What We Know about the Use of Ridehailing: Frequency of Use and Impacts on Other Modes

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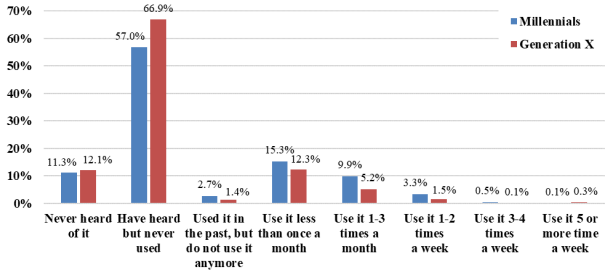
Frequency of Use of Ridehailing

We investigate the factors that affect the adoption and frequency of use ridehailing services, such as those offered by Uber and Lyft, among millennials and members of Generation X using the California Millennials Dataset. We analyze the impacts of five main groups of explanatory variables: *sociodemographic*, *built environment*, *use of technology and social media*, *travel-related choices*, and *attitudes and perceptions*. We estimate (a) ***an ordered probit model with sample selection*** and (b) ***a zero-inflated ordered probit model*** to control for sample selection and inflation in the number of zeros, respectively. The results are consistent across models.

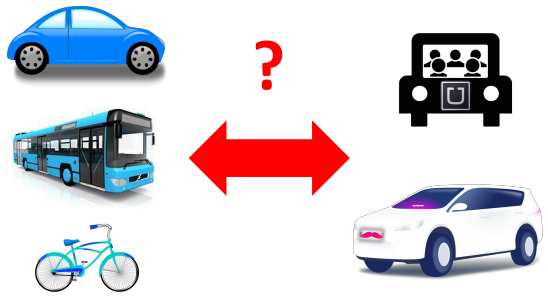


	Ordered Probit with Sample Selection		Zero-inflated Ordered Probit Model	
	Selection Model Estimates (P-values)	Frequency Model Estimates (P-values)	Inflation Model Estimates (P-values)	Frequency Model Estimates (P-values)
Age and Stage of Life				
Younger Dependent Millennials	0.22 (0.25)	--	0.28 (0.20)	--
Younger Independent Millennials	0.50 (0.00)	--	0.59 (0.00)	--
Older Dependent Millennials	0.32 (0.10)	--	0.29 (0.18)	--
Older Independent Millennials	0.56 (0.00)	--	0.59 (0.00)	--
Younger Gen X	0.21 (0.10)	--	0.23 (0.10)	--
Education				
High (Bachelor's degree or higher)	0.26 (0.00)	--	0.29 (0.00)	--
Presence of Children in the Household				
Household with Kid(s)	-0.28 (0.00)	--	-0.22 (0.02)	--
Region				
San Francisco Bay Area	0.08 (0.59)	--	0.12 (0.46)	--
Sacramento	0.20 (0.21)	--	0.18 (0.33)	--
Greater Los Angeles	0.22 (0.12)	--	0.29 (0.06)	--
San Diego	0.38 (0.01)	--	0.44 (0.01)	--
Built Environment				
8-Tier Employment Entropy	--	-0.45 (0.03)	--	-0.59 (0.06)
Standardized Activity density	--	0.18 (0.00)	--	0.22 (0.00)
Transit Performance Index	0.05 (0.00)	--	0.04 (0.02)	--
Use of Smartphone and Technology Adoption				
Use of Smartphone to Determine Destination and Route	0.21 (0.00)	0.18 (0.03)	0.20 (0.00)	0.36 (0.00)
Use of Other Emerging Transportation Services				
Used Fleet-based Carsharing	1.01 (0.00)	-0.4 (0.02)	0.90 (0.00)	--
Frequency of Using Taxi Services				
Used Less than Once a Month	0.35 (0.00)	--	0.50 (0.00)	--
Used at Least Once a Month	0.51 (0.00)	1.09 (0.00)	0.77 (0.00)	1.09 (0.00)
Frequency of Long Distance Travel				
Frequency of Non-car Long Distance Business Travel	0.13 (0.04)	--	--	--
Frequency of Long Distance Leisure Travel by Plane	0.43 (0.00)	0.17 (0.09)	0.50 (0.00)	0.32 (0.00)
Vehicles Per Household Driver				
Zero-Vehicle Household	--	0.89 (0.01)	--	0.69 (0.06)
Attitudes and Perceptions				
Variety Seeking	0.13 (0.01)	--	0.11 (0.03)	--
Technology Embracing	0.21 (0.00)	--	0.22 (0.00)	--
Pro-Environmental Policies	0.12 (0.00)	--	0.12 (0.01)	--
Pay to Reduce Travel Time	--	--	--	0.18 (0.02)
Perceived Uber/Lyft Cost- & Time-related Limitations	-0.12 (0.02)	--	-0.12 (0.03)	--
Preference to Use Non-car Mode	-0.17 (0.00)	--	-0.19 (0.00)	--
Knowledge about the Services	-0.33 (0.00)	--	-0.36 (0.00)	--
Preference to Use Own Vehicle	-0.13 (0.00)	-0.12 (0.04)	-0.11 (0.05)	-0.32 (0.00)
Correlation Parameter (ρ)	-0.51 (0.00)		--	
Final Model Loglikelihood	-958.24		-787.86	

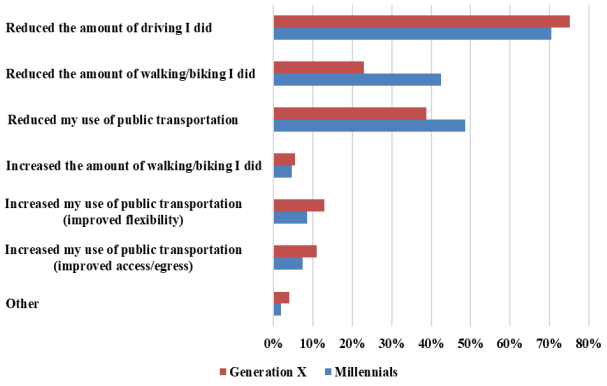
Main Findings from Frequency Models

- ***Sociodemographics*** are better predictors of adoption than frequency.
- Individuals from ***zero-vehicle households*** use Uber/Lyft more frequently.
- Frequent ***long-distance travelers*** (by plane, in particular) use Uber/Lyft more often.
- ***Geographic region*** and ***public transit quality and connectivity*** are only significant in the adoption model.
- ***Land-use mix*** and ***population + job density*** impact the frequency of use of ridehailing.
- Those that prefer to own/use their ***own vehicle*** are less likely to be frequent users.
- Competition with other shared-mobility services:
  - The higher the frequency for ***carsharing*** , the lower the frequency for Uber/Lyft.

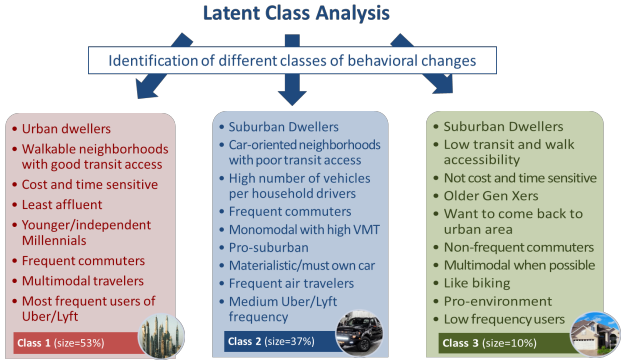
Potential Impact of Ridehailing

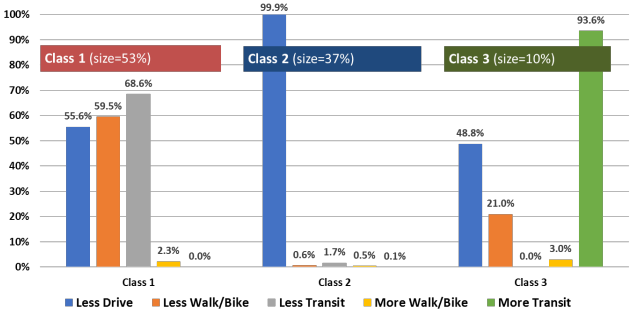


- We asked individuals to report how the use of ridehailing impacts the use of other modes (based on their last trip made by Uber/Lyft).
- Multiple answers were allowed for each respondents.
- We performed latent class analysis (LCA).
- Three rather well defined latent classes were identified in our preliminary analysis.
- Next step is to control for individual differences using active covariates.



Latent Class Analysis of Behavioral Changes





- Cost and preference toward the use of personal vehicle are limiting factors to the use of ridehailing
- **Pooling is the answer!**
  - Pooling is the primary strategy to reduce prices and negative externalities.
  - It is a case where the public interest aligns with business interests.
  - Policymakers need better understanding of who might use pooling services and what incentives/policies could encourage its use.
- Single-passenger ridehailing tends to *(a)* substitute for driving, *(b)* replace the use of transit or active modes (especially among some groups), and *(c)* increase the attractiveness of living without a car:
  - Opportunities for demand-responsive services and microtransit.
  - Shared mobility can be integrated with public transit to provide better service, with lower economic and environmental costs.

Acknowledgment

This project was funded by the National Center for Sustainable Transportation and the California Department of Transportation. We wish to thank Yongsung Lee, Rosaria Berliner Kate Tiedeman and Lew Fulton for their help with survey design, data collection and cleaning.

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