“The Long Run Effects of Uber”

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A big question

What are the long run effects of widespread adoption of ride-hailing apps?

City structure, mode choice, congestion, energy use.

This paper:

Develop an urban land use model with mode choice (walk, transit, drive, ridehail).

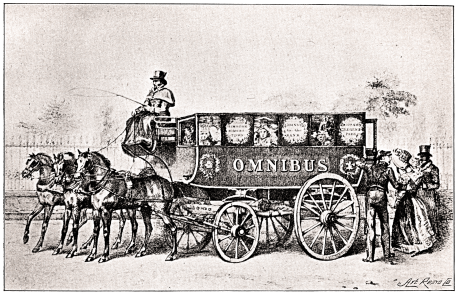
Calibrate model to Chicago and simulate introduction of ridehail app adoption.

Ridehail increases the accessibility of transit stations.

Increases transit use and *centralization*; Reduces congestion and emissions.

A historical perspective

Two centuries of urban transportation improvements



Omnibus (New York, 1829)

Highways (1950s)

Elevated rail (NYC 1876), Streetcars (Richmond 1889), Subways (Boston 1897)

Steady decentralization of U.S. cities

$$D(u) = De^{-\gamma u}$$

	Baltimore		Milwaukee		Philadelphia		Rochester	
	γ	D	γ	D	γ	D	γ	D
1880	1.82	244,730	0.97	44,287	0.30	39,948	1.78	51,400
1890	1.08	89,300	0.92	70,804	0.28	45,555	1.83	81,600
1900	1.05	101,200	0.90	92,374	0.28	56,611	1.59	74,500
1910	0.93	90,100	0.78	77,764	0.28	64,772	1.20	58,400
1920	0.70	69,238	0.61	68,304	0.25	67,595	1.18	72,729
1930	0.64	67,630	0.56	74,209	0.37	62,034	0.96	58,464
1940	0.60	65,542	0.51	65,434	0.36	59,787	0.88	50,775
1948	0.48	51,159	0.47	58,318	0.31	53,264	0.73	39,682
1954	0.40	42,693	0.37	44,262	0.27	45,714	0.55	28,194
1958	0.36	37,481	0.32	37,823	0.25	41,868	0.47	24,033
1963	0.33	34,541	0.27	31,123	0.23	38,268	0.40	20,527

Source: Mills (1972), Table 15

A historical perspective

Steady decentralization in the wake of 200 years of accessibility improvements

- Why haven't *any* new transport modes reversed (or even slowed) suburbanization?
- Why is ridehail different from cars?
- *Some* version of this model predicts decentralization. How far away is it?

A historical perspective

Steady decentralization in the wake of 200 years of accessibility improvements

Why haven't *any* new transport modes reversed (or even slowed) suburbanization?

Why is ridehail different from cars?

Some version of this model predicts decentralization. How far away is it?

→ Let's have a range of predictions, not just one.

→ How sensitive are the results, to which assumptions?

Missing margins

Missing margins

Many margins are in the model

Walk, walk to transit, drive, carpool, ridehail, ridehail to transit.

Endogenous congestion, costly parking.

Some are missing (but that's okay; it's a model).

In the model, people only travel to work and employment is fixed in the city center.

In the data, about 1/5 of trips and person-miles are to or from work. NHTS 2017

In the data, about 2/7 of employment is in the Loop. Illinois Department of Employment Security

Ridehail is for *going out* and *going home*

Person-trips by purpose, Toronto 2016

	Ridehail	Transit	Car	All
School	3.9	8.7	3.9	5.4
Home	45.6	43.9	39.8	43.5
Shop	3.9	5.1	9.7	7.6
Work	17.7	29.7	21.9	24.6
Other	28.9	12.6	24.7	18.9

Source: Young & Farber (2019), TTS (2016)

Why might this matter?

Some spatial microstructure appears to be a response to search frictions

E.g., clusters of retail, entertainment, recreation, specialized services.

Ridehail apps and other innovations (e.g. Yelp) may disrupt these clusters.

Summing up

Improved accessibility has consistently led to decentralization.

- What's different this time?
- Is there a way to convey model uncertainty?

Ridehail and other apps may affect other margins

- Is commuting to the city center the most important one?

Smaller comments

Why assume stylized transit network vs. feeding in data on transit directly?

Why assume constant land use allocations when in the data these vary substantially over space? (Duranton & Puga, 2015)

There is an asymmetry in how highways vs. transit are modeled. Why not use data on actual highway network?

Shouldn't ridehail contribute to congestion? Cramer & Krueger (2016) suggest that ridehail drivers spend about half of their time without a passenger.