

Adoption of Ridehailing in Developing Countries

Transportation Research Board (TRB) Annual Meeting

January 13, 2020

Jai Malik*, Giovanni Circella, Farzad Alemi, Lew Fulton

Institute of Transportation Studies, University of California, Davis

Adam Davidson, Jyot Chadha

World Resources Institute (WRI)

*jaimalik@ucdavis.edu

Study Motivation

- **Knowledge gap** exists on how shared mobility services are deployed and perform in developing countries.
- These cities are different from better-studied US cities, for example, in terms of:
 - Higher density
 - Lower car dependence
 - Very different socioeconomics of the population
- New mobility services are now **competing with traditional travel modes**.
- **Research Question:** How do factors affecting the adoption of ridehailing differ from better studied cities in developed countries?

International Study on Ridehailing Adoption

Partnership with WRI for study on on-demand mobility

Focus on ridehailing, vehicle ownership and use of other modes



WORLD
RESOURCES
INSTITUTE

Four megacities in Asia and Latin America

Asia

Latin America

Beijing, China

Mumbai, India

Mexico City, Mexico

Sao Paulo, Brazil



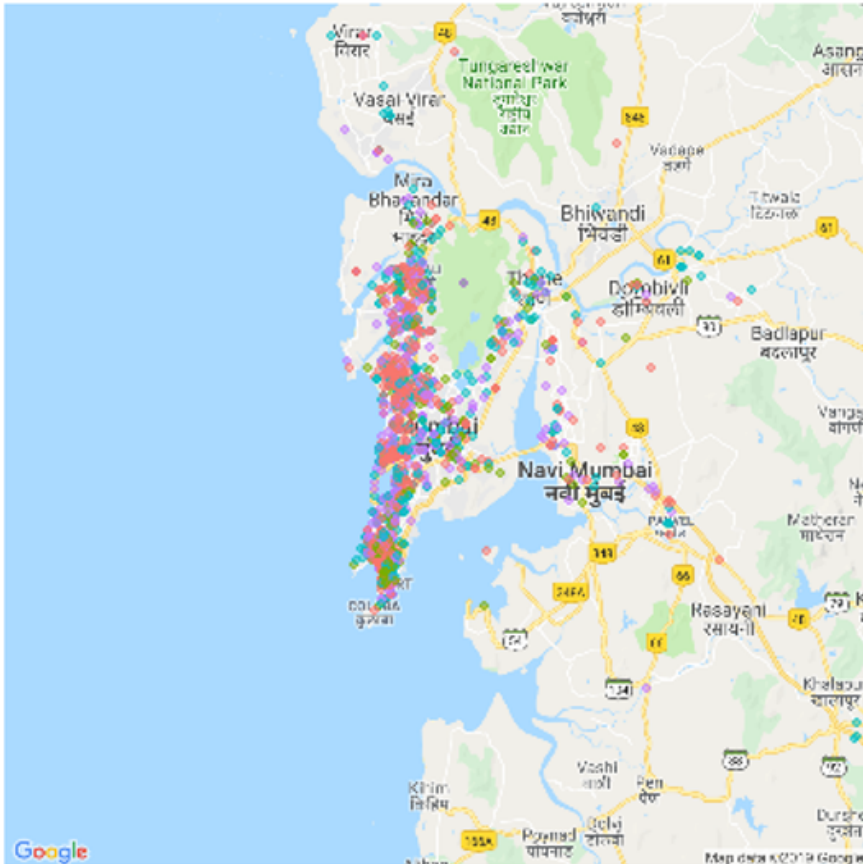
Sampling Methodology

The surveys were conducted in fall 2018. Different sampling techniques were employed in the various regions:

- **India:** An online opinion panel was used for the data collection. The survey was conducted in Hindi and English. The total sample size is 2,700.
- **China:** The survey was administered online in the local language with a total sample size of 3,551.
- **Brazil:** Intercept surveys were conducted in each zone of the City of Sao Paulo. 2,500 individuals were surveyed in Brazil.
- **Mexico:** Intercept surveys were conducted in 20 city hubs to guarantee geographic distribution. The final sample consists of 2,521 cases.

Location of Respondents and Details of Study Area

Mumbai, India



Usage of Ridehailing • Never • Rarely • Frequent • High

Population size (<i>millions</i>)	12.4
-------------------------------------	------

Population density (<i>residents/km² of metro area</i>)	20,634
---	--------

Numbers of cars per 1k residents	54
-------------------------------------	----

Private Modes	15%
---------------	-----

Mode share	PT	52%
------------	----	-----

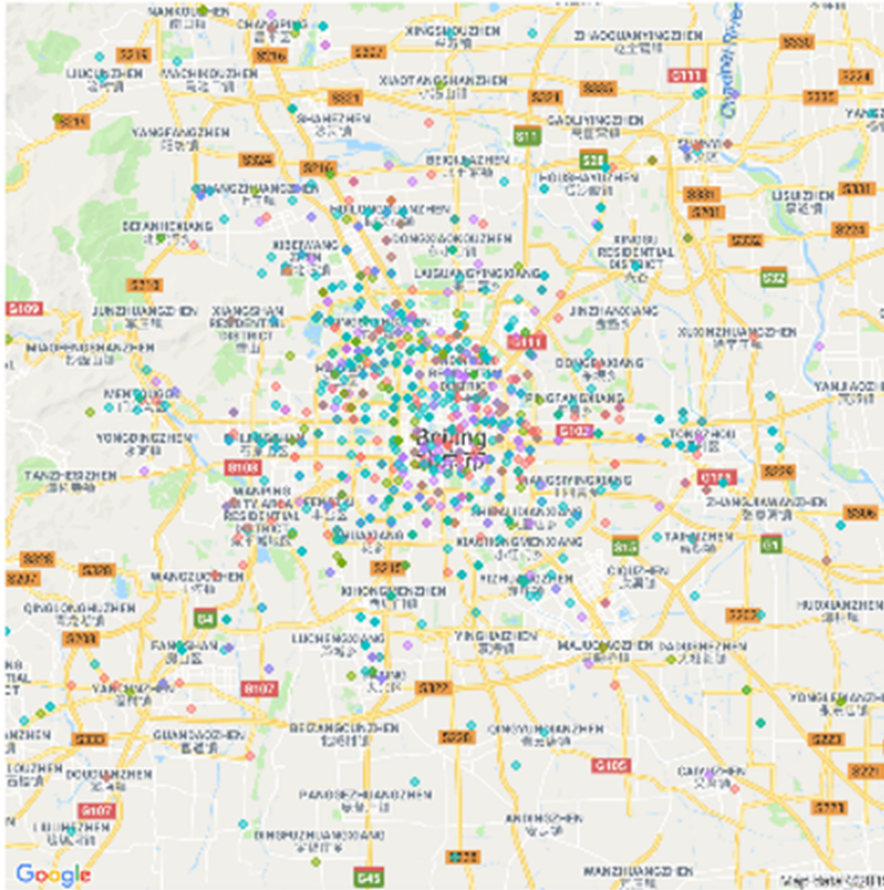
Active modes	33%
--------------	-----

Median HH income (<i>US-\$ at PPP</i>)	3,168
---	-------

HH size	8.1
---------	-----

Location of Respondents and Details of Study Area (3)

Beijing, China

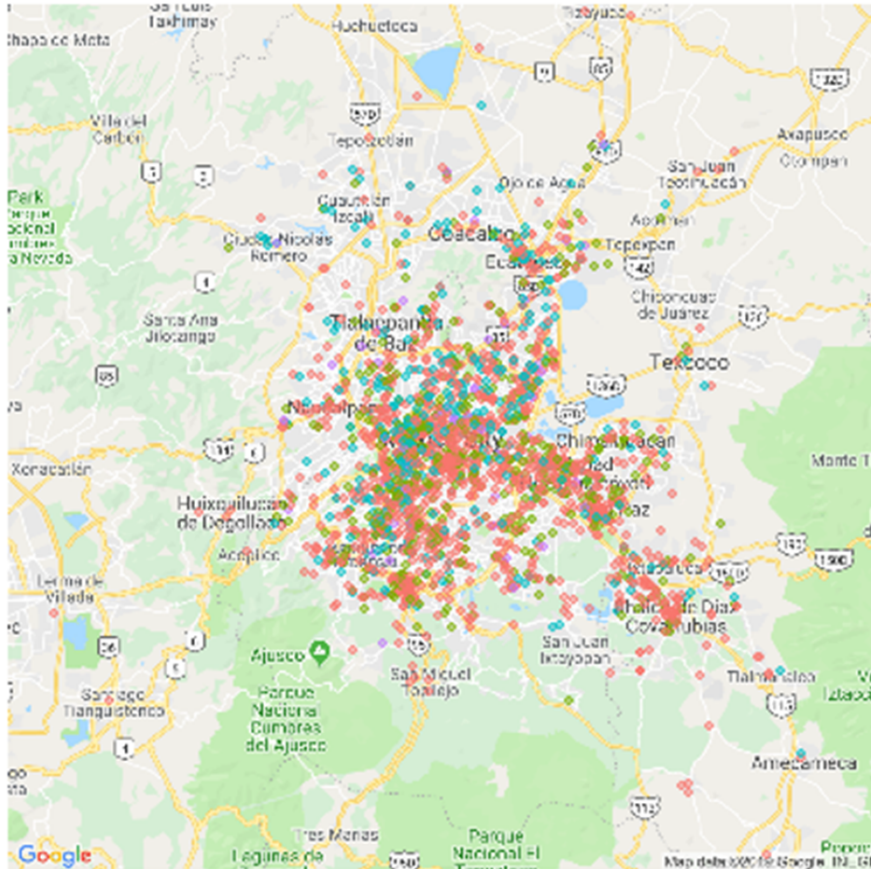


Usage of Ridehailing ♦ Never ♦ Rarely ♦ Frequent ♦ High

Population size (<i>millions</i>)	21.7
Population density (<i>residents/km2 of metro area</i>)	1,291
Numbers of cars per 1k residents	260
Mode share	Private Modes 36%
	PT 50%
	Active modes 12%
Median HH income (<i>US-\$ at PPP</i>)	6,180
HH size	2.6

Location of Respondents and Details of Study Area (2)

Mexico city, Mexico



Usage of Ridehailing • Never • Rarely • Frequent • High

Population size (<i>millions</i>)	8.8
-------------------------------------	-----

Population density (<i>residents/km2 of metro area</i>)	6,671
--	-------

Numbers of cars per 1k residents	507
----------------------------------	-----

Mode share	Private Modes	15%
------------	---------------	-----

	PT	58%
--	----	-----

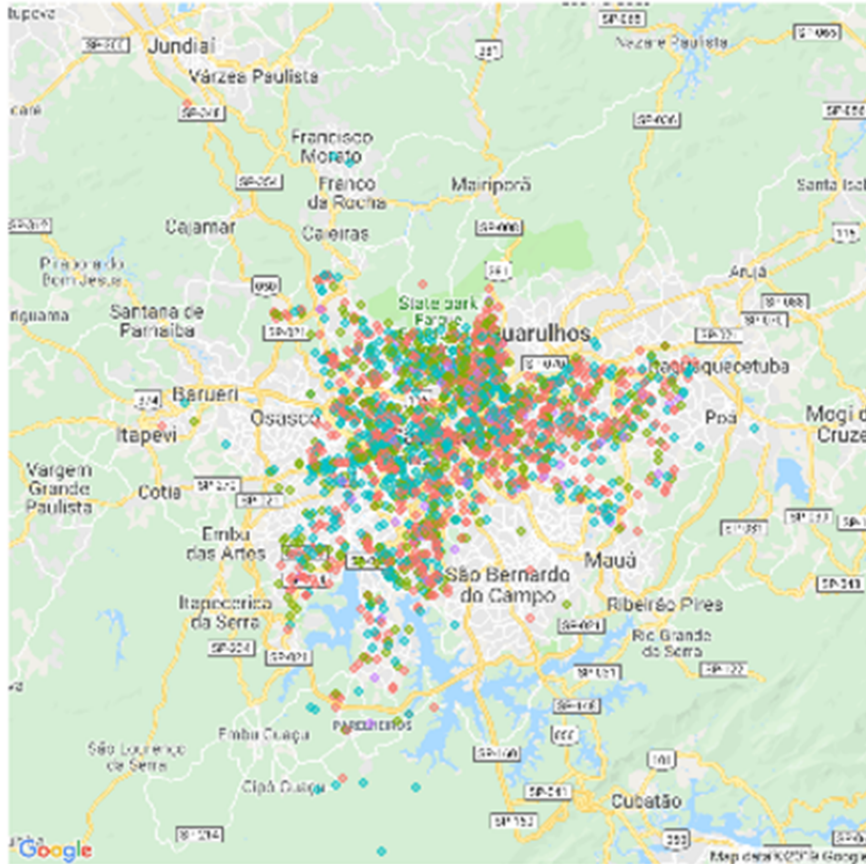
	Active modes	27%
--	--------------	-----

Median HH income (<i>US-\$ at PPP</i>)	11,680
---	--------

HH size	3.9
---------	-----

Location of Respondents and Details of Study Area (4)

Sao Paulo, Brazil



Population size (<i>millions</i>)	12.2
-------------------------------------	------

Population density (<i>residents/km2 of metro area</i>)	7,994
--	-------

Numbers of cars per 1k residents	516
-------------------------------------	-----

Private Modes	32%
---------------	-----

Mode share	PT	58%
------------	----	-----

Active modes	7%
--------------	----

Median HH income (<i>US-\$ at PPP</i>)	7,522
---	-------

HH size	3.1
---------	-----

Differences by cities in effects of factors influencing adoption of ridehailing

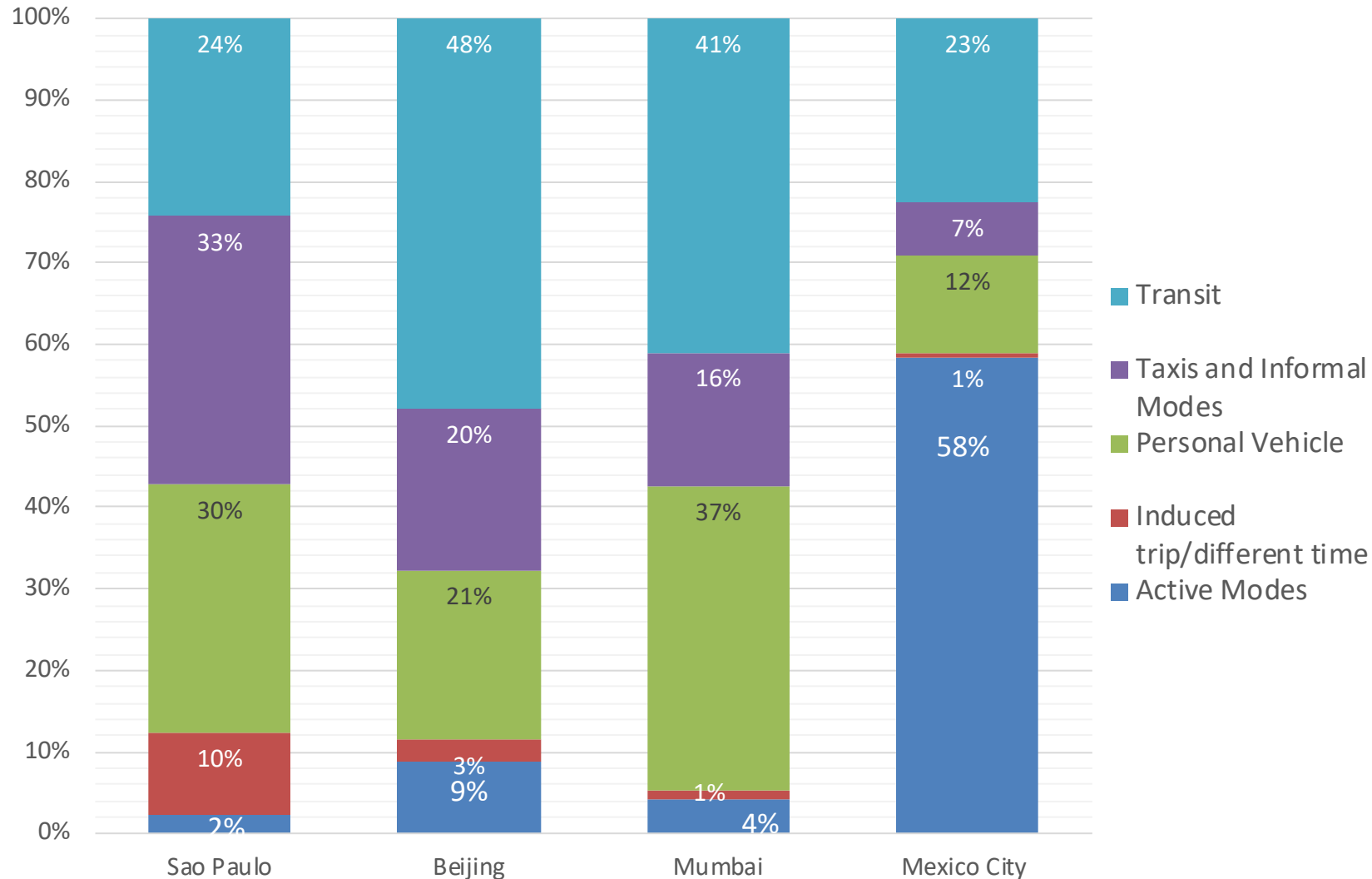
Who is more likely to adopt?	Sao Paulo	Beijing	Mumbai	Mexico City
Women (ref: Non-woman)	↑	↑	↑	
Millennials (ref: Older generations)	↑	↑	↑	↑
Student (ref: Not-student)			↑	
Employed (ref: Unemployed)	↑	↑	↑	
HH with Vehicles (ref: Zero-vehicle HH)	↑	↑	↓	↑

We estimated a **binary logit** model on the pooled dataset and with **interaction terms** for each variable to control for differences by **city**.

We controlled for:

- Income
- Land-use
- Attitudes: tech-savviness, public transport

Modes Replaced by Ridehailing



Ridehailing is replacing active modes and public transportation in many places.

Different sampling methods for the various locations might be responsible for some of the differences in these patterns by city.

Next Steps

- In-depth analysis of the modes replaced by ridehailing services.
- More investigation, including the use of expert interviews, to understand the reasons for the differences in the patterns observed by city.

Thank You!

For any questions, please contact:

Jai Malik

University of California, Davis

jaimalik@ucdavis.edu