spring Load Restrictions," presented at the 87th TRB annual meeting, Washington DC, January 13-17, 2008.
18. "Scan of European Practice with National/Statewide Models," presented at TRB Meeting – Federal Surface Transportation Requirements in Statewide and Metropolitan Transportation Planning, Atlanta, September 3 – 5, 2008.
19. "Impact of transportation on wetland and animal habitat," presented at Transportation Learning Network, UGPTI, North Dakota, November 3, 2008.
20. "Analyzing Satellite Imagery to Develop Freight Generation," presented at the 21st AASTHO GIS-T Symposium, Nashville, Tennessee, March 26-28, 2007.
21. "Analyzing the Effects of Spring Highway Load Restrictions on North Dakota's Agricultural Freight Flows," presented at the 86th TRB annual meeting, Washington DC, January 21-25, 2007.
22. "Generation Rates for Large Elevators: A North Dakota Case Study," presented at the 85th TRB annual meeting, Washington DC, January 22-26, 2006.

2.5. Awards

1. Educator Distinguished Service Award, NDTA, 2015
2. Best Paper Award: AASHTO (American Association of State Highway and Transportation Officials) GIS-Transportation, Nashville, Tennessee, 2007
3. SAS Global Forum Faculty Scholarship, 2014

3. TEACHING

3.1. Courses Taught at University of North Texas at Dallas (2010 – 2011)

1. LSCM 3960, “*Logistics and Supply Chain Management*”
Topics covered: Analysis and design of domestic and international logistics systems. Topics include transportation, warehousing, inventory control, materials handling, packaging, and plant and warehouse locations within and between firms.
2. LSCM 4530, “*E-Logistics in Supply Chain Management*”
Topics covered: Comprehensive inquiry in the role of e-commerce and logistics relationships. Special attention is afforded to resource and technology interdependencies, exchange governance mechanisms and relationship management benchmarking.
3. LSCM 2960, “*Global Logistics and Supply Chain Management*”
Topics covered: Supply chain and alliance strategy in the multi-national firm, materials management, international sourcing and distribution, importing and exporting procedures, international carrier management and operations.
4. LSCM 4560, “*Business Transportation Management*”
Topics covered: Principles of transportation covering the role of transportation systems, environmental and economic impacts, modal components, managerial and economic aspects of the various modes.
5. LSCM 4860, “*Advanced Logistics Management*”
Topics covered: Application of logistics decision-making tools and skills as they apply to inventory, transportation, and warehouse management. Course stresses hands-on application of analytical tools useful in logistics; analysis of the characteristics of logistics system elements and their interrelationships within a company
6. MGMT 3830, “*Operations Management*”
Topics covered: Mathematical techniques for solving problems in the design, planning, and controlling of manufacturing and service operations and quality. Analysis of technological issues of business activities, and a systematic study of managerial and mathematical techniques for making goods and services.
7. MGMT 5240, “*Project Management*”
Topics covered: Investigation and study of the role of projects in contemporary organizations. Includes a presentation of the technical aspects pertaining to the management of complex projects and systems starting with conceptual design and advanced development, and continuing through detailed design, production and termination.

3.2. Courses Taught at North Dakota State University (2007 – 2010)

(Both in-class and online for PhD program in Transportation and Logistics and Executive Certification)

1. TL 753, “*Transportation System Modeling*”, Graduate Level
Topics covered: system capacities and flows, comprehensive models of transportation and urban systems, and understanding how political processes, new technologies, and economic considerations affect transportation decisions.
2. TL 754, “*Urban Transportation Planning*”, Graduate Level
Topics covered: analytical techniques employed in urban transportation planning, such as traffic forecasting and system capacity analysis and apply these techniques using real-world data for analyzing both the demand and supply of transportation.
3. TL 753, “*Spatial Analysis of Transportation Systems*”, Graduate Level
Topics covered: transportation and network models within GIS environment, network analysis, urban and land use planning, routing of hazardous material, asset management.

4. SERVICE

4.1. Professional Activities

- Deputy Editor - Article Reviews, Author & Reviewer Services, *Annals of Management Science*
- Member of Editorial Board, *International Journal of Information Systems and Supply Chain Management*
- Member of steering committee, *Transportation Statistics Interest Group*
- Member of *GIS-T Planning Committee*
- Member of *TRB Spatial Data and Information Science Education Subcommittee*
- Member of *TRB International Research and Technology Transfer Subcommittee*
- Stakeholder in the United States Department of Transportation's *Regional Intermodal Freight Technology Working Group (IFTWG)*
- Proposal Reviewer or Review Panelist for
 - Region 2 University Transportation Research Center, based at the City College of New York
 - Midwest Regional University Transportation Center
- Reviewer of the Following Journals
 - Transportation Research Record
 - Transportation
 - Transportation Research Part E
 - Transport
 - Int. J. of Information Systems and Supply Chain Management
 - Transportation Research Forum

4.2. Major Administrative Service

- Program coordinator, Supply Chain management undergraduate program, 2010-2016
- Co-chair, Student recruitment committee, 2010-2012
- Chair, Aviation Logistics program initiative committee, 2010-2011
- Faculty advisor, Student association in Supply Chain and Logistics, 2010-2011
- Member, PhD program Curriculum Committee, 2007-2010
- Member, Transportation and Logistics PhD committee, 2007-2010
- Member, PhD qualification exams committee, 2007 – 2010
- Member, PhD program admission committee, 2007 – 2010
- Faculty advisor, Student association in Transportation and Logistics, 2007-2011

4.3. Memberships

- Institute for Supply Management (ISM)
- International Society of Logistics (SOLE),
- Transportation Research Board (TRB),
- Transportation Research Forum (TRF),
- American Society of Civil Engineers (ASCE),
- Institute of Transportation Engineers (ITE)

5. COMPUTER SKILLS

- GIS: ARCGIS
- Transportation Planning: CUBE – Voyager, Analyst, Cargo
- Optimization Software: OPL, CPLEX, MPL, LINDO, LINGO, ARCLOGISTICS
- Statistical Software: SAS
- Programming language: FORTRAN, Visual Basic, C++
- Asset management: PONTIS
- Economic effect analysis: REMI TranSight
- Project Scheduling Software: Primavera, Microsoft Project