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Transportation Network Companies: Broadening Access and Improving the Efficiency of Travel

Summary for Policymakers

Transportation network companies (TNCs) ridership is on pace to reach an annual rate of 4.2 billion passengers by the end of 2018.¹ Despite the astronomical rise of the TNCs, little is understood about on-demand ride hailing's impact on communities, in part because of the limited public availability of detailed usership data.

Securing America's Future Energy (SAFE), a nonpartisan, nonprofit organization focused on reducing America's dependence on oil, examined the newly-released 2017 National Household Travel Survey (NHTS) in an attempt to better understand how the TNCs impact various travel behaviors and communities, and sought to shed light on the following:

- Impact of TNCs on the large-scale trends in travel volume, trip purpose, and access to for-hire ride services;
- Whether the TNCs lead to higher occupancy vehicle trips and, therefore, more efficient use of roadways;
- The extent to which the expansion of TNCs have improved transportation access outside of city centers and whether TNCs have impacted the speed of travel in communities.

While further data and analysis are needed to better assess detailed local impacts, SAFE's research found:

- TNCs have improved transportation access for middle and lower-income families—there has been a 3-fold increase in ridership from those earning between \$25,000 and \$50,000, reflecting the unmet demand from taxi services;
- Occupancy rates of TNC trips are 50% higher than taxis and higher than personal vehicles;
- The same volume of demand can be met with 33% fewer vehicles if driven by TNCs rather than taxis;
- TNCs increase transportation access outside of city centers, with ridership rates in for-hire vehicles in non-urban households tripling since 2009, and;
- In total, speed on U.S. roadways has remained unaffected by the surge in TNC use, including across urbanized areas.

As cities and towns across the country consider transportation policies meant to increase access and efficiency while decreasing congestion by regulating TNC operations, it is important to understand the broader, positive impacts these services can continue to provide to communities across America.

¹ Schaller, B. The New Automobility: Lyft, Uber, and the Future of American Cities. Schaller Consulting. July 25, 2018. <http://www.schallerconsult.com/rideservices/automobility.pdf>. Accessed July 30, 2018

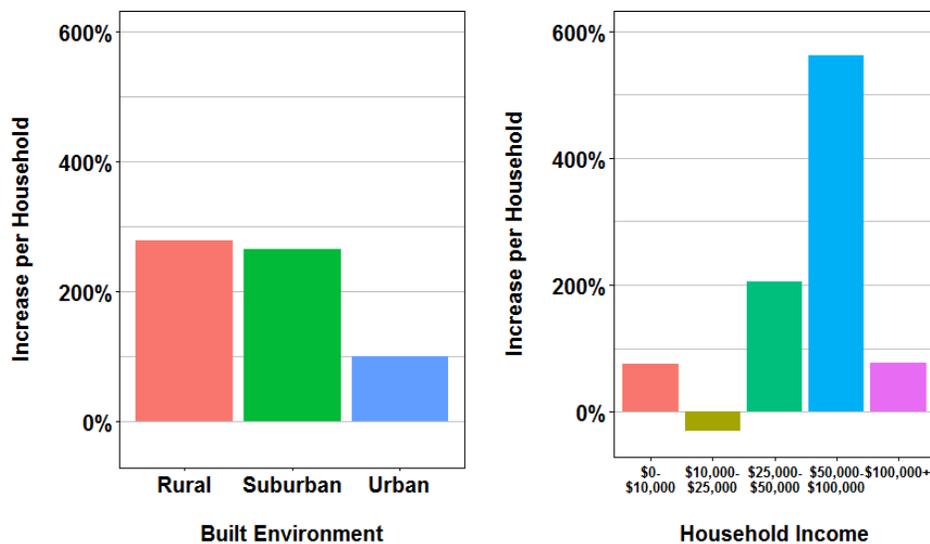
Determining TNC Impacts on Broadening Ridership Demographics

A recent study estimated that TNCs will serve more than 11 million riders every day by the end of 2018. While taxis historically have not served non-urban or middle-class households, the growth in TNC usage has been incredibly strong for these previously underserved groups.

Traditionally, use of taxis was highly skewed by income, with use highest among very low and very high-income households.² Since the deployment of TNCs, statistics show that ridership in non-urban households has more than tripled. In addition, middle-class households have been found to use TNC services three to six times more than they had previously utilized taxi services.

A government survey that took place shortly before TNC deployment showed that very poor households (those with incomes under \$10K) used taxi services more than any other group and that lower (\$25-50K) and upper (\$50K-\$100K) middle class households largely did not use them.

FIGURE 1: Increase in For-Hire Vehicle Ridership (2009 – 2017)



SAFE's analysis of the NHTS found that since 2009, for-hire ride services (the category including both taxis and TNCs) have experienced a concentrated increase of riders in upper-middle class households, which experienced a 562 percent, or almost six-fold, increase in ridership. At the same time, for-hire ride services from lower-middle class households more than tripled ridership. Upper-class households use taxis and TNCs at higher rates than other households, however, their ridership growth was considerably less than middle-class households.

Expanding ease and access to on-demand, shared transportation is a precursor to effecting change in vehicle ownership and usage patterns. Recent KPMG analysis showed that 67 percent of the U.S. population can access an Uber trip with a less than 10-minute wait time.³ The convenience and affordability of TNCs across income brackets and geographies increase the likelihood that they emerge as a viable substitute to personal vehicle ownership.

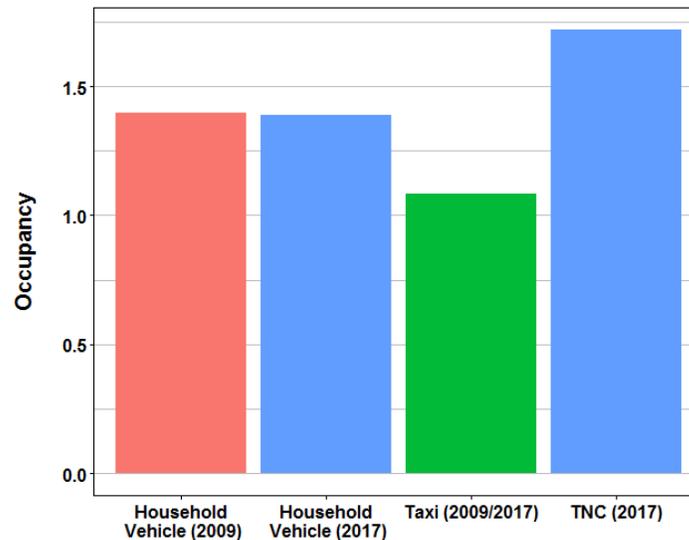
² Brown, A. E. Ridehail Revolution: Ridehail Travel and Equity in Los Angeles. Doctoral dissertation, UCLA. (2018).

³ Silberg, G., Mayor, T., Dubner, T., Anderson, J., Edin, P., Lakshman, B. & Saganuma, Y. I see. I think. I drive. (I learn). KPMG. 2016.

TNCs, Occupancy, and Travel Efficiency

SAFE's analysis found that TNCs have considerably more passengers per trip than taxis, and typically more passengers per trip than the typical household vehicle. This is true even before considering the impacts of services like UberPool or Lyft Line, which are explicitly pooled services.

FIGURE 2: Vehicle Occupancy by Transportation Mode



A core goal for transportation planners is to maximize the productivity of roadways. SAFE's analysis provides evidence that TNCs are more efficient at delivering personal transportation with lower externalities per ride than other modes of light-duty vehicle transportation. Traditional taxi occupancy rates were measured at 1.1 occupants per trip, but survey data supported significantly higher occupancy for TNC rides (1.7 occupants per trip).

Higher occupancy means that TNCs consume less fuel and create less congestion compared to other trip modes while serving the same transportation demand. Our analysis shows that serving one million riders would require 600,000 TNC trips, 700,000 private vehicle trips, and as many as 900,000 taxi trips. There is also evidence that the average TNC vehicle is more efficient and more likely to be a hybrid vehicle than privately owned vehicles.

The higher occupancy of TNCs—which is likely even higher in markets with significant penetration of pooled rides—should be considered in any regulatory or policymaking proceeding. Without further understanding the drivers of high TNC occupancy, broad restrictions on TNC operations have the potential to force individuals into lower occupancy vehicle modes and requiring more cars to service the same number of people.

Determining TNC Impact on Trip Speed and Congestion

Nationally, and looking at urban areas as a whole, vehicle speeds have stayed nearly level, if not increasing slightly, since 2009. While urban transportation authorities have identified TNCs as potential contributors to traffic and congestion related travel delays, TNCs have been found to travel faster than taxis. This faster travel is likely because they serve a broader range of areas, often outside the city center, while most taxis tend to serve more congested areas.

While it is not possible to rule out the assertion that TNCs contribute to congestion in highly-specific, highly-trafficked locations, like Midtown Manhattan or San Francisco's Financial District, SAFE's analysis

shows that average speeds across urban areas have not significantly decreased in spite of the rise of service from TNCs.

FIGURE 3: Average Speed of For-Hire and Person Vehicles

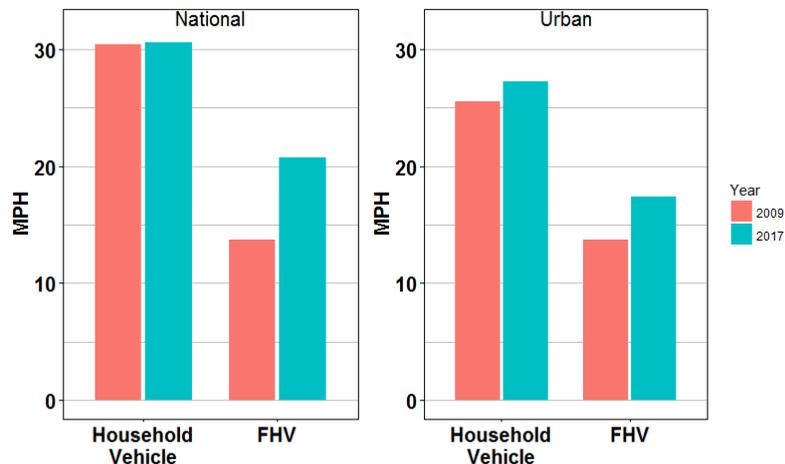


Figure 3 depicts the analysis of travel speeds both nationally and in urban areas where any congestion from TNCs would be greatest. Findings show that overall speeds for all household-owned light duty vehicles in urban areas have remained constant (left), or slightly increased (right) from 2009 to 2016. When specifically looking at for-hire vehicle rides (including both traditional taxis and TNCs), average speeds actually increased between 2009 and 2017. Other data sources and analysis suggest that traffic speeds have declined in some highly-trafficked urban cores, but it should be noted that 1) no system-wide negative trend for traffic speed is seen at either the national or urban level and 2) it is unclear to what degree TNCs contribute to any increased congestion in urban cores compared to other new sources of travel demand.

SAFE strongly recommends further study of travel speeds in congested urban cores—as well as in the much broader geographies now served by TNCs—to better inform policymaking.

Summary and Next Steps

This brief presents new evidence from the NHTS that TNCs have played a largely positive role in the U.S. transportation system. Data shows TNCs have served more passengers and traveled faster than taxis, have been more productive and efficient than personal vehicles, and are primed for greater impact through pooling services such as UberPool and Lyft Line. Furthermore, these benefits have and can continue to improve transportation nationwide in a rapid time-frame due to the convenience and accessibility of this service.

SAFE's initial findings point to significant public benefits from TNC availability. Additional research is still necessary to understand the broader and system-level impact of TNCs. In particular, there is a need to understand the interplay of TNCs with other modes of transportation, whether public, private, or active. This will require better understanding the fleet fuel efficiency of TNCs, role of efficient vehicle routing, the "deadheading" rates of TNCs, as well as the interplay of transit modes.

TNCs present an important tool for expanding access to reliable transportation and policymakers should ensure to take a holistic perspective of the current and future development of this technology.