

Ridehailing Service Equity in Normal and Rare Conditions

Purpose: To investigate the economic and equity impacts of ride-hailing services like Uber and Lyft, along with public policies that may enhance benefits and mitigate private and social costs and equities.

Approach: The team simulated Uber/Lyft and personal vehicle rides to understand the traffic implications and cost to society of congestion, air pollution, crash risk and greenhouse gas emissions. Additionally, they conducted a statistical analysis to identify the effect of Chicago's policy on peak downtown rides relative to other rides. A fleet of Transportation Network Company (TNC) vehicles was optimized using TNC travel data to compare while optimizing fleet for minimum social costs.

Key Findings:

Costs and Traffic implications of Uber/Lyft:

- ✓ *Uber/Lyft increase traffic with their movement, picking up and dropping off passengers, clogging streets*
- ✓ *Increased external costs per trip to society by 45¢*

Impact on U.S. Cities:

- ✓ *Increased economic growth, employment, and wages of TNC jobs*
- ✓ *Vehicle ownership increased by 0.7%*
- ✓ *Higher ridership in higher income or fewer children cities*

Environmental Implications:

- ✓ *Reduced air pollution damages by 9 - 13¢ per trip*
- ✓ *Policies to encourage electrification is suggested, to reduce air emission costs*

Equity Implications

- ✓ *Low-income travelers are unable to adjust travel behavior in response to COVID-19 pandemic, heatwave, and situations alike*

Conclusion: City tax policies and policies related, but not limited to encouraging optimization or electrification of fleet are likely to make TNCs operate more effectively. Additionally, the team recommends surveys to better understand low-income neighborhoods preference of travel choices and the impact on traffic, environmental, and equity.



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Project Record:

- <https://ppms.cit.cmu.edu/projects/detail/350>

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