

## 报告 29

依托大数据分析改善出租车行业的公共安全和效率

### How Big Data Analysis in Taxi Market Improves Public Safety and the Efficiency of Service

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#### 报告摘要 Abstract

Information technology has improved service quality in transportation. What is the value of big data to taxi drivers? We demonstrate how big data analysis can reduce the accident rate and help drivers earn more. In our first study, we find a link between the color of a taxi and how many accidents it has. An analysis of 36 months of detailed data of taxi, driver, and accident data (comprising millions of data points) from the largest taxi company in Singapore, suggests that there is an explicit link. After controlling driver demography, driving time and travel distance, yellow taxis generally had 6.1 fewer accidents per thousand taxis per month than blue taxis. We empirically show that yellow taxis are more noticeable than blue taxis – especially when in front of another vehicle, and in street lighting – so other drivers can better avoid hitting them, directly reducing the accident rate. Our second study focuses on whether taxi drivers always make optimal decisions because they are professional. Drivers can only know the optimal path if they have complete information about the demand for taxi service and supply decisions of other competing drivers. The complete information seems to be a challenge for a driver without real-time Internet support and we wonder how far away a traditional taxi driver deviates from the optimal driving path. With the electronic records on 300,690 work shifts from 3,341 taxi drivers provided by the largest taxi company in Singapore, we study how much potential earning drivers can yield if they have complete information. The finding of this paper provides an estimate for the economic contribution of Internet-based information sharing.