Trade Exposures in Local Retail Pricing

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Motivation

Question. How do trade exposures affect local retail pricing patterns?

- Why should we care?
  - ∗ Pricing as a natural follow-up question for markets & markups[1]
  - ∗ Studies found nearly–uniform pricing for large retail chains,[2] mainly due to ① *managerial inertia* & ② *brand image concerns*

- But this eliminates price disparities that may reflect trade/demand factors:
  - → What about small, local retail shops that are free from ① & ②?
  - → What about small, local retail shops that are more affected by trade?

- I explore data from local bike shops (LBSs) across the US and imports.

[1] Also see my short discussion on Amiti and Heise (2024): [here].

[2] Also see DellaVigna and Gentzkow (2019). They found that most large US food, drugstore, and mass merchandise chains set nearly-uniform prices across stores.

Contribution

This study. Bridges trade and associated domestic sales through "small" retail businesses,[3] by constructing pricing data from LBSs in the US.

$$\text{Trade exposures} \overset{?}{\rightarrow} \text{Prices} \tag{1}$$

- I make two **main contributions**:
  ① **(Novel data).** Construct price data by scraping through publicly available bike listings on 96 LBSs across the US

  ② **(Implication).** Provide a framework on assessing trade exposures to prices, which can be broadly extended to different retail businesses/industries

[3] I focus on bike-specific industry (i.e., LBSs) mainly since ① [Trade] LBSs sell bikes, which are dominantly imported goods to the US. This allows the connection to trade data. ② [Homogeneous product] Disparity of bike prices should be driven by local/trade demand factors. ③ [Market] LBSs are retail businesses that are "small" enough to not influence national bike market, but "large" enough to reflect local demand.

Literature

- **Key literature**: DellaVigna and Gentzkow (2019) (uniform pricing patterns in "large" US retail chains) & Amiti and Heise (2024) (concentration & import penetration)

- Several more relevant studies:
  * **Retail prices**: Atkin et al. (2018) (Mexico; supermarket), Cavallo (2018) (US, Argentina, Brazil, Chile, Colombia; supermarket), Cavallo (2017), Sorensen (2000) (US; prescription drugs)
  * **Local costs & spatial**: Diamond and Moretti (2024), De Loecker et al. (2016), Atkin and Donaldson (2015), Gopinath et al. (2011) (US & Canada; grocery)

- **My takeaway**: Prior studies on retail prices focused exclusively on large retail chains [for data convenience]; nearly none addressed price disparities from small retail shops, which may reflect local demand better.

Empirical Framework

Baseline Estimation

- I plan to proceed with this specification:

$$\Delta p_{irt} = \gamma \underline{\Delta IEM_{irt}} + \theta_{it} + \varepsilon_{irt}, \tag{2}$$

① Δp_{irt}: %change in bike prices for bike item i at region r in time t
② ΔIEM_{irt}: %change in bike import exposure measure **[IN PROGRESS]**[4]
③ θ_{it}: item $\times$ time FE (for across-region)
④ Instrument for $\underline{\Delta IEM_{irt}}$ with a Bartik IV: $Inst_{\Delta IEM_{irt}} = \sum_{x \neq US} w_{irx,\Delta t} \tilde{\beta}_{irxt}$

  - $w_{irx,\Delta t}$: Δt-year lagged total bike imports share
  - $\tilde{\beta}_{irxt}$: foreign supply shock (Amiti and Heise (2024) & Amiti and Weinstein (2018))

- Assumption: consistent online/offline prices[5] (Cavallo, 2017)

- Prediction: negative γ

[4] Adão et al. (2022) provided microfoundation of such measure.
[5] This assumption allows me to use the scraped [online] prices to construct my LHS variable for prices.

Data

So far I prepare three main categories of datasets to approach the question:

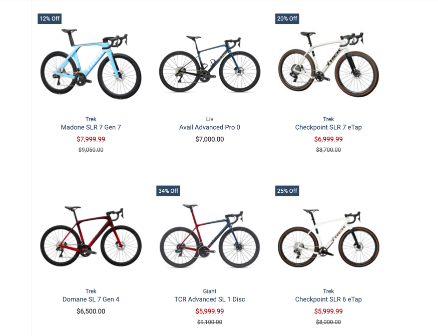
- **(Prices).** Scraped bike price data (★)
  - Monthly bike prices from September 2024-present*
  - 96 LBSs across 8 states: CA, CO, MN, NJ, NY, PA, TX, WI
  - $14,028$ distinct (Items $\times$ ZIP $\times$ Time) pairs out of $54,853$ bike listings[6]

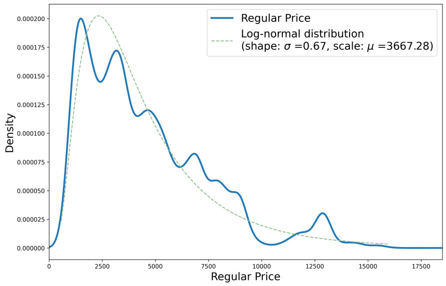
- **(Trade).** Imports & Exports data on bikes (HS 8712)
  - USA Trade Online: Annual State Imports by HS
  - Census Trade Data: Monthly US imports by HS
  - UN COMTRADE: Annual Imports, Exports data by HS

- **(Local/HH).** 2022 5-year American Community Survey, IPUMS

[6] More data to add as my Senior Thesis goes on.

Scraped Data Example: Regular Prices





Attained from scraped data:

- Bike-related: bike brand, bike item, bike type
- Price-related: regular price, special price, discount rate
- Region/Time-related: shop, ZIP code, state code, year, month, quarter

Limitations and Future Directions

- Limitation: level of aggregation
  - Does not leave much variation for RHS variable (ΔIEM_{irt}), or
  - Fails to use up as much variation as possible for LHS variable (Δp_{irt})
- Future directions:
  - **RHS**: Write down more-granular expressions of import exposure measure
    $\Longrightarrow$ connect trade data to the ACS data
  - **LHS**: ① scrape prices more frequently ② match the aggregation on RHS
  - Better ways to utilize the other variables from my scraped data?
- More to think and explore:
  - Do LBSs select optimal "bike portfolio" considering their local demand?
  - LBSs in spatial: limited access to big market $\leftrightarrow$ higher pricing power?
- **Thanks!** ☺

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