A Survey of Ride-Hailing Passengers

Steven Gehrke
Boston Metropolitan Area Planning Council

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A Survey of Ride-Hailing Passengers

Steven R. Gehrke, PhD
Senior Research Analyst
Metropolitan Area Planning Council
Presentation Outline

- Introduction
  - Agency overview
  - Ride-hailing research context

- Ride-hailing in Metro Boston
  - Survey design and administration
  - Findings and main themes from Fare Choices report

- Ride-hailing in Massachusetts
  - Legislatively-mandated data and methods
  - Findings from Share of Choices brief

- Conclusions
  - What have we learned from this work?
  - What are the next steps for research?
Agency Overview

**Metropolitan Area Planning Council**

- Established in 1963 as regional planning agency serving 101 cities and towns of the Greater Boston region.
- Governed by representatives from each municipality and gubernatorial or public agency appointees.
Research Context

- **Uber and Lyft have recently and dramatically altered the way that we travel**
  - In MA, Uber started service in 2011 and Lyft started service in 2013.  
  - In OR, Uber started service in 2014, legally in 2015 along with Lyft.  
  - In US, ride-hailing and cab services will likely exceed local bus ridership by end of 2018.

- **Research challenge**
  - Public agencies are unable to collect meaningful data from these private services.
  - Without these data, it’s difficult to provide meaningful insight on the impacts of ride-hailing services.
  - Consequently, public agencies cannot effectively manage new mobility industries and technologies.

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*b Rose, J. Lyft and Uber will start operating (legally) in Portland on Friday. The Oregonian: www.oregonlive.com/commuting/index.ssf/2015/04/uber_lf_launching_in_portland.html  
Data Needs and Research Questions

• Inform regional travel demand modeling and forecasting methods
  o Who uses ride-hailing services and what are the main reasons for adoption?
  o Can we predict the growth in this adoption of on-demand mobility options?

• Understand impacts to the transportation system
  o What are the impacts of ride-hailing services on traffic congestion and transit ridership?
  o How are ride-hailing services contributing to auto ownership, vehicle miles traveled, and parking demand?

• Improve traffic management and operations
  o Where should public agencies be designating ride-hailing pick-up and drop-off locations?
  o Can ride-hailing data help inform traffic signal timing, lane management, or congestion pricing?
Data Collection Efforts

• **Strategy 1**: Inquire ride-hailing companies directly .................................................................
  ✗

• **Strategy 2**: Inquire ride-hailing drivers directly .................................................................
  ✗

• **Strategy 3**: Acquire trip-level data from a driver reporting app .................................
  ✗

• **Strategy 4**: Acquire ‘big data’ source from Northeastern University .........................
  ❓

• **Strategy 5**: Collect ride-hailing passenger survey .................................................................
  ✓

• **Strategy 6**: Utilize legislatively-mandated data reporting .................................................................
  ✓
Ride-Hailing in Metro Boston

Fare Choices Report
www.mapc.org/farechoices

Authors
Steven R. Gehrke
Alison Felix
Timothy Reardon

Additional Contributors
Jessie Partridge Guerrero
Eric Bourassa
• **Study objectives**
  o To better describe regional ride-hailing passengers and trips.
  o To examine if services are substituting travel by more sustainable and affordable modes.

• **Understand ride-hailing impacts on regional equity goals**
  o Do ride-hailing services provide a viable mobility option to areas underserved by rapid transit?
  o Is this new shared mobility option exacerbating or improving economic inequities?
In Fall 2017, MAPC recruited and trained 10 drivers to ask passengers if they would take a tablet-based survey during their ride-hailing trip.

Survey instrument recorded passenger responses pertaining to:
- Passenger sociodemographic and economic characteristics.
- General travel patterns and mobility options.
- Specific ride-hailing trip context.

Nearly 1,000 responses collected over four-week period.
Demographics

Respondent Age

- 82% of ride-hailing passengers were born after 1983.
Household Income

- 26% of ride-hailing passengers reported an annual household income below $38,000.
- 57% of respondents within the lowest income bracket reported having part- or full-time employment.
Travel Patterns

Frequency of Use

- 66% of ride-hailing passengers reported using these services on a weekly basis.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>First ride</td>
<td>12</td>
</tr>
<tr>
<td>Rarely</td>
<td>39</td>
</tr>
<tr>
<td>Sometimes</td>
<td>1 to 3 rides per month</td>
</tr>
<tr>
<td>Regularly</td>
<td>1 to 3 rides per week</td>
</tr>
<tr>
<td>Frequently</td>
<td>4 or more rides per week</td>
</tr>
</tbody>
</table>
Trip Context

Vehicle Occupancy

- 80% of surveyed ride-hailing trips used the standard (non-pooling) service option.
Trip Context

- **Home as Origin**: 28% of trips
- **Home as Destination**: 41% of trips
Trip Context

Time of Day

- Greatest share of surveyed trips took place in the evening between 7pm and midnight.
- On weekdays, 40% of surveyed trips occurred during the four-hour morning or evening commute periods.
Trip Context

Trip Cost

- 46% of ride-hailing passengers took a trip under $10.
Trip Context

Mode Substitution

- 59% of ride-hailing trips resulted in an additional vehicle on the road.
Trip Context

Main Reasons

- 73% of passengers who substituted transit use for ride-hailing stated “quicker than transit” as a main reason.
Major Theme

Traffic Congestion

- 15% of all ride-hailing trips replaced more sustainable modes during peak periods.
**Major Theme**

**Competitive Choices**

- Passengers from a lower-income household with a transit pass, adopted ride-hailing services for shorter, lower-cost trips than individuals from higher-income households.
Report's Conclusions

• **Main findings**
  o Demographics suggest quick adoption and raise concerns of habit development.
  o Substitution of more sustainable modes is worsening regional roadway congestion.
  o Individuals in lower-income households see ride-hailing as a viable alternative to transit.
  o Individuals without nearby rapid transit service are adopting these services for travel to/from home.

• **Policy implications**
  o Adjustments to increase the legislatively-mandated $0.20 ride assessment are needed.
    o $0.20 per ride surcharge through 2027, with $0.10 provided to muni where trip originates.
    o Our report estimated a revenue loss of $0.35 per ride-hailing trip for MBTA.
  o Improved provisions and protocols for data sharing agreements with public agencies are needed.
In August 2016, Governor Baker signed legislation related to ride-hailing companies
  - Companies must report to Dept. of Public Utilities (DPU) in regard to certification and driver oversight.
  - Part of legislation allowed state to begin collecting ride-hailing data on January 1, 2017.
  - Annual data on municipal-level trip counts, aggregated trip route/length, and crash sites.

Data were publicly released on May 1, 2018
  - In 2017, there were approximately 64.8 million ride-hailing trips that started in Massachusetts.
  - For context, more than 408 million public transit trips were taken in the Commonwealth last year.
  - Over 34.9 million ride-hailing trips began in Boston, with another 6.7 million starting in Cambridge.
  - Average ride-hailing ride in Massachusetts lasted 15.4 minutes and traveled 4.5 miles at 17.7 mph.

Study Overview

• Impact 1: Travel mode share
  o Use MPO’s modeled travel demand data to complement DPU’s observed ride-hailing data.
  o Produce municipal-level mode splits (ride-hailing, transit, etc.) for where travel originates and ends.
  o For Inner Core, compute a relative ratio between mode shares for public transit and ride-hailing.

• Impact 2: Revenue and funds
  o Use $0.35 revenue loss per ride-hail trip statistic and DPU data to estimate net revenue impact for MBTA.
  o Provide further context on how legislatively-mandate per ride assessment provides funding for localities.

• Impact 3: Vehicle miles traveled
  o Use Vehicle Census data and DPU ride-hailing data to estimate statewide ride-hailing VMT.
  o Provide an estimate of ride-hailing VMT to all passenger VMT in Massachusetts.
Ride-hailing Travel Mode Share
Ride-hailing and Public Transit Competition
Main Findings
- In Boston, we estimate that nearly one in every 25 trips is performed using ride-hailing services.
- In region’s Inner Core, at least one ride-hailing trip is conducted for every five public transit trips.

Impact on Revenue and Funds
- In 2017, we estimate the net revenue impact of ride-hailing to MBTA as a loss of about $16.5 million.
- The 20 Inner Core municipalities will receive about $5.5 million from $0.10 ride assessment.
  - In 2019, communities will receive $34.8 million for roadway capital improvement projects.
  - Per-ride surcharge provides welcome new revenue, but remains a relatively small amount.

Impact on VMT
- In Massachusetts, ride-hailing accounted for 291 million miles of passenger travel in 2017.
- Statewide, ride-hailing travel accounted for just over half a percent of all passenger VMT.
Discussion

**Conclusions**
- Ride-hailing has become a viable travel option as well as competing alternative to public transit.
  - 42-percent of surveyed passengers substituted public transit use with ride-hailing services.
  - Ratio of ride-hailing-to-public transit mode shares highest in areas without rapid transit service.
- Ride-hailing adoption and utilization is largely led by millennials and urban residents.
  - 80-percent of surveyed passengers were under 35 years of age.
  - 84-percent of ride-hailing trips in Massachusetts took place in 20 Inner Core communities.

**Next Steps**
- Greater insight needed into ride-hailing trip distribution, travel patterns, and routes.
  - Available data sets do not track trips from origin to destination.
  - Data valuable for understanding impact on transportation system and traffic operations.
- Build evidence base on ride-hailing adoption to plan for automated vehicle fleet introduction.
Thanks. Questions?

Steven R. Gehrke, PhD
sgehrke@mapc.org