Integrated Modeling for Location Analysis

Ho-Yin Mak

Saïd Business School, University of Oxford UK ho-yin.mak@sbs.ox.ac.uk

Zuo-Jun Max Shen University of California at Berkeley

USA maxshen@berkeley.edu



Contents

1	Introduction	3
	Brief Review of Classical Location Theory	5
	Aims and Scope	15
	Notation	17
2	Integrated Modeling Approaches	19
	Nonlinear Integer Programming	19
	Stochastic Programming	24
	Continuous Approximation	26
	Discussion	33
3	Solution Techniques	37
	Decomposition Methods	37
	Conic Programming	50
	Dimensional Analysis	53
	Discussion	62
4	Applications in Supply Chain Settings	63
	Capacitated Distribution Center Location for Traditional Supply	
	Chains	63
	Supply Chain Design under Uncertainty	69
	Multiple-Commodity Supply Chain Design	75

Acknowledgements		145 147
A also and a discourants		1 4 5
6	Conclusion and Future Directions	143
	Deployment of Energy Storage Devices in the Electric Grid Retail Expansion with Demand Learning	127 134
5	Applications in Emerging Areas Infrastructure Planning for Electric Vehicles	111 112
	Supply Chain Design with Disruption Considerations	89 98