

**Calibration of transportation models with scarce cost data:
a Mathematical Program with Equilibrium Constraints**

Charalampos Avraam*, Anastasia Lambrou†, Wei Jiang*, Anthony So†, Sauleh Siddiqui*

The lack of detailed cost data in critical sectors of the economic system, such as the Livestock production sector, confines the ability of economic modelers to properly account for critical details, limiting the usefulness to policymakers. In order to calibrate for unknown or uncertain parameters, our proposed calibration method is formulated as a Mathematical Program with Equilibrium Constraints, where the lower level is the market equilibrium problem and the upper level minimizes the difference of the uncertain or unknown parameters from trademark values. Furthermore, we systematize the trade – off between accurately calibrating for a set of parameters versus another.

*C. Avraam, W. Jiang and S. Siddiqui {cavraam1, wjiang16, siddiqui}@jhu.edu are with the Department of Civil Engineering, The Johns Hopkins University.

† A. Lambrou and A. So {anastasia.lambrou, anthony.so}@jhu.edu are with the Johns Hopkins School of Public Health, The Johns Hopkins University.