

**ANALYZING THE EFFECTS OF ROAD PRICING ON FREIGHT CARRIER  
BEHAVIORS WITH EXPERIMENTAL ECONOMICS: A COMPARISON OF  
PEAK-HOUR DELIVERY AND OFF-HOUR DELIVERY**

by

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## **ABSTRACT**

The goal of this study is to experimentally examine freight carriers' response to road pricing in peak hours and off-hours. The general procedure is to bring real people in a controlled environment where they make choices to earn (or lose) real money. This situation imitates people's utility maximization behavior when they are given incentives. The study finds that carriers tend to choose toll roads in peak hours in order to ensure an on-time delivery, regardless of the type of cargo. In contrast, they are reluctant to choose toll roads in off-hours. For a delivery of 50 miles, the receiver's final cost is lowered by approximately 25% if it switches from peak-hour delivery to off-hour delivery. The paper sheds light on the time of travel choice behaviors of freight carriers under the constraint of delivering the cargo in a given time window. Findings of this study reinforce the empirical observation that road pricing is of limited effectiveness to manage urban freight.