

How ride-hailing services affect bus ridership using micro-level data

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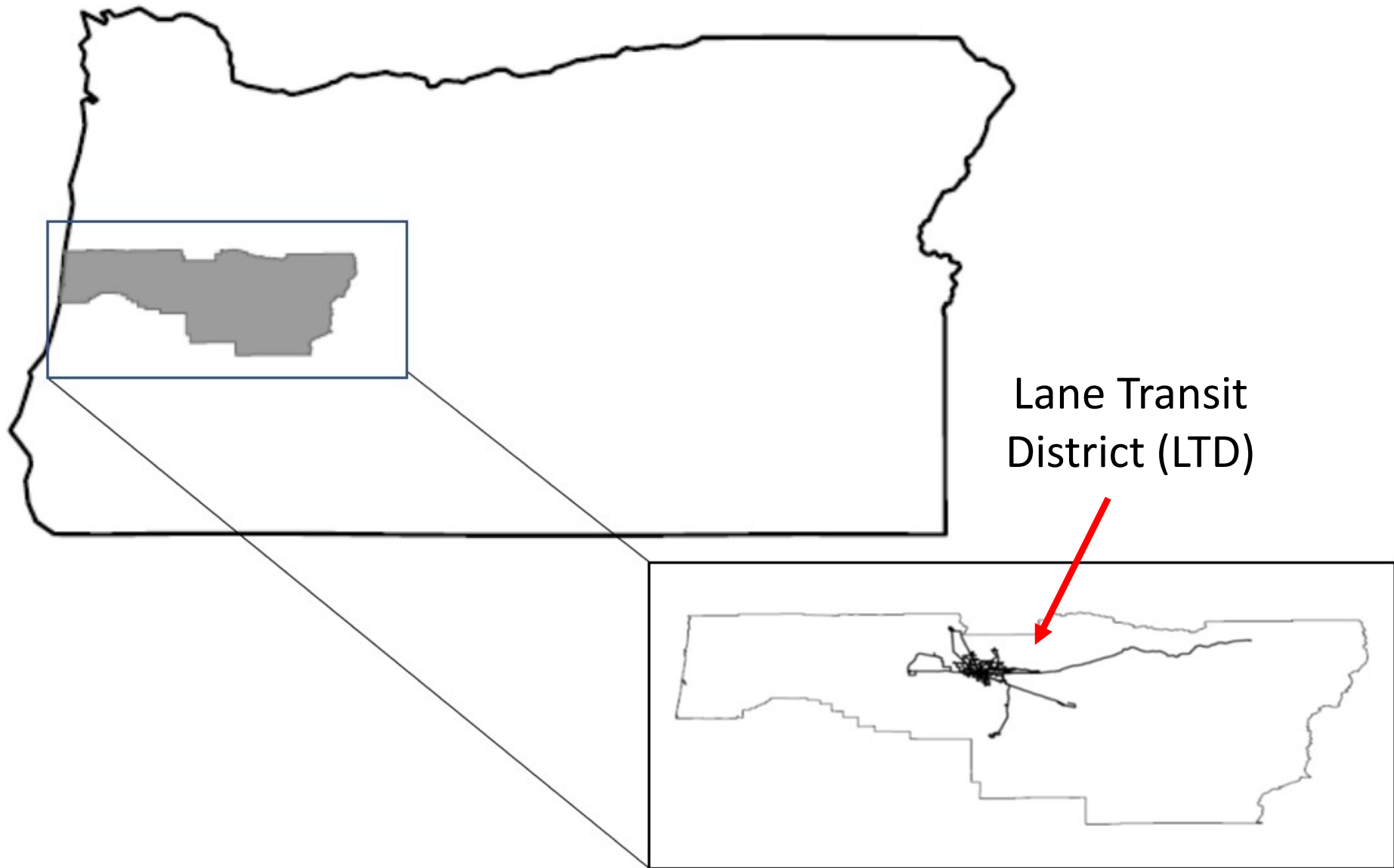
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Background and motivation

- Few studies have examined the impacts of transportation network companies (e.g., Uber, Lyft) (TNCs) on bus ridership
 - TNC data scarce
- Previous work using bus ridership data suggests relationship varies (Hall et al. 2018)
 - Size and direction of effect is unclear
- Growing partnerships between TNCs and transit
- What about the other cities, esp. medium-sized cities?
What is the status quo?

Setting: Lane County, OR



Methods and data

- “Natural experiment”: Uber operated in Eugene between July 24, 2014 and April 5, 2015
 - Sued by Eugene → left (returned in 2018)
- Bus ridership (# of people who alight and board) at a given bus stop and time- 39 million observations between 2012 and 2017
- Regression analysis (negative binomial): Impacts of bus ridership compared
 - Compare to control cities and control period
 - Effects across days and within days
 - Across different neighborhoods

Preliminary results

- Status quo: Overall *increase in bus ridership by 2%* when Uber was active in Eugene/Springfield relative to control cities and prior to Uber's entry
 - Average bus ridership per stop, time period, and date: 14 people
- Variation within day?
 - Bus ridership increases during morning rush hour to evening rush hour
 - Bus ridership decreases after 6pm
- Variation across days? No difference between weekdays and weekends
- Variation across neighborhoods? Bus ridership increases by 1% in downtown
- Increase in bus ridership after Uber leaves... not sure why

Policy implications

- Results robust to ample controls and different specifications
- Status quo: Bus ridership increases modestly when Uber was active in Eugene (complements)
 - However, lots of variation *within* days
 - Active partnerships between transit agencies and TNCs could benefit both parties → especially at night
 - Relevant for similar-sized college towns (college students ride the bus for free)
 - Buses less frequent