TNCs & AVs

CAN'T STOP, WON'T STOP.

DOWNLOAD & RIDE
TNCs are not the same thing as Ride-sharing

- Driver and passenger(s) are usually headed to same/similar destination e.g.
  - Employee carpool
  - Casual carpool
- Not for profit, although expenses may be reimbursed
The TNC markets has experienced astonishing growth.

Gross Bookings (billions $)

$-
$5
$10
$15
$20
$25

2013 2014 2015 2016
TNCs Growth

Lyft Annual Completed Rides (Millions)

Lyft's completed rides tripled from 53.3 million to 162.6 million. Lyft
However, much of that growth is possible due to investors…

Uber is losing $2 billion a year, new report says, with passengers paying for only 41% of each ride.
Taking a page out of the Amazon playbook
TNCs by the numbers

- Lyft offers coverage to 55 percent of the US population
- Uber offers coverage to 75 percent of the US population
- 15% of American adults report using Uber or Lyft\(^1\)
- 1 out of 10 trips by San Francisco residents (aged 25-36) is a TNC trip
- TNC use in San Francisco has doubled since 2015
- Use of TNCs skews towards the urban, < 50 yo, and upper income

\(^1\)Between Public and Private Mobility: Examining the Rise of Technology-Enabled Transportation Services, TRB 2015
SFCTA’s “TNCs Today”

- ~45,000 TNC drivers in SF
- ~5,700 TNC vehicles active typical weekday peak, ~6,500 at Friday peak
- ~15% of all intra-SF vehicle trips (9% of all person-trips)
- Generates ~570,000 VMT per day, up to 20% of intra-SF travel
- ~6.5% total weekday vehicle miles in the city
- “Deadhead” factor of 20% (better than taxis: 40%)
In some instances, TNCs may be shifting people away from “non-auto” modes

- Mode shifts away from transit, walk, and bike
- Serving latent travel demand, but increasing VMT

<table>
<thead>
<tr>
<th>Mode Shifts from</th>
<th>San Francisco</th>
<th>Denver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit</td>
<td>35 – 40 %</td>
<td>20 – 25 %</td>
</tr>
<tr>
<td>Walk / Bike</td>
<td>10 %</td>
<td>10 – 15 %</td>
</tr>
<tr>
<td>Taxi / Auto</td>
<td>50 – 55 %</td>
<td>60 – 70 %</td>
</tr>
<tr>
<td>Induced Trips</td>
<td>8 %</td>
<td>12 %</td>
</tr>
<tr>
<td>Added Vehicle Trips</td>
<td>~50 % (of TNC)</td>
<td></td>
</tr>
</tbody>
</table>
Effect on Transit in NYC (Schaller)
TNCs have been good for the ‘speculating about what’s going on with transit’ business.
There may be a steep VMT downside to some TNC ridership

New vehicle and TNC trips generate VMT in both new and novel ways (and less productive):

- Induced trips i.e. trip that would not have occurred
- Conversion of a ped/bike/transit trip to vehicle trips
- (to/from home to driving area)
- (waiting for a request/cruising)
- (the ‘pre-trip’, since the driver first needs to come to you)
- (distant pickups or drop-offs due if sharing)

A *doubling* effect on VMT

Potential effects on Vision Zero, GHG goals
TNCs convert demand for parking into demand for passenger loading.
Leaving those who think deeply about parking with more than a few unanswered questions
Trend towards AVs replacing TNC drivers is clear, even if progress is disjointed.
Impacts are likely to become more pronounced as AVs replace TNC drivers.
Public and Shared

VS

Private and Mine
What exactly is an AV?

- **0: No Automation** - Zero autonomy; the driver performs all driving tasks.
- **1: Driver Assistance** - Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.
- **2: Partial Automation** - Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.
- **3: Conditional Automation** - Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.
- **4: High Automation** - The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.
- **5: Full Automation** - The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.
Where will the AVs sleep at night?
Will we need to pay for use?
Downside effects that could become realities

**VEHICLES**

**RANGE OF RESULTS**

- **Vehicle Miles Traveled**
  - **50% SHARED AVs**
  - **AV model results**

- **Vehicle Trips**

- **Average Vehicle Trip Length**
Downside effects that could become realities
A Role for Policy: Encourage of and/or Subsidize Shared AV Use as Opposed to Owned
A role for policy: Investment in frequent, quality transit service in urban areas as well as cycling and pedestrian safety infrastructure in all areas.
A role for policy: Reconsider local parking codes and public parking prices based on community goals and values
A role for policy: Determine if a cap on the number of lanes or areas available to AVs is appropriate.
A role for policy: Create additional opportunities for passenger and commercial loading
A role for policy: Consider whether separate facilities and/or whether road use pricing or priority schemes is appropriate.
A role for policy: Prepare for the consequences of reduced sensitivity to in-vehicle time
A role for policy: Prepare for what is now parking to become available as well as design any future urban parking facilities for eventual conversion.