Wal-Mart V.S. Supermarkets: Sales and Quality Impact of Wal-Mart on Supermarkets in Cities
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Why Wal-Mart?
- Since 1988, Wal-Mart has expanded its outreach to food and beverages on top of its existing offerings. “Supercenters” allow customers to do one-stop-shopping. Wal-Mart has dramatically changed the retail landscape.
- According to Wal-Mart’s 2017 Annual Report, the annual sales of Wal-Mart within the US was 307 billion dollars, which translates to 2% of the U.S. gross domestic product (GDP) in 2017.
- Wal-Mart has 3522 Supercenters within the U.S. and it employs 2.3 million employees within the U.S., which translates to 1%-2% of the total employment and around 12% of the total retail employment in the U.S.
- Wal-Mart’s “every-day-low-prices” has generated controversy due to its alleged negative impact on employee wages, neighborhood safety, obesity rates and many others. Few elected city officials are vocal in their opposition towards Wal-Mart.

Why Supermarkets? A Puzzle
- According to the American Satisfaction Index ratings, supermarkets are providing better services to customers in the last ten years.
- Food Inflation Rate V.S. Non-Food Inflation Rate
- At the same time, food Consumer Price Index (CPI) has been falling comparing to other CPI (eg. utility, rent, healthcare, etc.).
- Within food prices, food-at-home prices (supermarkets food) has been falling comparing to food-outside-home (restaurants food).

Wal-Mart as an Explanation
- Could Wal-Mart, the largest food retailer and one of the largest corporations in the world, be the cause of such paradox?
- Could Wal-Mart contribute to the falling prices of food-at-home?
- Could Wal-Mart contribute to the rising quality of supermarket stores?
- My finding suggests that Wal-Mart competes directly with supermarkets to lower their sales by making the food-at-home market more competitive.
- My finding suggests that Wal-Mart increases the store quality by increasing the employee to sales ratio, a proxy for store quality.

Methods & Data

Methods: Ordinary Least Square Regression
\[ \Delta Y_i = \beta_0 + \beta_1 \Delta \text{Wal-Mart} + \beta_2 \Delta \text{Population} + \beta_3 \Delta \text{Income}_i + \epsilon_i \]

Supermarkets Sales Growth in Five Years(07-12) in Metropolitan Statistical Areas by Percentage

Results & Discussion
- A doubling of Wal-Mart stores leads to 8-10% of sales decrease of supermarkets in a given city.
- If a city has 7.3(mean) new Wal-Marts within five years, the city total supermarket sales will decrease by 181 million dollars, which translates to the sales of 24 supermarkets.
- Population increases by 1%, supermarket sales increase by 4%-6%.
- Median Individual Earnings increase by 1%, supermarket sales increase by 0.5%.

Wal-Mart competes with supermarkets directly to lower the prices and thus keeping the food-at-home prices low.
- Entry of Wal-Mart leads to higher employee to sales ratio.
- Higher employees to sales ratio is a measure of higher supermarket quality.
- The result holds only when conditioned on Wal-Mart’s entry(40 MSAs that did not have Wal-Mart’s entry within five years was removed).
- The growth of population and earnings has no statistical significance on store quality.

Wal-Mart compels the supermarkets to invest in more quality-related efforts.
- Wal-Mart’s displacement of supermarket workers within five years is found statistically insignificant.
- As expected, growth of population and income increase the number of workers.

Wal-Mart has no statistically significant impact on supermarkets’ employment.
- Wal-Mart’s impact on decreasing supermarkets within five years is found statistically insignificant.
- As expected, stores increase with population.

Wal-Mart has no statistically significant impact on the number of supermarkets.

Conclusions
- Wal-Mart can explain partially why the food-at-home prices throughout the Unites States are falling.
- On average, when Wal-Mart stores double in a given city, supermarkets collectively experience a sales decrease of 10%.
- The competition is “healthy” because there is no statistically significant displacement of stores and workers in the short-run when Wal-Mart enters.
-Wal-Mart can also explain the puzzle of rising supermarkets quality despite the falling prices.
- More research on the mechanism in which supermarkets improve their quality and the implications is needed.

Summary Statistics

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*1 st. citation due to no Wal-Marts in the beginning of my sampling year 2007 and then % change cannot be computed.