Sensitivity Analysis of a Bilevel Traffic Equilibrium Problem with Welfare Constraints

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Transport planners currently face a major challenge to devise future transport plans to meet multiple expectations and objectives. In this research, we aim to develop a decision-support tool for enhancing the understanding of various transport policies and finding appropriate transport measures. We are developing a suitable model for the urban transport system, together with flexible mathematical forms for expressing efficiency, equity and public acceptability considerations in the form of objectives and constraints. The model is intended to be used for studying the impact of various policies based on the use of sensitivity analysis expressions of the inputs to the model. In this presentation a bilevel model is given together with solution methods for the lower level problem and the corresponding sensitivity analysis problem.