A positive influence? Uber's effect on Virginia motor vehicle accident hospitalizations and fatalities

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Research Questions

Does UberX reduce motor vehicle traffic accident hospitalizations in Virginia young adults?

Does the presence of UberX reduce the likelihood of alcohol involvement in motor vehicle accidents in Virginia?

Motivation

- “There’s a strong correlation between Uber’s presence in cities and a reduction in drunk driving”
- Motor vehicle accidents are a leading cause of death in young adults
- 71% of the alcohol-related driver injuries in Virginia involve a driver ages 18-45

Virginia Policy

August 2014

- Temporary permission for ridesharing companies

February 2015

- Ridesharing regulation legislation passed
  - Background check
  - 21 years or older
  - Licensed driver
  - Vehicles must be insured and registered

My Contributions

- Virginia case study
- Hospitalizations as an outcome measure

Analysis 1: Hospitalizations (2012-2016)

$$y_{it} = \beta_0 + \beta_1 uber_{it} + \beta_2 X_{it} + \gamma_i + \lambda_t + u_{it}$$

- y_{it} motor vehicle accident hospitalization rate per 100,000 people (ages 18-44)
- $uber_{it}$ dummy variable for UberX presence (lagged)
- X_{it} time-varying controls
- γ_i set of county fixed effects
- λ_t set of year fixed effects

Unit of analysis: **County**

Time unit: **Year**

"Virginia Health Information (VHI) has provided non-confidential patient level information used in this study which it has compiled in accordance with Virginia law but which it has no authority to independently verify. By using this study, the user agrees to assume all risks that may be associated with or arise from the use of inaccurate data. VHI cannot and does not represent that the use of VHI's data was appropriate for this study or endorse or support any conclusions or inferences that may be drawn from the use of VHI's data."

Analysis 1: Hospitalizations (2012-2016)

Variables	Without FE	Without county FE	Main	Washington D.C. PMSA	Metro train service area
Uber	-6.217**	-4.935	1.106	-2.411	-11.66*
% Male	-1.462***	-1.463***	-8.297**	-4.912	-5.277
DV Mean	62.75	62.75	62.75	35.03	24.39

Asterisks designate significance level: *** p<0.01, ** p<0.05, * p<0.1

Analysis 2: Fatal Accidents (2010-2016)

$$y_{ict} = \beta_0 + \beta_1 uber_{ct} + \beta_2 X_{it} + \gamma_c + \lambda_t + u_{ict}$$

- y_{it} dummy variable for alcohol involvement in an accident
- $uber_{it}$ dummy variable for UberX presence (lagged)
- X_{it} time-varying controls
- γ_c set of county fixed effects
- λ_t set of year and quarter fixed effects

Unit of analysis: **Accident**

Time unit: **Quarter Year**

Analysis 2: Fatal Accidents (2010-2016)

Variables	Preliminary	Without county FE	Main	Driver age 18-44
Uber	[N/A]	0.0594	0.0451	0.0723*
Weekend	0.113***	0.109***	0.113***	0.126***
% Male driver	0.00108***	0.00113***	0.00107***	0.00123***
No seatbelt	0.190***	0.199***	0.190***	0.192***
Weather	0.0110**	0.0106**	0.0109**	0.0136**
Dark	0.233***	0.236***	0.233***	0.258***
DV Mean	0.316	0.316	0.316	0.359

Asterisks designate significance level: *** p<0.01, ** p<0.05, * p<0.1

Discussion

Key findings

- No significant evidence UberX has improved motor vehicle accident outcomes in Virginia

Future areas of study

- DUI arrests
- ER visits

Policy implications

- Ridesharing may not be the solution

A Positive Influence?

"There's a strong correlation between Uber's presence in cities and a reduction in drunk driving" -Uber

Questions?

Thank you!

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