

# The Unequal Gains from Entry: Estimating the Whole Foods effect

IO colloquium

Louise Guillouët  
Columbia Economics

October 16th, 2019

# Outline

Introduction

Data

Empirical strategy and Results

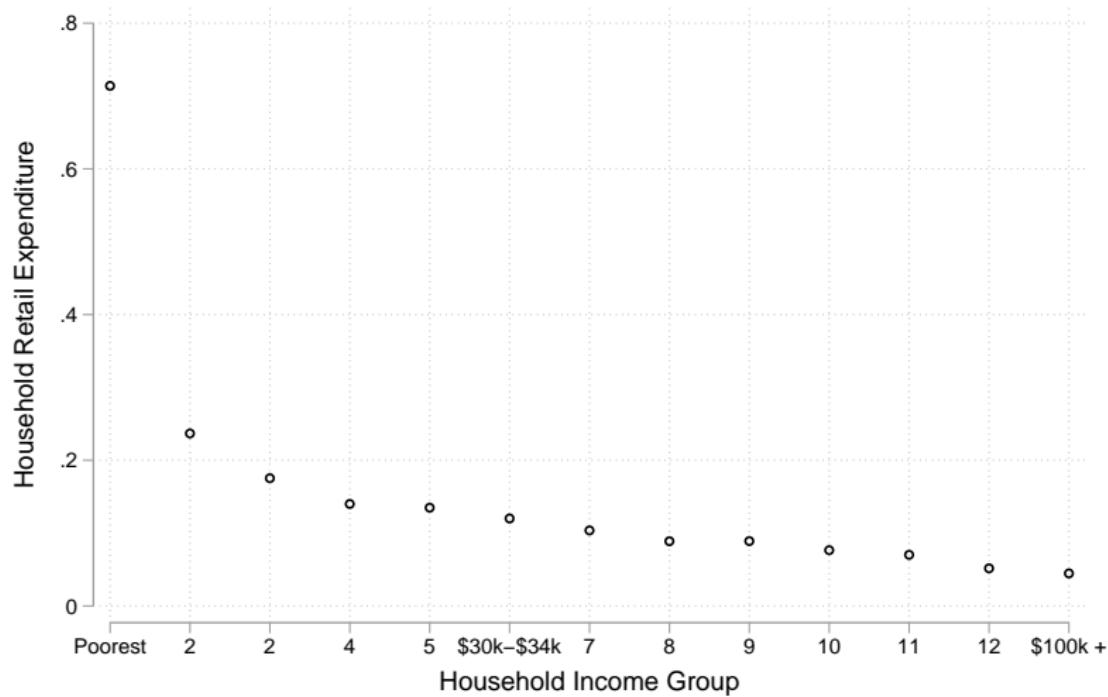
What's going on? A proposition

# Motivation

- ▶ Gentrification:  
*the process of repairing and rebuilding homes and businesses in a neighborhood accompanied by an influx of middle-class or affluent people and that often results in the displacement of earlier, usually poorer residents.*
- ▶ The entry and upgrading of businesses is generally considered to be welfare improving.
- ▶ Do “earlier, usually poorer residents” benefit from this?
  - ▶ If so, could *mitigate* gentrification
  - ▶ If not, could *worsen*

## Setting

The lower a household's income, the higher the share of consumption in their income.



## Research question & design

- ▶ What is the impact of the entry of businesses due to gentrification on historical residents?
- ▶ Method: Use the rapid expansion of Whole Foods, a high-end grocery store specialized in “health” and organic products to study effect of entry on grocery prices.

# Literature

- ▶ Competition in differentiated markets
  - ▶ In a differentiated market, entry may cause both prices and consumer welfare may go up [Perloff, Suslow and Seguin 1995](#)
  - ▶ Market share effect vs price sensitivity effect [Chen and Riordan 2008](#)  
Recent debate about:
    - ▶ Increasing concentration [De Loecker, Eeckhout and Unger 2018](#)
    - ▶ But not at a local level? [Rossi-Hansberg et al 2019](#)
- ▶ Heterogeneous preferences
  - ▶ Wal-Mart in Mexico pushed incumbents' prices down while catering to rich customers [Atkin et al. 2018](#)
  - ▶ Innovation in high-end consumer goods did not result in much good for low-income households on aggregate [Jaravel 2018](#)
  - ▶ Widely studied for stark disparities between low-income and high-income households [Allcott, Diamond et al. 2019](#)

# Outline

Introduction

Data

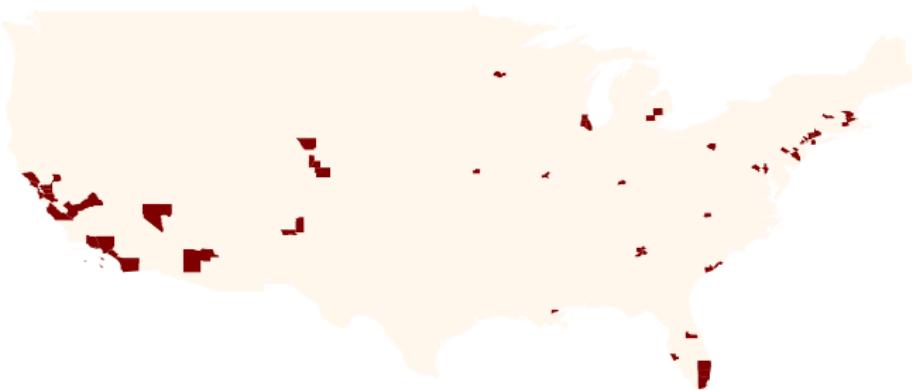
Empirical strategy and Results

What's going on? A proposition

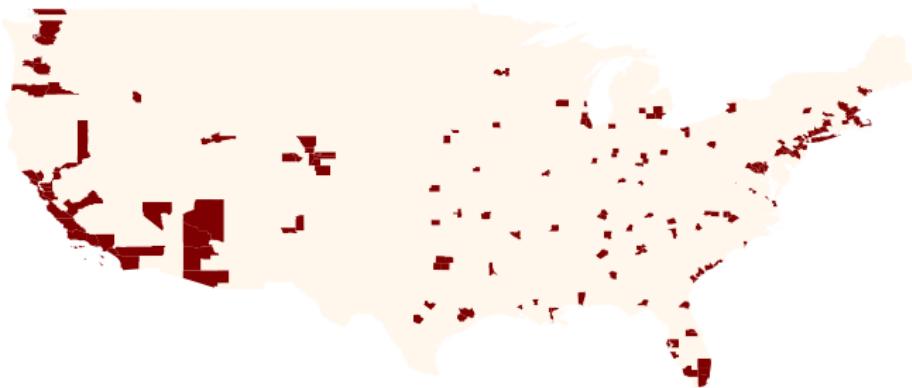
# Data

- ▶ Nielsen's Consumer Panel Data 2004-2017
  - ▶ 50,000 households per year
  - ▶ Paid to report information (store, date, price) about all purchases for at-home consumption.
  - ▶ Use a home scanner which allows to have barcode information.
- ▶ Specialized organic stores: I focus on Whole Foods (added 300 stores between 2004 and 2017).  
Retrieve exact location, entry and announcement dates from ProQuest

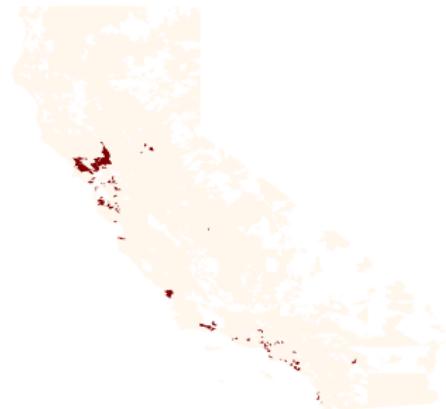
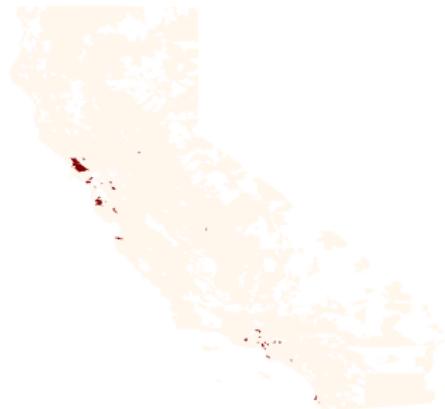
## Counties where Whole Foods was present in 2004



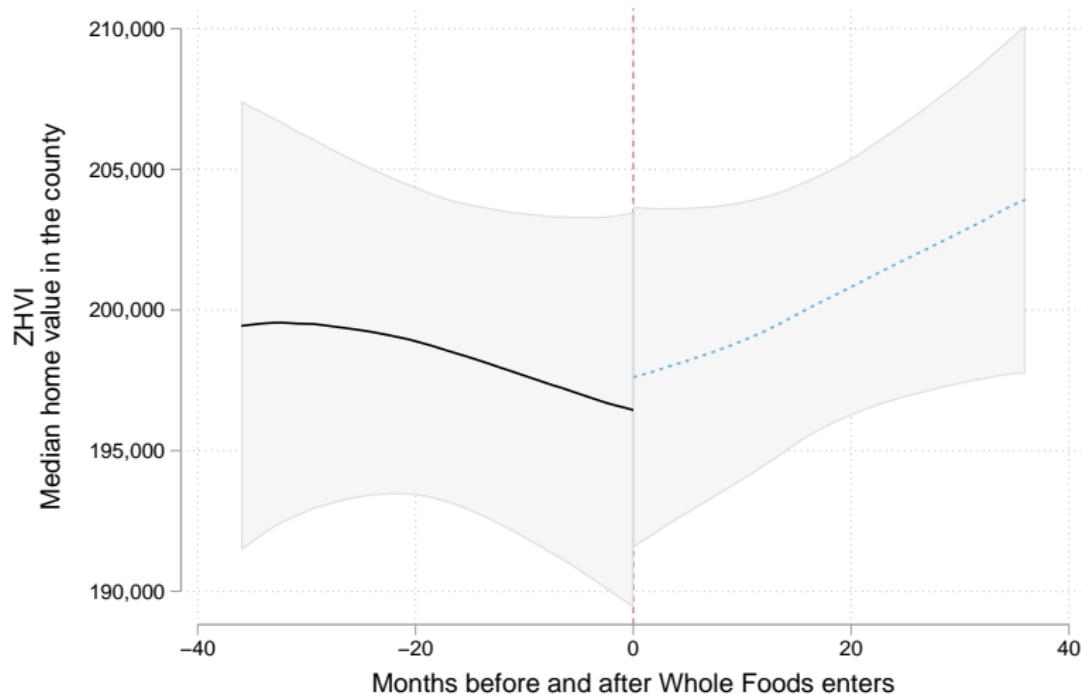
## Counties where Whole Foods was present in 2017



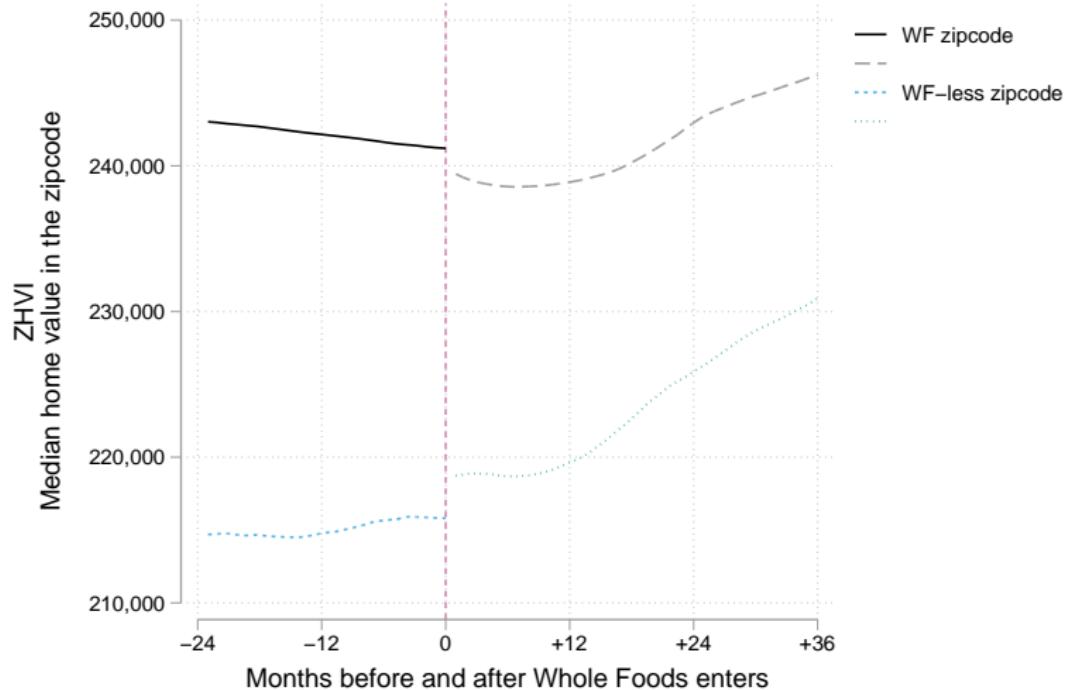
## Zipcodes where Whole Foods was present in 2004 vs 2017



# What is special about Whole Foods? 1



# What is special about Whole Foods? 1



## What is special about Whole Foods? 2

Dep. var:	Log price	Org share	
	(1)	(2)	(3)
Whole Foods	0.196*** (0.018)	0.274*** (0.018)	0.069*** (0.005)
Zipcode-Year FE	Yes	Yes	Yes
Zipcode-Product-Month FE	Yes	Yes	No
Zipcode-Barcode-Month FE	Yes	No	No
N	4225847	5337023	4,119
R <sup>2</sup>	0.89	0.67	0.23
Number of zipcodes	295	295	250

**Notes:** Standard errors clustered at the zipcode level are included in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

# Outline

Introduction

Data

Empirical strategy and Results

What's going on? A proposition

# Empirical strategy

- ▶ More than **300 new stores** over 13 years
- ▶ **Problem** Not randomly selected
- ▶ *A priori* cannot use DiD
- ▶ Event-study? [Atkin, Faber and Gonzalez 2018](#)  
→ need flat pre-trend.
- ▶ Staggered rollout? [Meckel 2018](#)  
→ need random timing

# Event-study Regressions

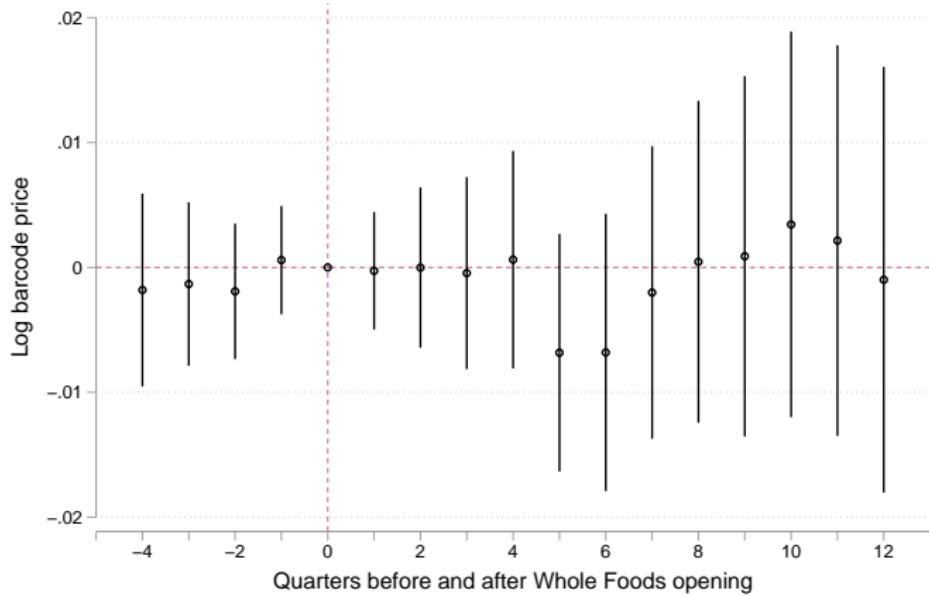
Barcode-by-store level

$$\ln p_{bgsm} = \sum_{j=-12}^{36} \beta_j \mathbb{I}(\text{Quarters Since Entry}_{mt} = j) + \delta_{gsbm} + \eta_t + \epsilon_{gsbm}$$

where  $\ln p_{bgsm}$  is the log price of a barcode-product b in product group g, individual store s, in market m and month t.

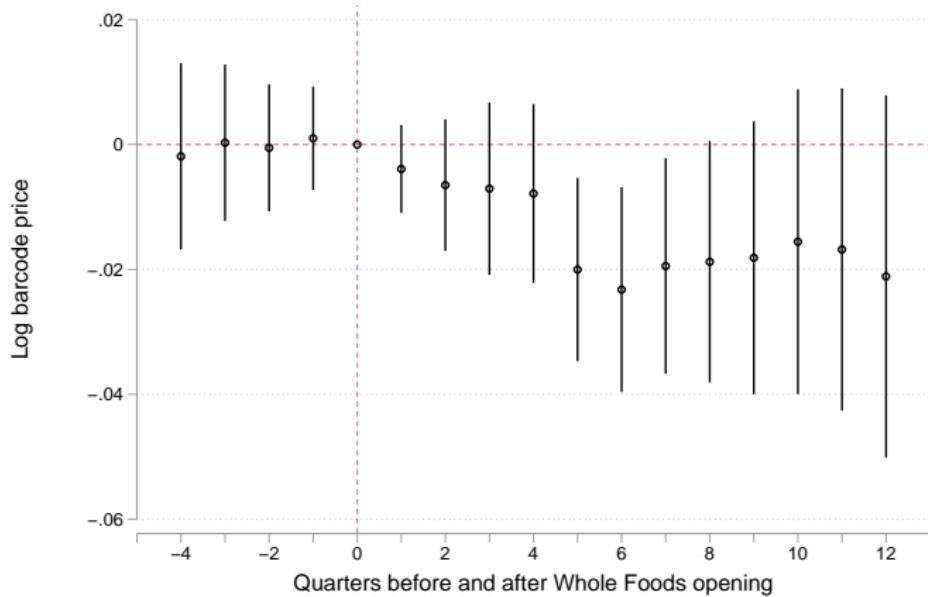
Cluster Standard Errors at the market level.

# All items & all panelists



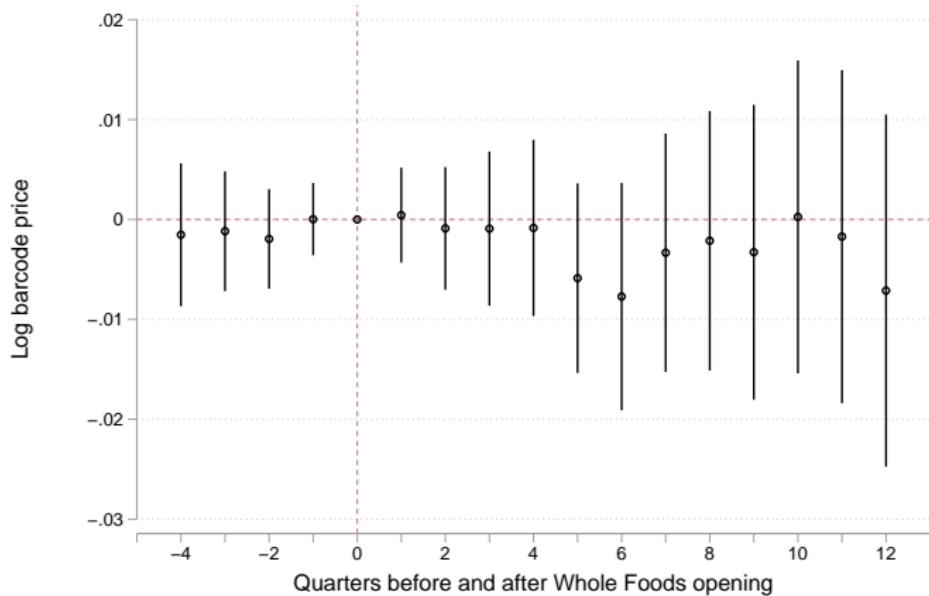
Standard errors are clustered at the zipcode level. I excluded Whole Foods purchases from the observations.

# All items & Only lower-income panelists



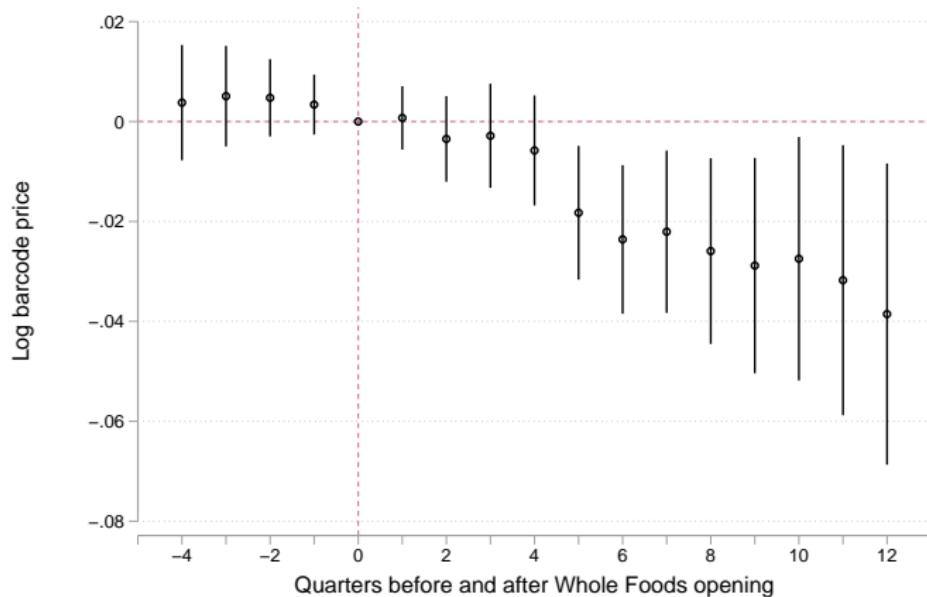
Standard errors are clustered at the zipcode level. I excluded Whole Foods purchases from the observations.

## Food only & All panelists



Standard errors are clustered at the zipcode level. I excluded Whole Foods purchases from the observations.

## Food only & Only lower-income panelists



Standard errors are clustered at the zipcode level. I excluded Whole Foods purchases from the observations.

# Outline

Introduction

Data

Empirical strategy and Results

What's going on? A proposition

## Model sketch

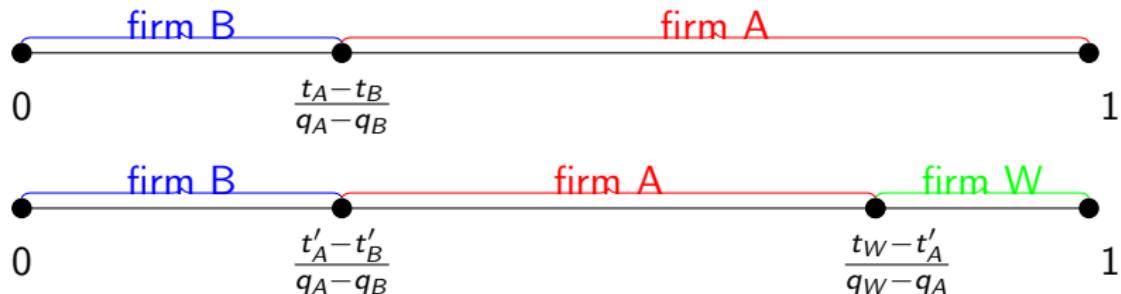
- ▶ Price competition with vertical differentiation.
- ▶ Firms: sequential game
  1. They decide whether to enter or not
  2. If they enter they choose a quality level  $q \in [0, \bar{q}]$
  3. They compete in prices.
  4. Another firm enters
- ▶ Consumers: they are characterized by a taste for quality  $\theta$ .

$$U(d, t) = v + \theta q - t, \text{ with } \theta \sim U([0, 1])$$

- ▶ With 2 firms, maximum differentiation, higher price at the top.

## Predictions

- ▶ Going from two firms  $(q_A, q_B)$  to three  $(q_A, q_B, q_W)$  with  $q_W > q_Q > q_B$



- ▶ High-income consumers always benefit from entry (either they switch or they stay and get a lower price).
- ▶ Low-income consumers get a lower price at the incumbent stores.

## Endogenizing quality and preferences

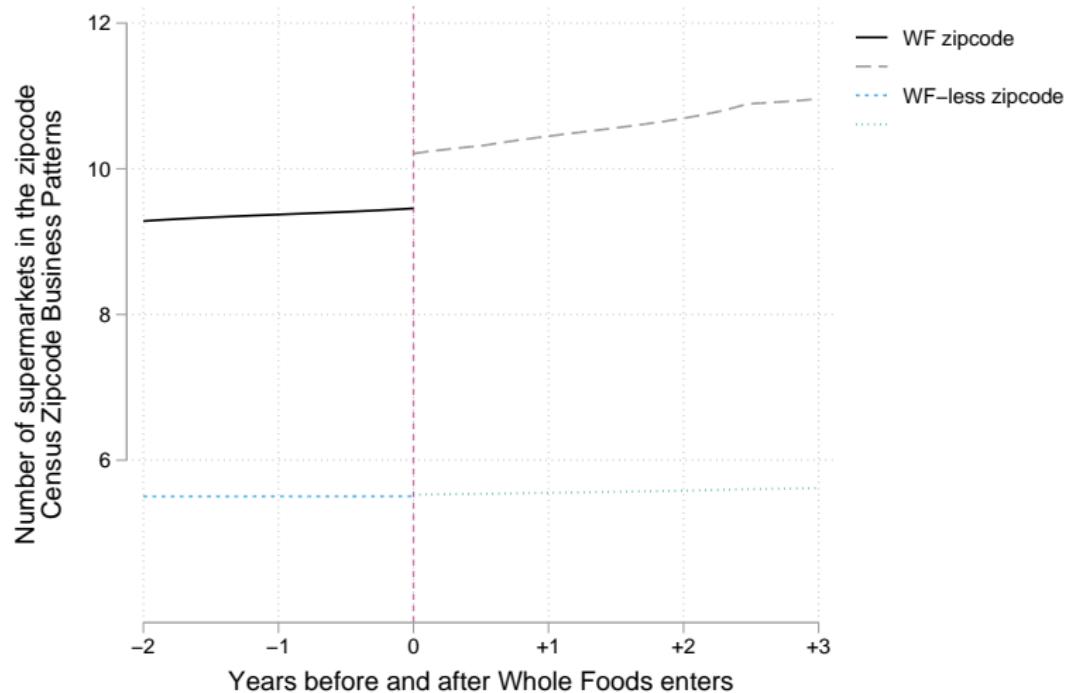
- ▶ What happens when we allow for quality readjustment?

The closer the incumbent firms are to the new firm's quality, the more they want to compete up by investing in quality, squeezing low-income consumers out.

- ▶ What happens when the customer base becomes richer?

More incentives to compete at the top.

# Increase in N



# Mechanisms

- ▶ Whole Foods precedes gentrification?
  - Moving into new commercial space or empty lots, not replacing local stores in the ST (what about preemption?)
- ▶ Does not mean that cost of living decreases, but may *mitigate* forced displacement.

# Conclusion

- ▶ It appears that entry, even of top quality firms targeting high-income consumers, benefits lower-income consumers.
- ▶ Urban policy makers should not forget commercial space in gentrification debates.