Mathematical and Economic Theory of Road Pricing

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About the Book

This book provides the most recent methodological advances in applying advanced modeling techniques to road pricing. Distinguished from other monographs that have focused on the empirical aspects, policy experiences, and environmental issues of road congestion and road pricing, most studies presented in the book are carried out within the general network equilibrium context with rigorous optimization and economic theories. Topics discussed in the book include: fundamentals of traffic equilibrium problems; principle of marginal-cost road pricing; models and algorithms for the general second-best road pricing problems; discriminatory and anonymous road pricing; social and spatial equities; Pareto pricing and revenue refunding schemes; pricing, capacity choice and financing; simultaneous determination of toll levels and locations; sequential pricing experiments with limited information; bounding the efficiency of road pricing; and dynamic road pricing. It is valuable for any academic or professional reader interested in or involved in implementing road pricing.