

# Externalities of the Sharing Economy: Evidence from Ridesharing and the Local Housing Market

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## Abstract

- This study highlights sharing economy's externalities on the local economy
- I find that local housing prices and market rents increase after the introduction of Uber X, especially in zip codes with greater access to public transit and lower driving probability.
- The price appreciation is stronger for individual houses just beyond walking distance to public transit
- The findings suggest that ridesharing complements public transit and helps solve the "last mile" problem.

## Motivation

- Housing and transportation expenditures are the largest components of household spending
- Ridesharing can either substitute or complement public transit
- Thus, ridesharing may impact households' home location decisions and the local housing market by releasing the transportation constraints

## Data

- Uber X entry data at the city level in 2012–2015
- Zillow monthly housing value and rent indices
- Zillow individual house transaction data
- Zip code-level economic and housing variables from Census
- Location of rail stations from Google Map
- Uber pickups in NYC from the NYC Taxi Limousine Commission

## Zip code-level Difference-in-Difference Analysis

$$\log(Y_{ict}) = \alpha_c + \mu_t + \beta X_{ict} + \theta TREATED_{ic} * POST_{ct} + \epsilon_{ict}$$

- Sample: zip code by year-month in 2011-2017
- Treated group: zip codes in a city that adopted Uber X
- Post period: after Uber X enters the city
- Controls: zip code level economic and housing characteristics; city and time fixed effects
- 95% confidence interval

Figure 1: Dynamic Coefficient plot of Housing Value Index

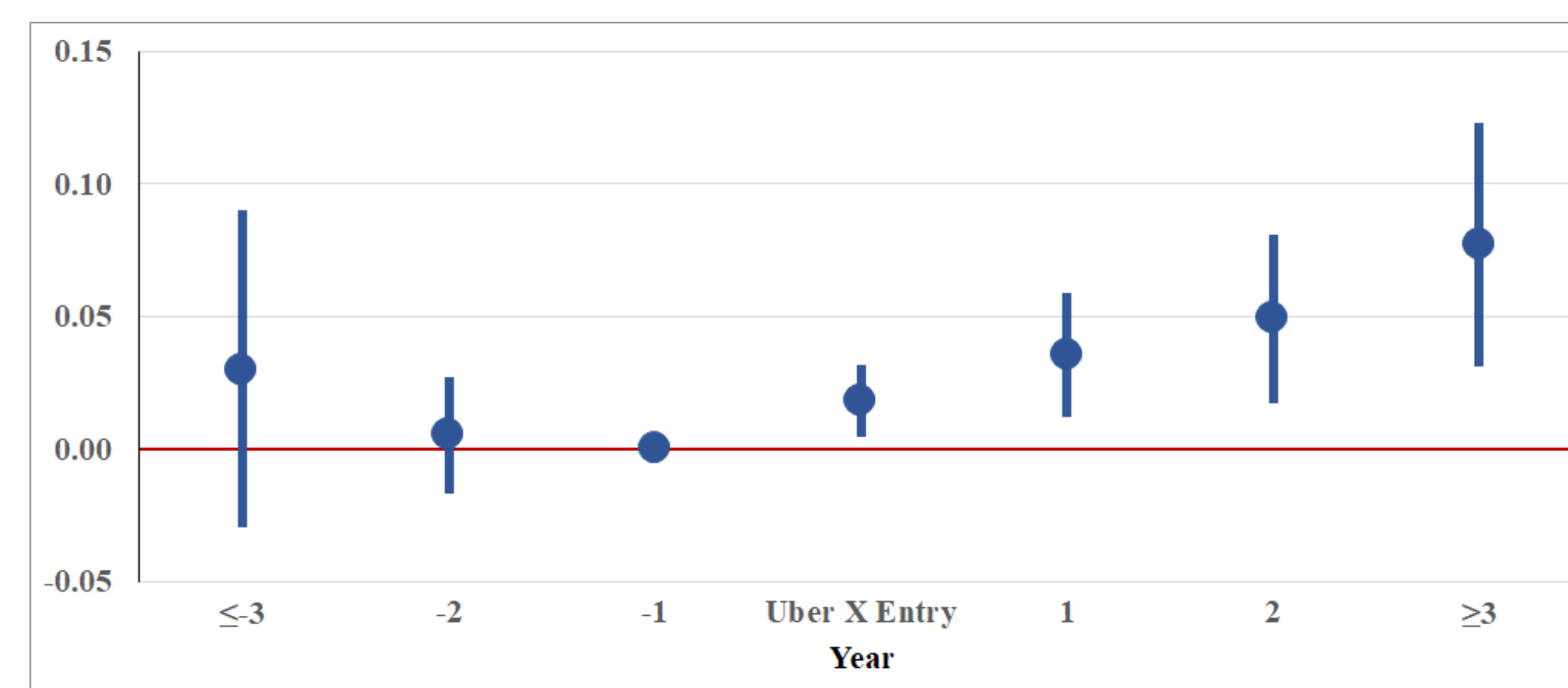
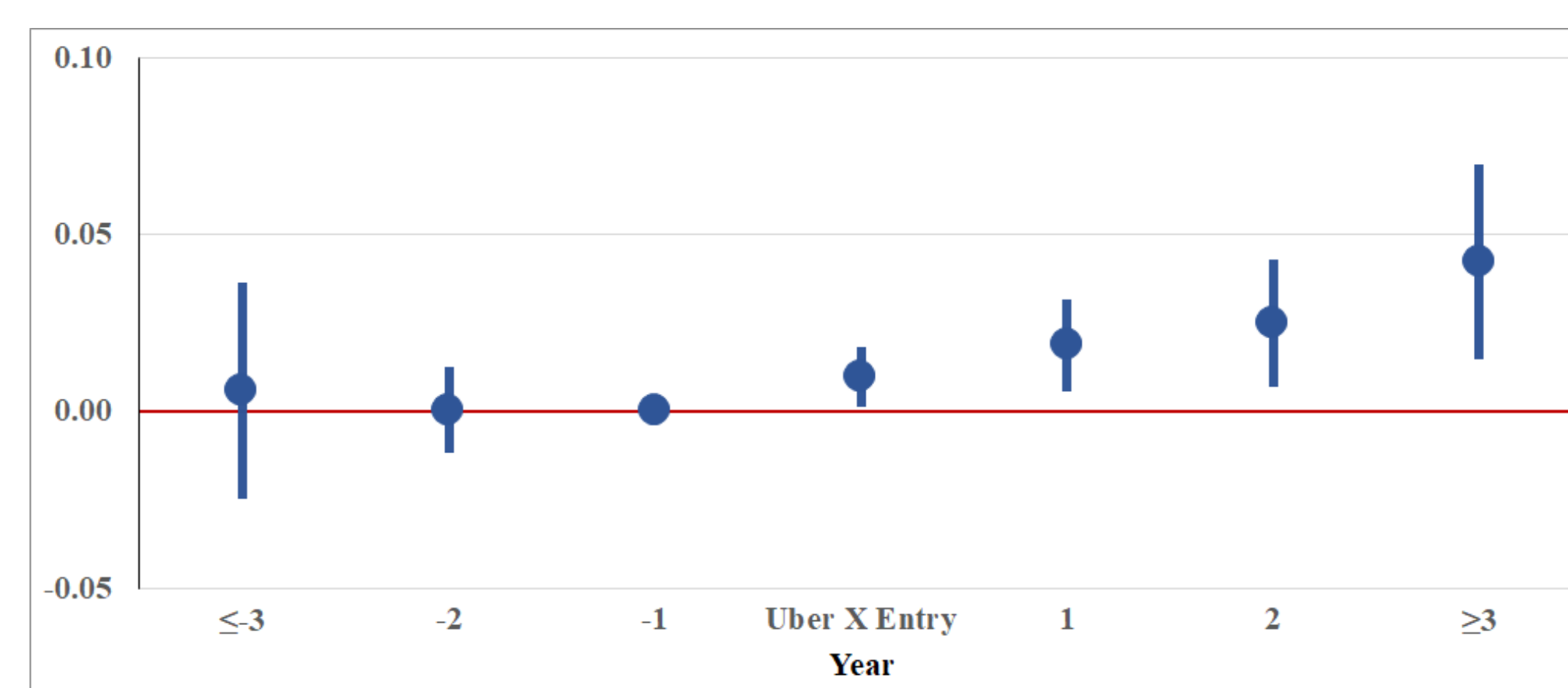


Figure 2: Dynamic Coefficient plot of Rent Index



## Zip code Level Heterogeneity

Table 1: The Effect of Uber X Entry by Public Transit Resources and Driving Probabilities

	DV: Log (Housing Value Index)		DV: Log (Rent Index)	
	(1)	(2)	(3)	(4)
$POST_{ct} * TREATED_{ic}$	0.111*** (6.98)	0.030** (2.35)	0.089*** (13.23)	0.017*** (2.66)
$x NO\_RAIL\_STATION_i$	0.014** (2.26)	0.014** (2.22)	0.007*** (3.09)	0.007*** (2.97)
$x DRIVE\_PROBABILITY_{it}$	-0.003*** (-4.84)	-0.003*** (-4.57)	-0.001** (-2.53)	-0.001** (-2.38)
Observations	809,933	809,933	554,697	554,697
R-squared	0.841	0.844	0.839	0.845

\* Indicate that Uber X complements public transit

## The "Last Mile" Problem

- The difficulty of getting people from a transit to their final destinations
- ★ I find the least affected houses are within 0.5 miles while the most affected ones locate 0.5-3 miles of a rail station
- ★ Uber X can help the affected houses by complementing public transit

## The "Last Mile" Analysis using Housing Transactions

$$\log(P_{ispt}) = \alpha_{st} + \mu_p + \beta X_i + \theta_1 D_{is}^{0.5} + \theta_2 D_{is}^3 + (\gamma_1 D_{is}^{0.5} + \gamma_2 D_{is}^3) * POST_{it} + \epsilon_{ispt}$$

- Sample: housing sales occurred within 6 miles of a rail station in 2011-2017
- Treated group: housing sales within 0.5 miles/0.5-3 miles of the closet rail station
- Post period: after Uber X launched service for the local community
- Controls: housing characteristics and housing type; station-by-quarter fixed effects

Figure 3: Change in Housing Sale Prices in the least "last mile" Zone

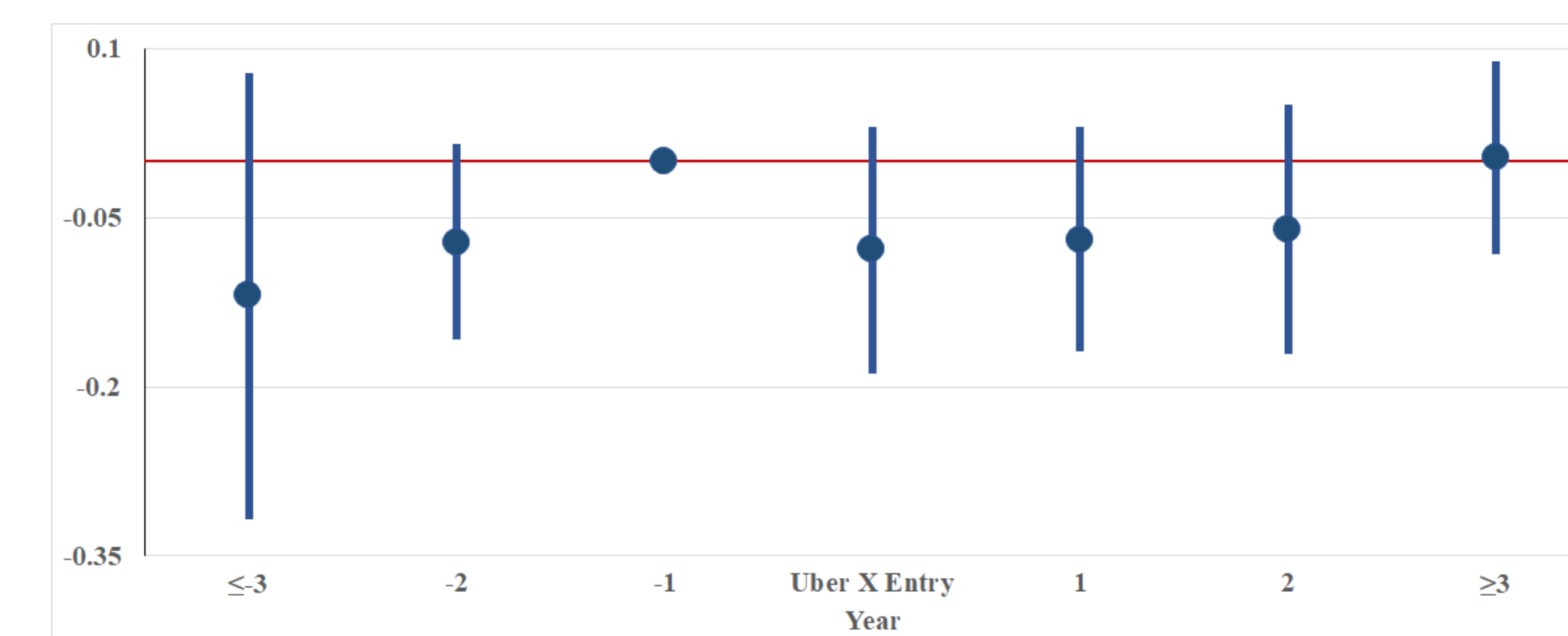
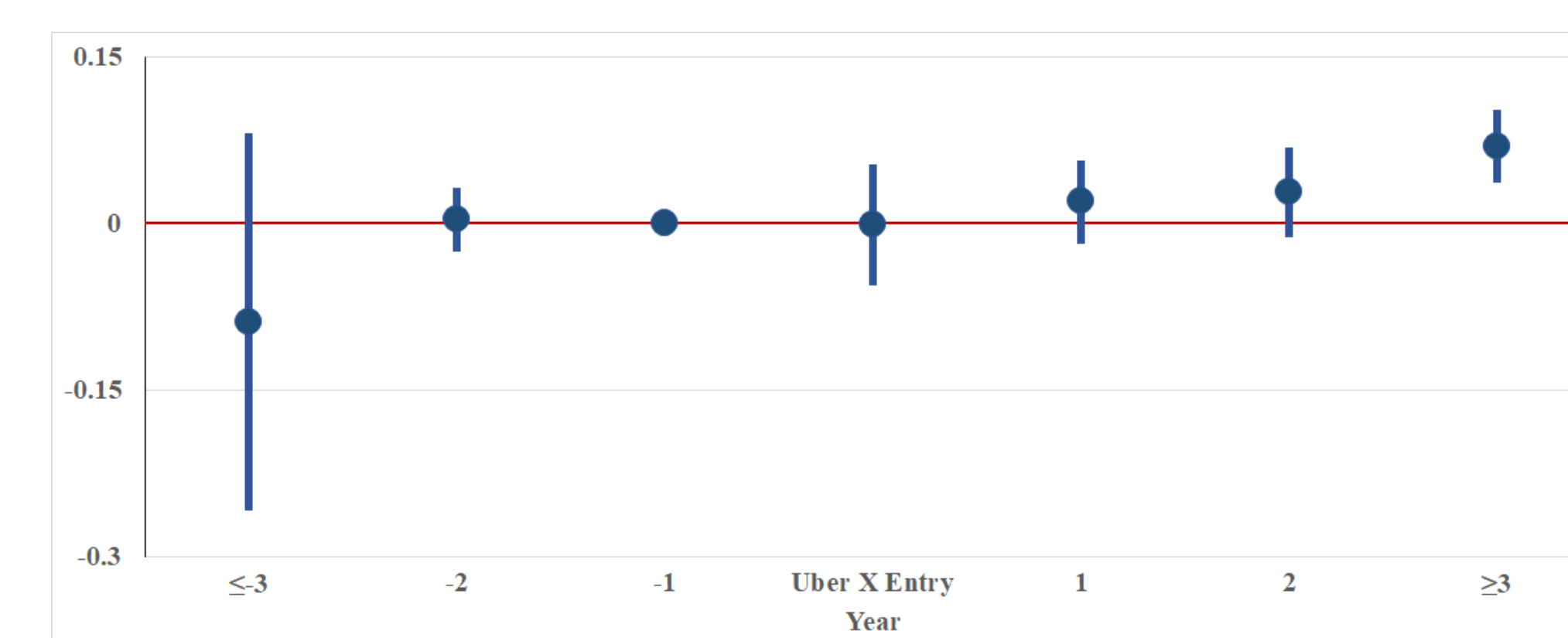


Figure 4: Change in Housing Sale Prices in the most "last mile" Zone



★ Findings: housing sale prices increase more in the most 'last mile' area (0.5-3 mile of a rail station) after Uber X entry

## Other Findings

- Housing prices and rents increase more in zip codes with larger populations, lower median ages and more minorities
- Results hold when instrumenting Uber X entry decisions using VC investments to Uber or a Bartik IV
- Causal inference from ridesharing prohibition: Austin, Texas experienced lower rents when ridesharing was suspended
- The joint effect of Uber X and Lyft is even larger
- Higher Uber use intensity, higher housing Sale prices in the "last mile" area
- Uber X entry does not affect commercial property prices in the "last mile" area, suggesting my "last mile" results are not driven by increased economic activity

## Conclusion

- The introduction of ridesharing increases local housing prices and rents by complementing public transit and solving the "last mile" problem

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