How Segregated is Urban Consumption?
Presentation at CFM-PER Geolocation Economics Conference

Donald R. Davis

Columbia University and NBER

May 4, 2020

How Segregated Is Urban Consumption?

Donald R. Davis

Columbia University and National Bureau of Economic Research

Jonathan I. Dingel

University of Chicago and National Bureau of Economic Research

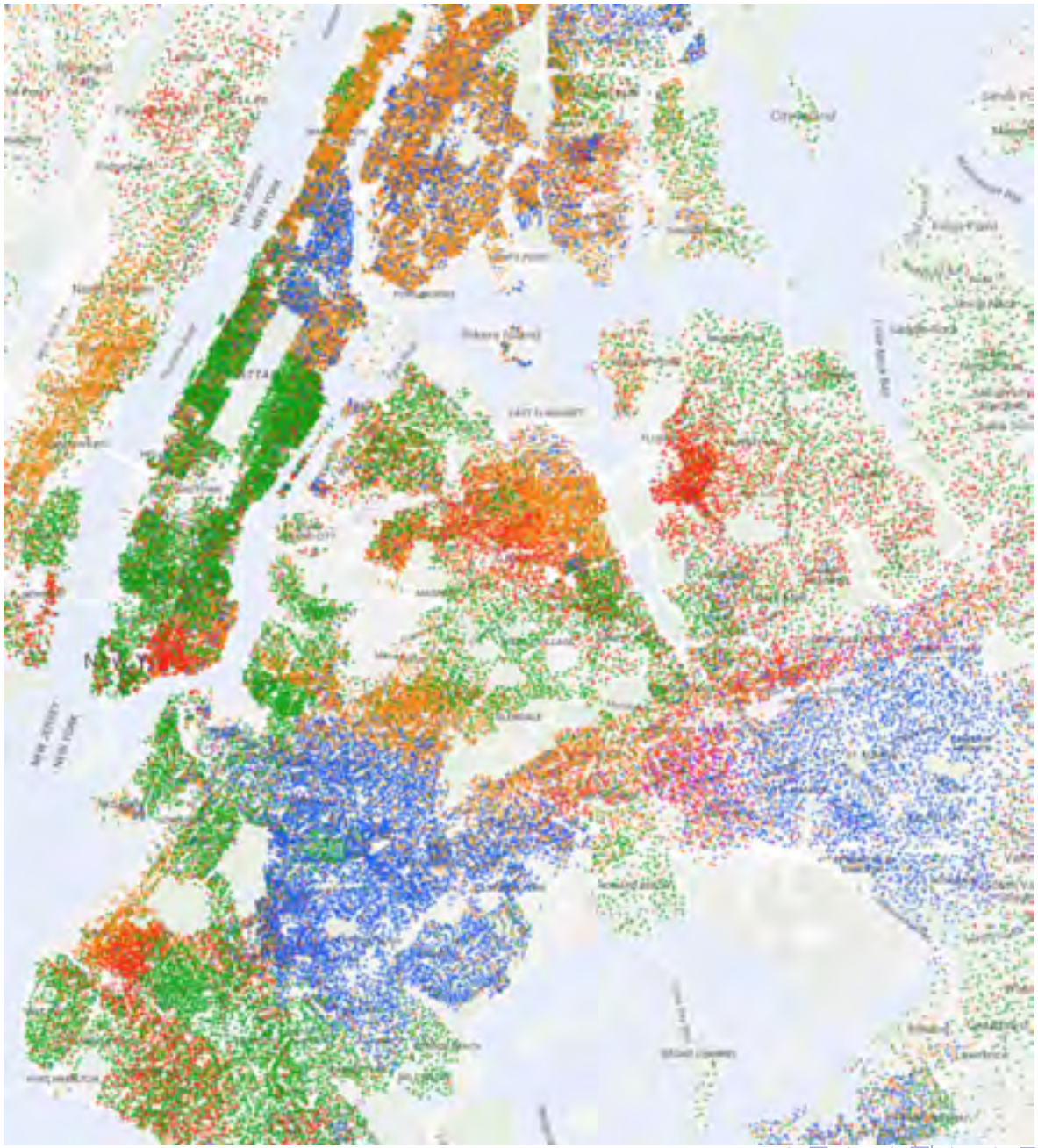
Joan Monras

Universitat Pompeu Fabra, Barcelona Graduate School of Economics, and Centre for Economic Policy Research

Eduardo Morales

Princeton University and National Bureau of Economic Research

Residential Segregation in New York City



Why care about consumption segregation?

- History of segregated amenities
- Jim Crow, civil rights movement and lunch counter sit-ins
- Elijah Anderson (Yale): *The Cosmopolitan Canopy: Race and Civility in Everyday Life*
- Vast literature on segregation of residences
- Very little empirical work on segregation of consumption
  - Hard to measure

Davis, Dingel, Monras, Morales, Journal of Political Economy, 2019

How we answer the question:

- Gather data on individuals' restaurant visits within New York City
- Infer spatial and social frictions from behavior by estimating a discrete-choice model of individuals' visit decisions
- Use model-predicted consumer behavior to measure consumption segregation

Example: Three Neighorhoods in Manhattan

yelp

Find tacos, cheap dinner, Max's | Near New York, NY | Sign Up | Log In

Home | About Me | Write a Review | Find Friends | Messages | Talk | Events

Cabana Restaurant

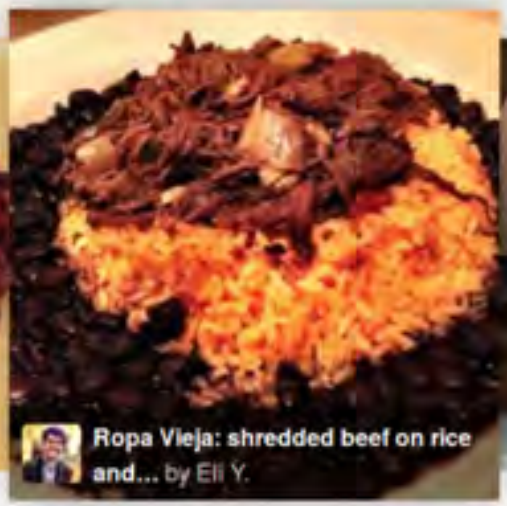
286 reviews | Details

$$ · Latin American, Cuban, Caribbean | Edit

Write a Review | Add Photo | Share | Bookmark

Today is a holiday! Business hours may be different today.

1022 3rd Ave Edit
New York, NY 10021
b/t 60th St & 61st St in Upper East Side
Get Directions
N Q R Lexington Ave./59 St. and 2 more stations
(212) 980-5678
cabanarestaurant.com



"Huge portion, definitely can share it, everything was great but the **empanadas** were definitely the winners." in 44 reviews

$16.95 Empanadas

Today **11:30 am - 11:30 pm** Open now

Full menu

yelp

Find tacos, cheap dinner, Max's | Near 44th St and 5th Avenue, New York, NY | Sign Up

Home | About Me | Write a Review | Find Friends | Messages | Talk | Events | Log In

Profile Home | Lists | Reviews | Tips | Compliments | Friends | Bookmarks | Events

Javier M.'s Profile

javierm.yelp.com

All 18 photos

"Reviews a fortiori"

554 Friends
385 Reviews
67 Firsts
17 Tips
92 Fans
165 Local Photos
12 Events Submitted
22 Lists

Rating Distribution

View more graphs »

Review votes:
2648 Useful, 2536 Funny, and 2986 Cool

Compliments

Search Reviews

blocks away

Cabana Restaurant
Latin American, Cuban, Caribbean
1022 3rd Ave
New York, NY 10021

3/30/2007

Happy Hour reviews!

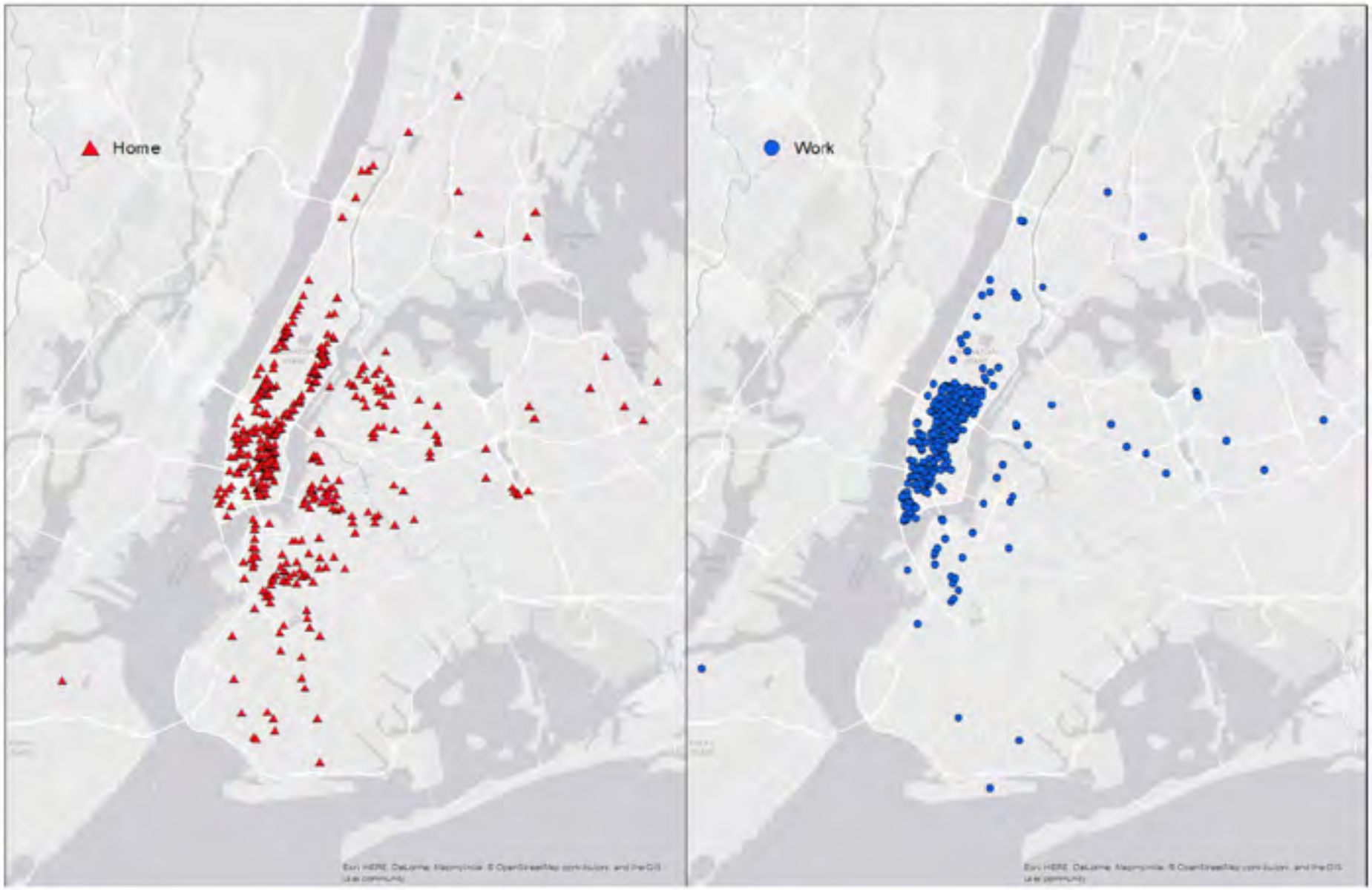
Cabana is two ***blocks away*** from where I work; its flare lies in the fact that it conveys a caribean, rustic environment without being forceful. That is quite a feat to pull on this specific stretch of Third Ave. (think stiff, going on semi-formal) and while not being completely the real deal, it does not feel fake.

Now on to the best: The Drinks! Yes, the environs will help you. Go ahead, sit underneath the rattling fan, fiesta your eyes with the colors, and order a Pina Colada or a Mojito, both great at this location.

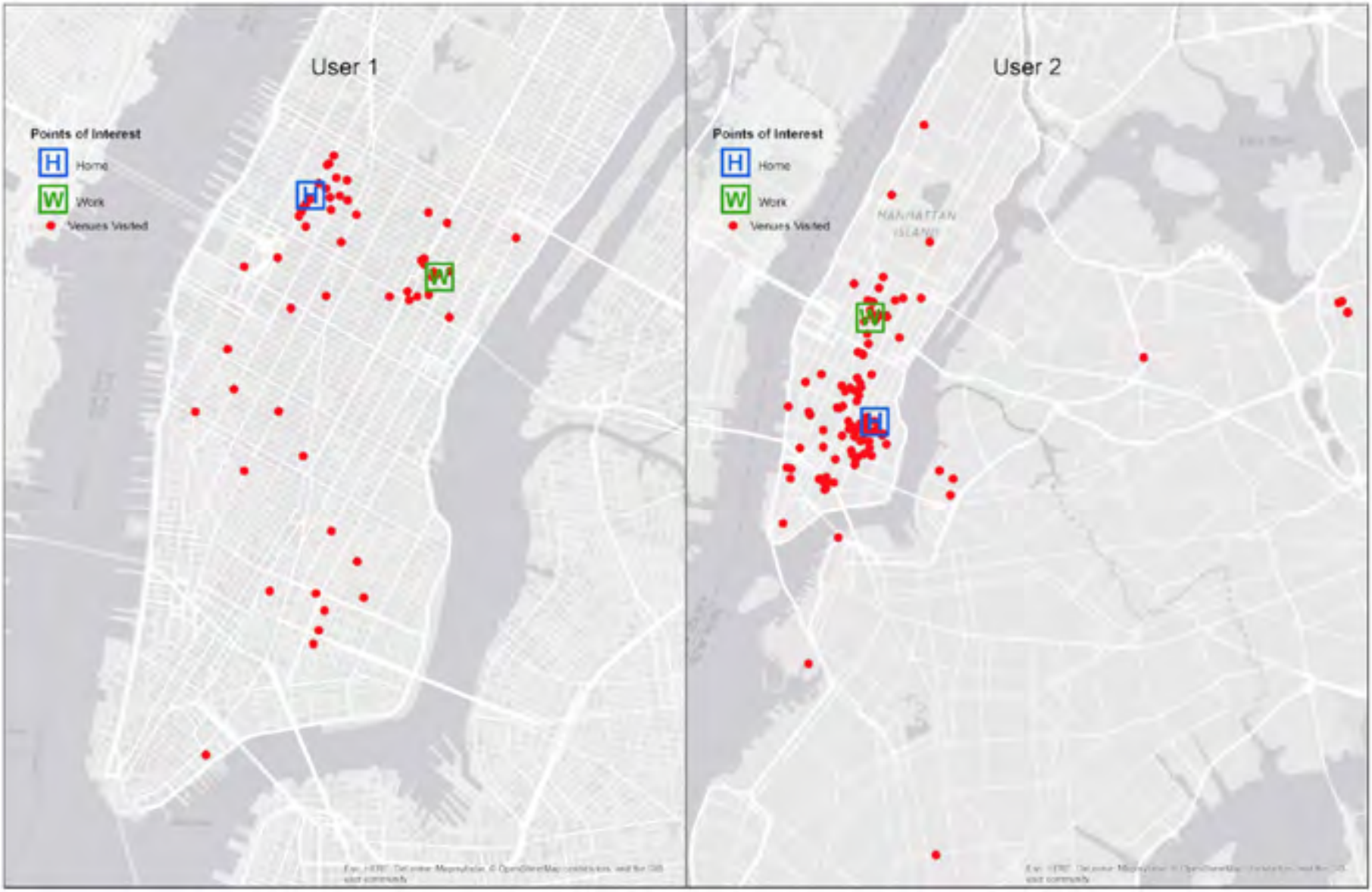
For the Bloody Mary Im going to make an announcement: This is the first thin Bloody Mary that Im vouching for in my life; I have tried many a Bloody Mary in my time (even the original one on the place it was created, Harry's Bar) and I always held the iron fist notion that a Bloody Mary needs to be thick and dense by definition in order to render the perfect palate experience. However, in Cabana, the Bloody Mary was incredibly tasty even without the texture; I saw how she used Sacramento tomato juice, horse radish, more than ur usual share of Tabasco (when and if used usually is only a drop of it!!??), lemon, english sauce and something else (couldnt quite make what it was...) and then she poured it on lotsa ice, making it watery....BUT.... good nonetheless; try it, really.

Salads: I gotta recommend the Grilled Shrimp Salad; gosh those Shrimps at the grill were awesome (but scarce, based on the gigantic bowl you are given), the scallops too ladies and gents. In any rate, if you want to feel a 'lil bit Key Biscayne when shopping around the Bloomingdale's area, by all means go to Cabana.

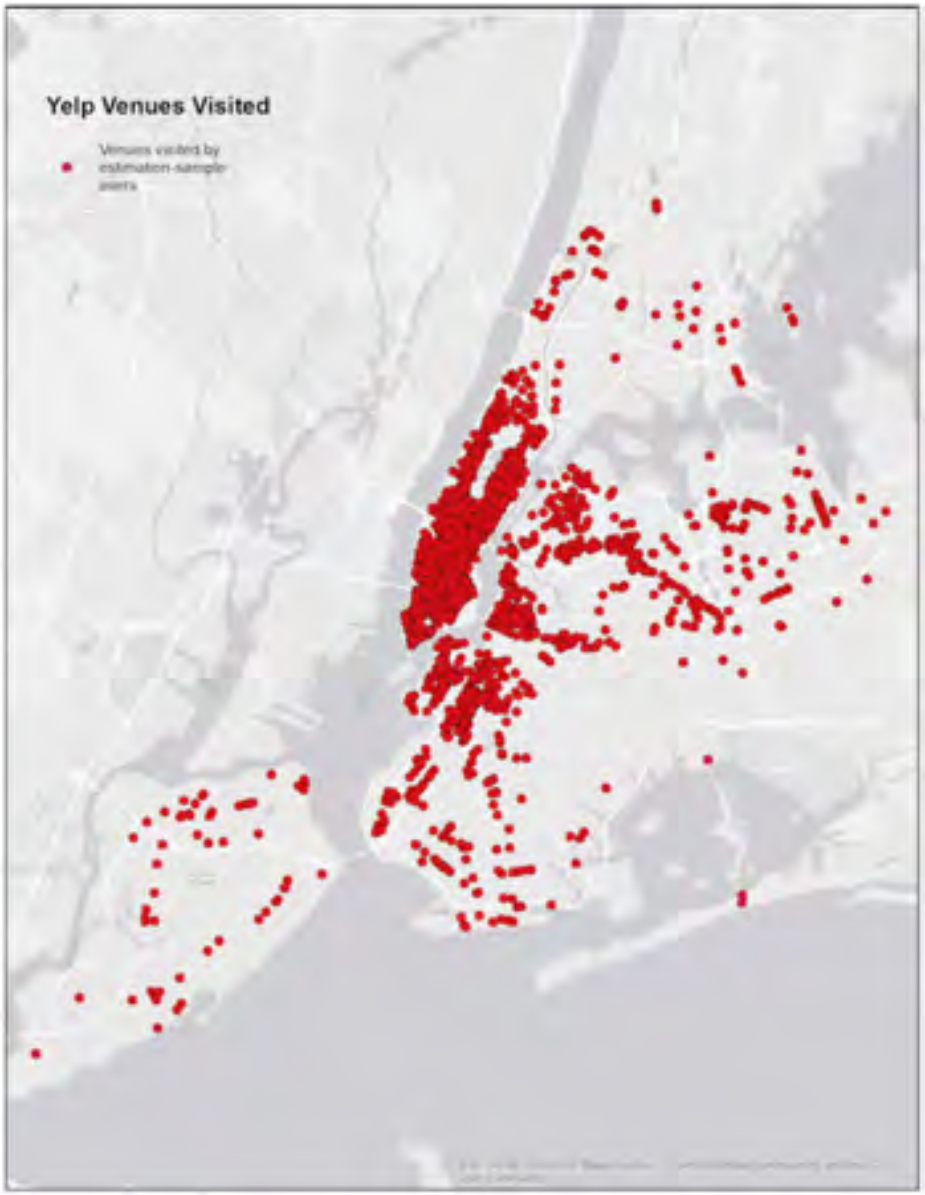
Home, Work Locations in Sample



Two Users: Home, Work, Visits



All Venues Visited by Sample



Euclidean Demographic Distance

- Measures demographic distance between an origin (home or work) and destination (venue) census tract
- Take five census demographic groups: Asian, Black, Hispanic, (Non-Hispanic) White, Other
- Calculate the shares s_{gi} of each group g in the population of census tract i
- Combine these shares as follows to define the Euclidean Demographic Distance between i and j:

$$EDD \equiv \left(\sum_{g=1}^{5} \left(s_{gi} - s_{gj} \right)^2 \right)^{1/2} / \sqrt{2}$$

- EDD varies between
  - 0: identical demographic shares in the two locations, and
  - 1: Origin is 100 percent one demographic group and destination is 100 percent a different one

Role of Distance From Home to Venue

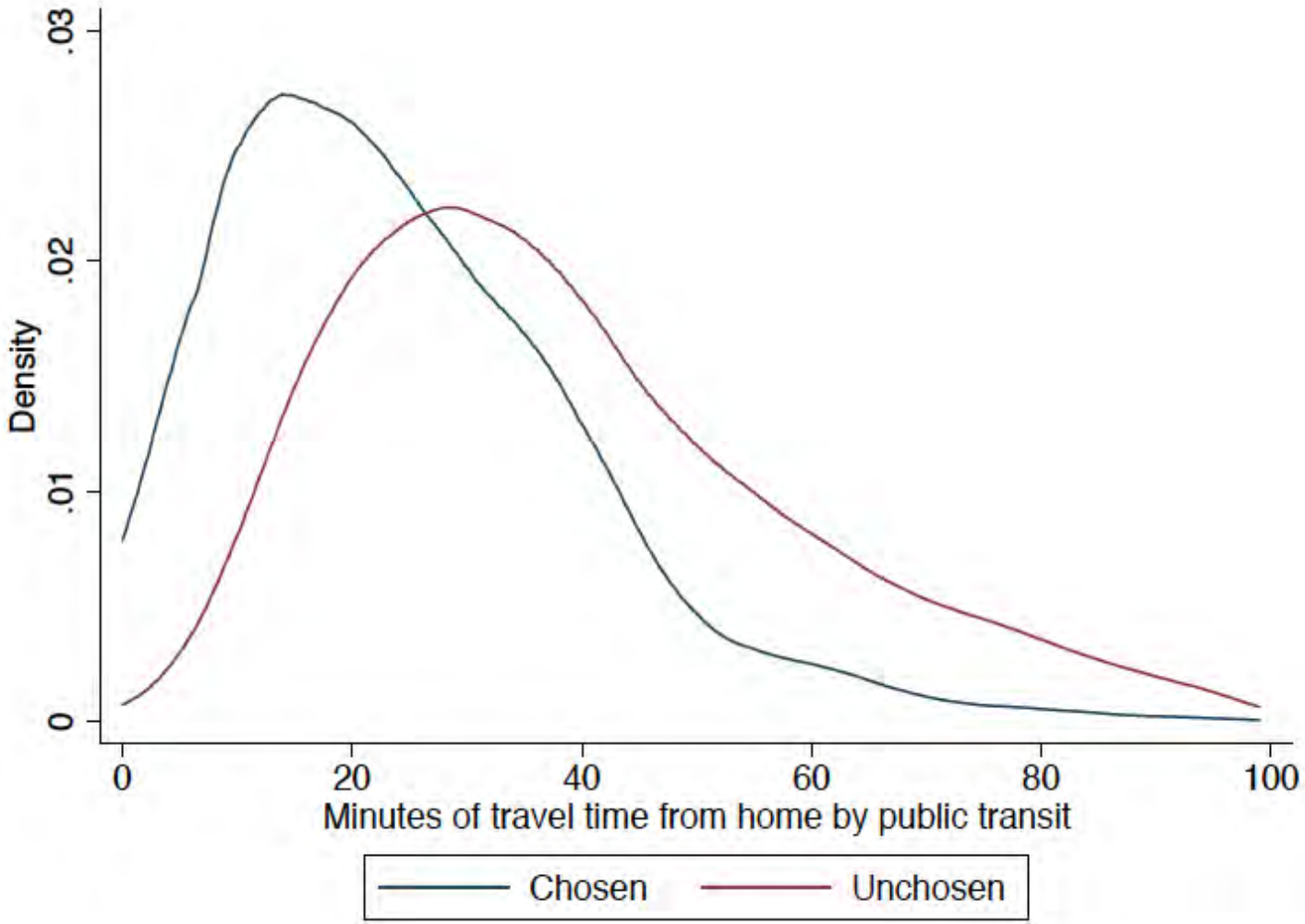


Figure 7: Shows chosen restaurants more proximate to home than non-chosen restaurants

Role of Distance From Work to Venue

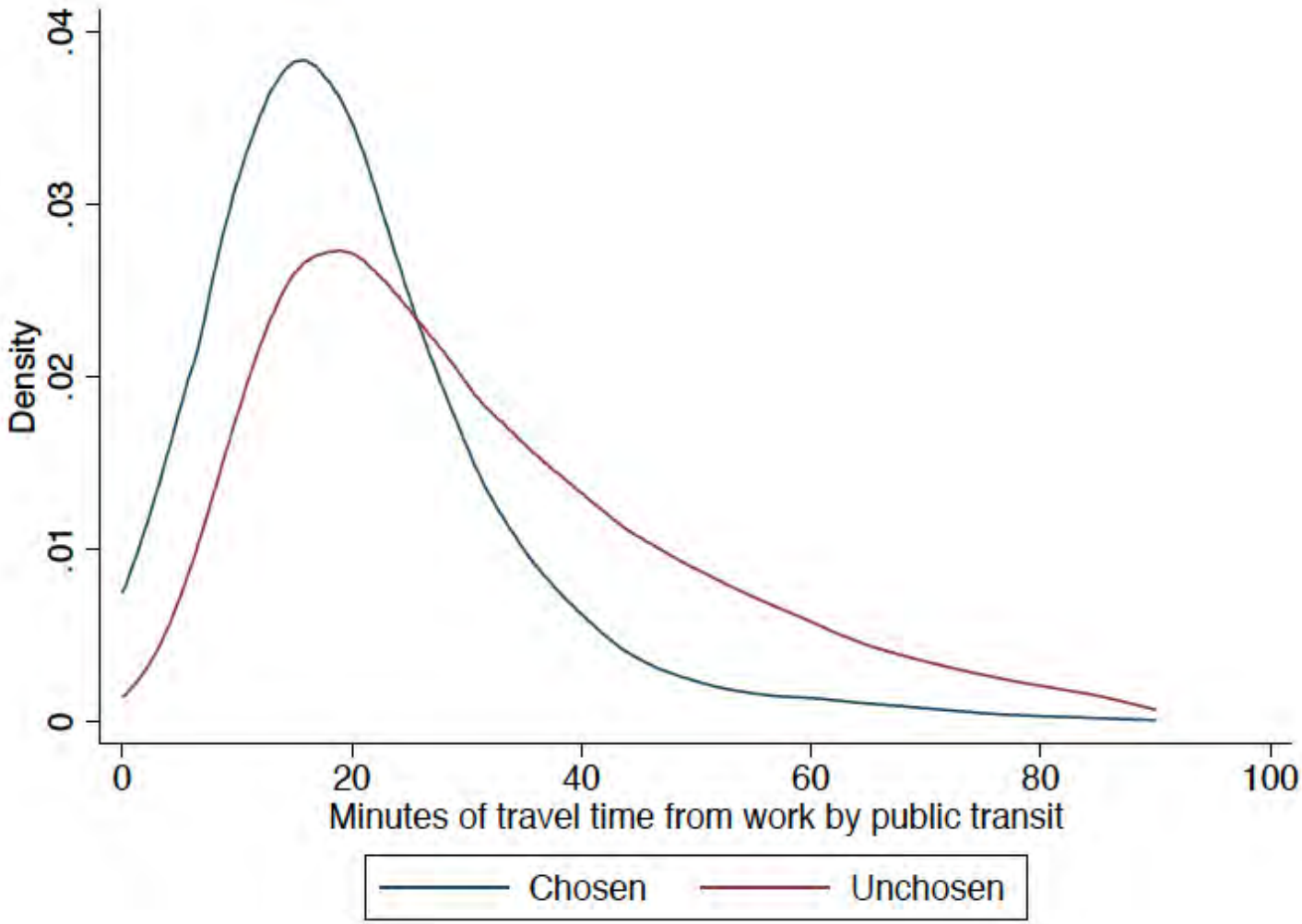


Figure 8: Shows chosen restaurants more proximate to work than non-chosen restaurants

Euclidean Demographic Distance

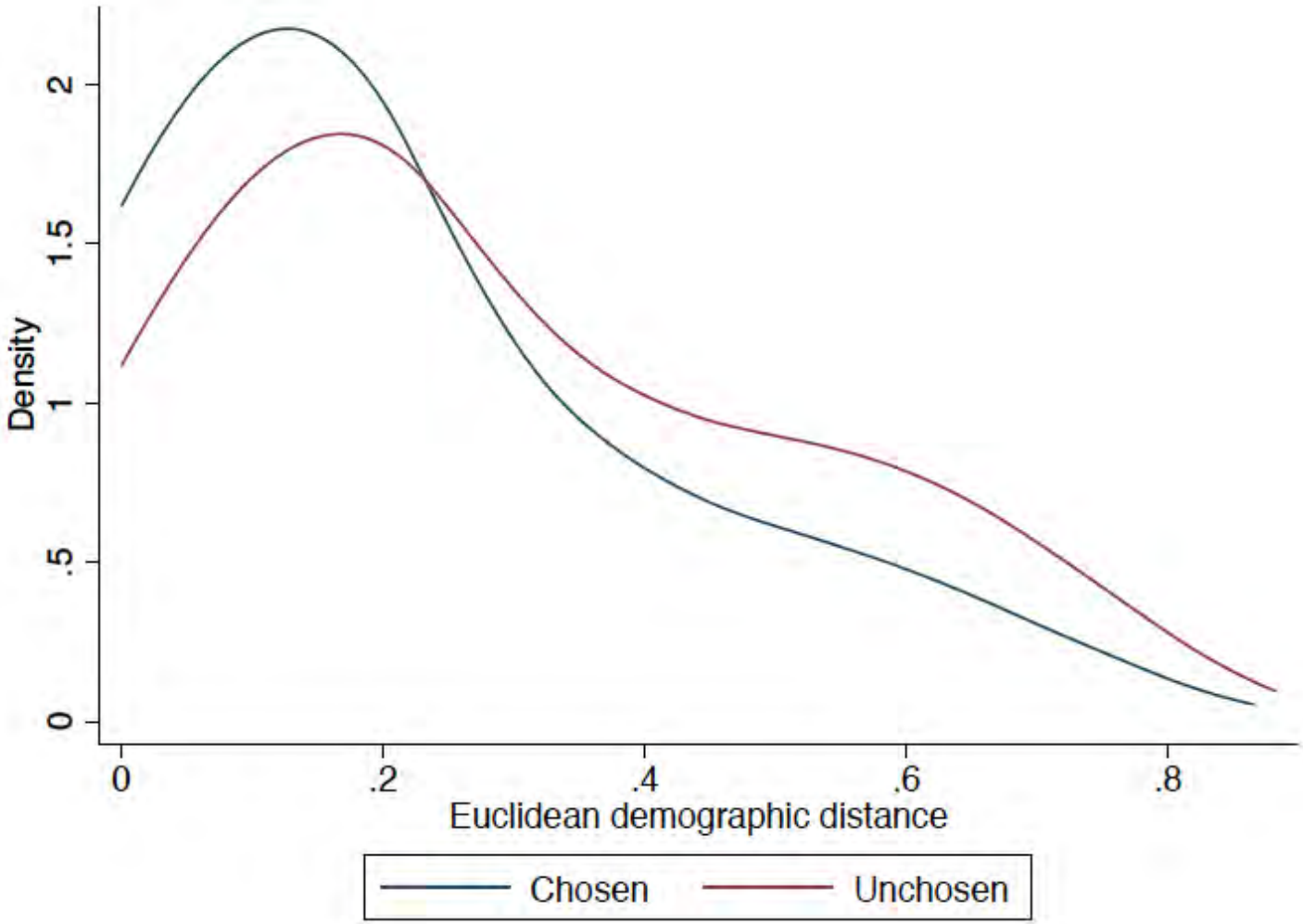


Figure 9: Shows chosen restaurants' local demographics more similar to home demographics than locale of non-chosen restaurants

Estimates on Spatial, Social Frictions

Spatial Frictions

- A venue half as far away in travel time
  - Twice as likely to visit by public transit
  - Four times as likely to visit by automobile

Social Frictions

- A visit to a venue one SD closer in Euclidean demographic distance
  - 27 percent more likely to visit
  - Equal to 21 percent closer
- Robust to using individual-level measures of race, ethnicity
- Interaction of EDD and Spectral Segregation Index weak effects

Predicting Urban Consumption

With our estimates in hand

- We can predict the restaurant visits of individuals in a demographic group x location
- Applying these estimates to the entire New York City population, with demographic group x location weights from Census data
  - We can predict all visits of all groups
- We then use these visits to calculate consumption dissimilarity indices for restaurant visits in the same way we do for residential segregation
  - High numbers mean more segregation of consumption

		Residential dissimilarity	Consumption dissimilarity			
			Estimated	No spatial	No social	Neither friction
		(1)	(2)	(3)	(4)	(5)
Dissimilarity index						
Asian		.521	.273	.225	.157	.133
Hispanic		.486	.101	.071	.067	.042
black		.653	.261	.232	.11	.091
white		.636	.184	.142	.088	.053
Pairwise dissimilarity						
Asian	Hispanic	.584	.251	.202	.16	.132
Asian	black	.796	.399	.347	.195	.172
Asian	white	.519	.256	.209	.163	.131
Hispanic	white	.658	.163	.121	.074	.028
black	Hispanic	.558	.212	.196	.108	.089
black	white	.822	.288	.249	.13	.098

Figure 10:

How Segregated is Urban Consumption?

Dissimilarity Index for Urban Consumption (Estimated)

- Typically half as segregated as residences
  - Residential segregation plus transit costs suggests we can expect some segregation
  - Possible that it could have been higher than residential (but not)
- Variation in bilateral dissimilarity indices for urban consumption
  - Highest value for Asian-Black

Counterfactuals: Spatial and Social Frictions

Because the total restaurant visits are generated based on our estimates, we can ask:

- If spatial frictions disappeared, what would happen to the segregation of urban consumption?
  - It could become more *integrated* if this eliminates the role of residential segregation and travel times in generating consumption segregation
  - It could become more *segregrated* if eliminating travel costs leads people to segregate their consumption even more
  - In practice, eliminating spatial frictions reduces consumption segregation, although not dramatically
- If social frictions disappeared, what would happen to the segregation of urban consumption?
  - Falls more sharply than eliminating spatial frictions
  - Segregation that persists reflects interaction of travel costs and residential segregation plus group x cuisine preference differences

Example: Community Boards 8, 10, 11

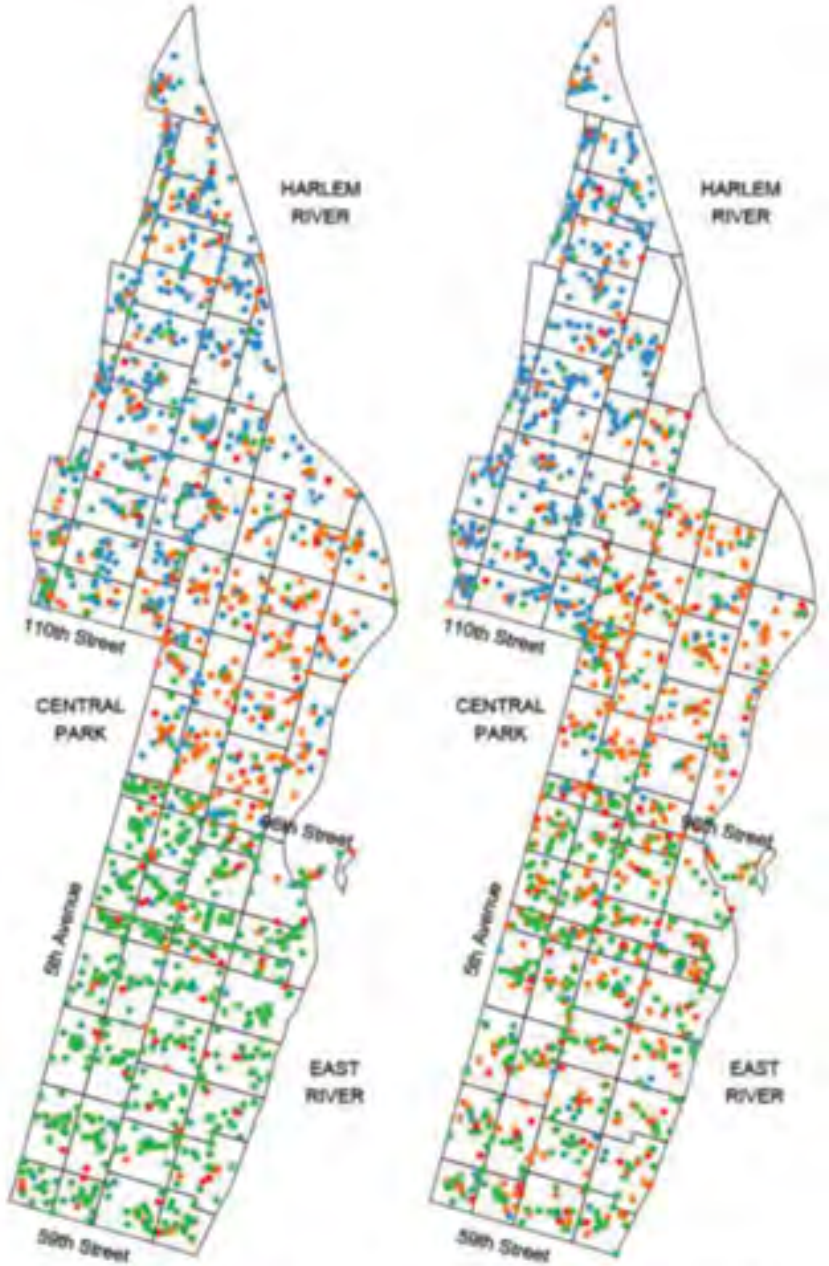
Compare residential and consumption segregation in

- The Upper East Side (white),
- Central Harlem (black)
- East Harlem (Hispanic)

- We can look at consumption shares under our counterfactuals as a table or via figures
  - In figures, dots continue to indicate race or ethnicity, with each dot being 10 percent of the census tract population
    - *Red* = *Asian*, *Blue* = *black*, *Orange* = *Hispanic*, *Green* = *white*

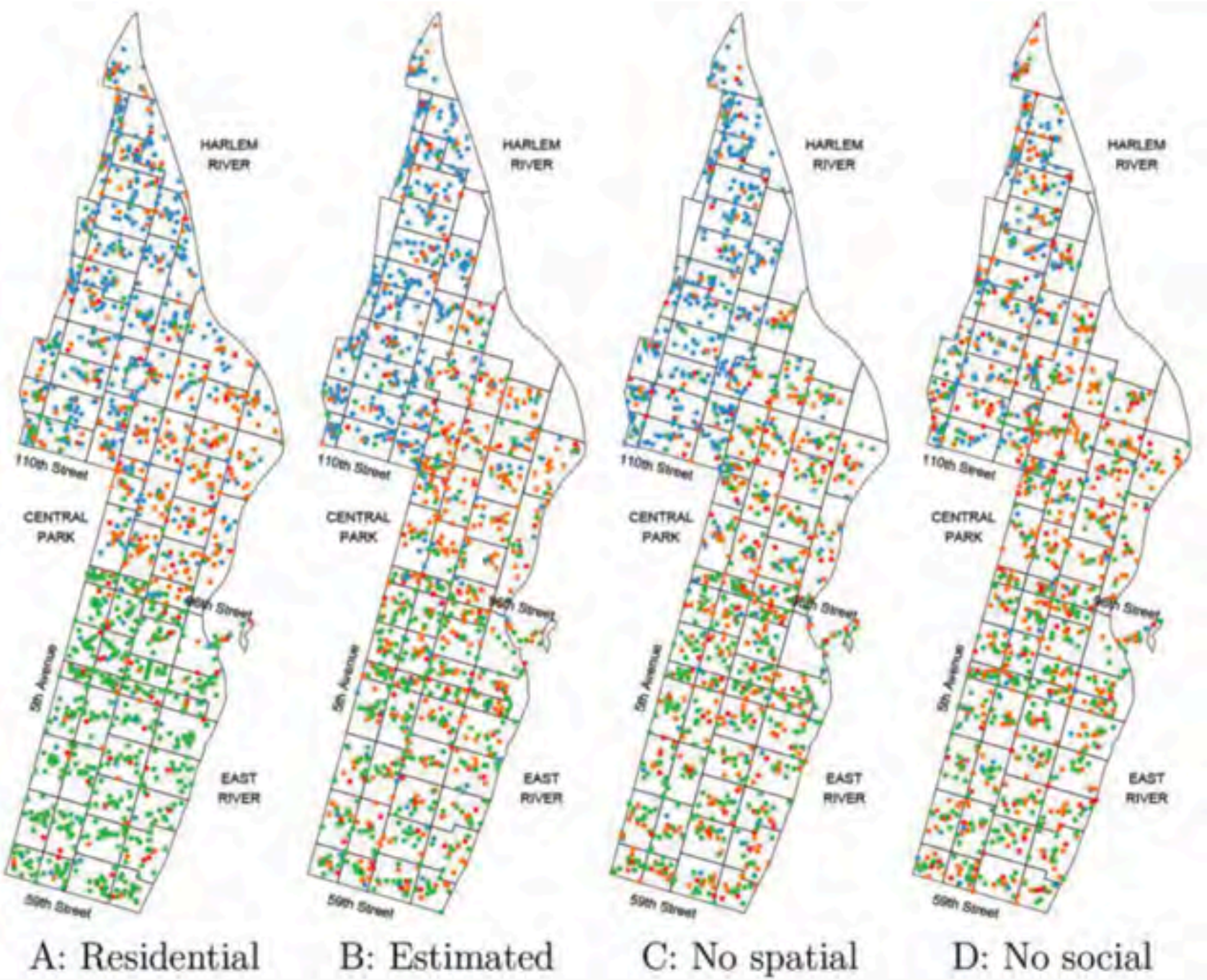
		Consumption share			
	Residential share	Estimated	No Spatial	No Social	Neither
		Community Board 8: Upper East Side			
Asian	0.080	0.107	0.123	0.115	0.128
black	0.023	0.173	0.191	0.196	0.212
Hispanic	0.066	0.269	0.263	0.297	0.286
white	0.810	0.425	0.396	0.365	0.346
		Community Board 10: Central Harlem			
Asian	0.024	0.038	0.056	0.081	0.109
black	0.630	0.507	0.496	0.264	0.229
Hispanic	0.222	0.305	0.257	0.376	0.302
white	0.095	0.127	0.166	0.253	0.331
		Community Board 11: East Harlem			
Asian	0.056	0.040	0.052	0.087	0.106
black	0.309	0.411	0.433	0.244	0.236
Hispanic	0.494	0.370	0.305	0.365	0.299
white	0.120	0.157	0.187	0.277	0.331

A: Residential



A: Residential B: Estimated

A: Residential B: Estimated C: No spatial


HARLEM RIVER
110th Street
CENTRAL PARK
96th Street
5th Avenue
EAST RIVER
59th Street
A: Residential
B: Estimated
C: No spatial
D: No social

HARLEM RIVER
110th Street
CENTRAL PARK
86th Street
5th Avenue
EAST RIVER
59th Street
A: Residential
B: Estimated
C: No spatial
D: No social
E: Neither

Conclusions on Segregation of Consumption

Geolocated data allow exploration of subjects previously unexplored

- Residences remain highly segregated
- Consumption about half as segregated as residences
  - Eliminating spatial frictions would reduce consumption segregation modestly
  - Eliminating social frictions would reduce consumption segregation more strongly, even with residential segregation unchanged