Review of Congestion Pricing Established Systems in Europe and Asia: Evaluation of Success

Aikaterini “Catherine” Rentziou  
Center for Transportation Research and Education  
Iowa State University  
2711 S. Loop Drive, Suite 4700  
Ames, IA 50010  
rentziou@iastate.edu

Konstantina “Nadia” Gkritza  
Center for Transportation Research and Education  
Iowa State University  
2711 S. Loop Drive, Suite 4700  
Ames, IA 50010  
nadia@iastate.edu

ABSTRACT

Congestion pricing consists of a widespread method of traffic management, especially in areas with major traffic problems. The first system of congestion pricing was established in Singapore in 1975, and since then, various cities have established similar systems in order to reduce traffic congestion. Bergen, in Norway, was the first European city to establish a system of congestion pricing in 1986, and a few years later, Oslo and Trondheim followed. The most recent examples of cities with system of congestion pricing are London and Stockholm.

The major aim of all these systems is to reduce traffic congestion in the central area of cities and to improve the daily trips by decreasing time of travel and delays. Meanwhile, congestion pricing systems target the improvement of people’s lives in metropolitan areas by improving public transportation through investments on this sector and by reducing air pollution.

Although the results from the already established congestion pricing systems are encouraging about the success of such systems, many transportation engineers are still critical of this type of traffic management. Congestion pricing is considered as the last step of traffic management, following other less-strict strategies (or policies) such as increases on tax fuels, promotion of public transportation, construction of bike routes, or building of new infrastructure.

The aim of this study is to present the already established cordon systems of congestion pricing and to evaluate their results. The systems are presented in terms of their characteristics, the way of establishing them, and their goals. The success of those systems is measured by how well they achieved their goals. Measures of evaluation of congestion pricing schemes include the percentage increase in vehicle speeds during peak hours, the percentage of people who were encouraged to change their mode of transportation due to congestion pricing, and the decrease in air pollution. As more and more cities around the world face considerable problems due to traffic congestion, understanding and learning from the already established congestion pricing systems and their results is vital. In particular, various cities in the United States (such as Chicago, Los Angeles, or New York) are looking into establishing cordon systems of congestion pricing instead of (or supplemental to) high-occupancy vehicle lanes. The results of this study
can be beneficial in the progressive establishment of similar systems in the United States and can assist transportation agencies and policymakers select the most appropriate pricing scheme for their jurisdiction.

**Key words: congestion pricing—cordon system—system evaluation**