系统科学与数学 2009 29 (1): 80-93 ISSN: 1000-0577 CN: 11-2019/O1

多用户多准则随机系统最优与最优收费

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收稿日期 2006-9-15 修回日期 2007-4-6 网络版发布日期 2009-2-5 接受日期

摘要 针对固定交通需求量和出行者的时间价值为离散分布的多准则随机交通均衡,
分别研究了依费用度量和依时间度量的多用户多准则随机系统最优和最优收费问题.
分别建立了基于费用和基于时间的随机系统最优的最优化模型,
阐述了该模型解的唯一性条件及等价的变分不等式问题.运用变分不等式方法,研究了一阶最优收费的可行性,
即能否依边际定价原则,
通过收取与出行者类别无关的道路收费使多用户多准则随机均衡流与随机系统最优流一致.
一阶最优收费不适用于依时间度量的随机系统最优情况,
因而建立了一个最优化模型来得到此时的非歧视性道路收费.最后给出了具体算例.

关键词 随机均衡,系统最优,一阶最优收费,变分不等式.

分类号 90B20

The Multi-Class, Multi-Criteria Stochastic System Optimum and Optimal Toll Problem

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Abstract In view of multi-criteria stochastic network equilibrium with fixed demand and discrete value of time, the multi-class, multi-criteria stochastic system optimum and optimal tolling problem are considered, in time and cost respectively. Two stochastic system optimization models are established on the basis of cost and time, respectively. Also the uniqueness conditions of their solutions and equivalent variational inequality problems are obtained. The feasibility of the first order best toll is studied. Since the first order best toll is not suitable for time-based stochastic system optimum, an optimization model is presented to find the feasible toll pattern. Finally, an example is shown.

Key words Stochastic traffic network equilibrium system optimum first order best toll variational inequality.

DOI:

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