Demand During Store Liquidation: Local Economic Factors

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Local Economic Factors

- Local: measured at a store's ZIP or block group

- Income and wealth
  - Median household income

- Consumer sentiment
 - "Will the economy be better, the same, or worse over the coming year?"

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Store Liquidation

- **Store liquidation** is the time-constrained divestment of retail stores through in-store sales of inventory

- Retailers sell $Bs of inventory via store liquidation annually
  - Going concerns conduct around 70% of all store liquidations
  - 3.4% of public retailers liquidate in bankruptcy (Gaur et al., 2013)

- Based on **liquidation value**, banks extend ~$300B in inventory-backed loans to U.S. retailers (Foley et al., 2014)

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Example Store Liquidations
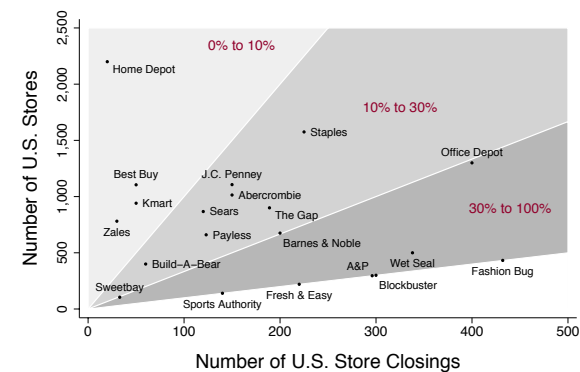
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Questions

- How do retail inventory liquidation values change with a store's local economic factors?
  - Researchers study liquidation value via proxies like redeployability (Benmelech and Bergman, 2009)
  - Store liquidation allows us to observe liquidation value directly

- Can local economic indicators improve forecasting for retail liquidation?
  - Inform pricing and inventory decisions during liquidation

- Implications for pricing, promotion, etc. in general?

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Data Collection

- Historical data about store liquidations from Gordon Brothers Group
  - 31 chains and 2,256 stores
  - $4.5B of inventory at retail value
  - Apparel, books, electronics, grocery, jewelry, ...
  - Store-level data: address, initial inventory, daily liquidation revenue, daily revenues for the year prior to liquidation

- **Median household income** in ZIPs and block groups from Esri Business Analyst, measured yearly

- **Consumer sentiment** survey in ZIPs from Simmons Consumer Insights, measured yearly
  - "Will the economy over the coming year be significantly better off, better off, about the same, worse off, or significantly worse off?"
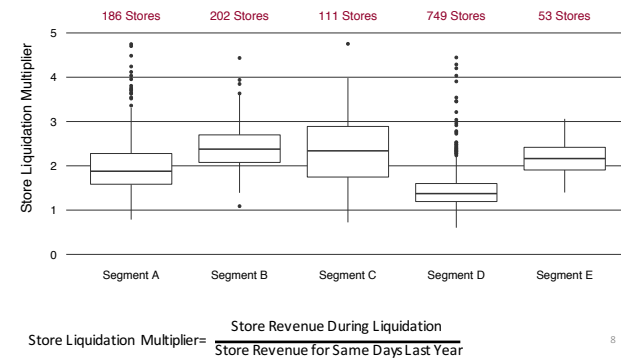
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Empirical Context

- Store liquidation demand varies across stores and segments

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Liquidation Demand Varies Across Segments and Stores

$$\text{Store Liquidation Multiplier} = \frac{\text{Store Revenue During Liquidation}}{\text{Store Revenue for Same Days Last Year}}$$
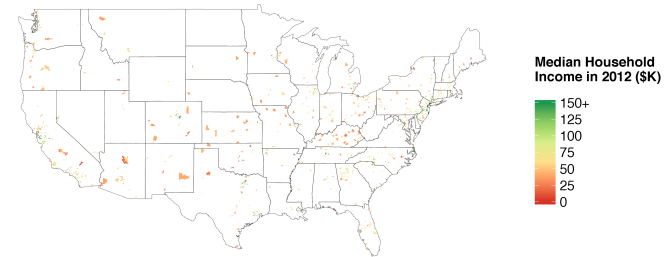
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Empirical Context

- Store liquidation demand varies across stores and segments

- Local consumer sentiment and median household income vary across stores and over time
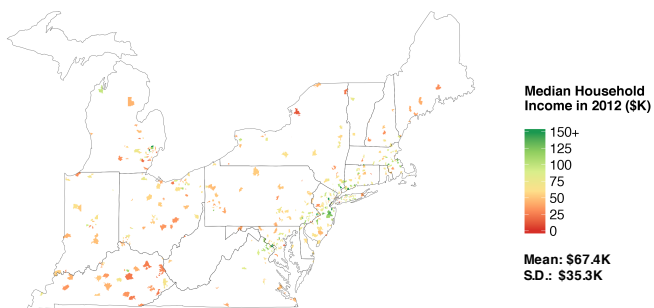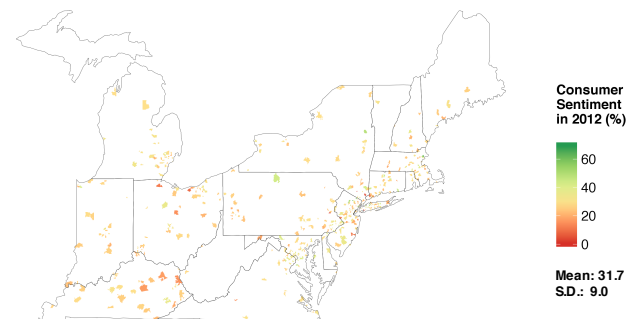
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Variation in Household Income

Median Household Income in 2012 ($K)

150+
125
100
75
50
25
0

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Variation in Household Income

Median Household Income in 2012 ($K)

150+
125
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50
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0

Mean: $67.4K
S.D.: $35.3K

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Variation in Consumer Sentiment
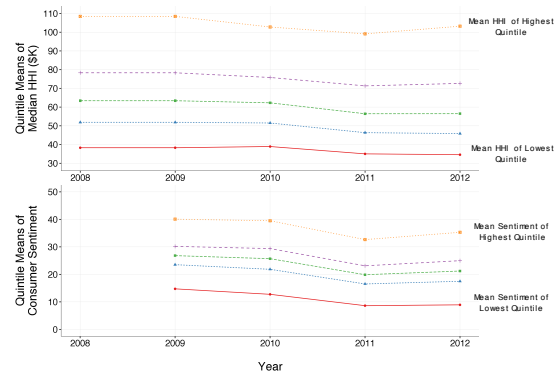

Consumer Sentiment in 2012 (%)

60
40
20
0

Mean: 31.7
S.D.: 9.0

Consumer Sentiment: % of residents that think economy will be "significantly better off" or "better off" over the next year

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Variation over Time

Quintile Means of Median HHI ($K)

Mean HHI of Highest Quintile

Mean HHI of Lowest Quintile

Quintile Means of Consumer Sentiment

Mean Sentiment of Highest Quintile
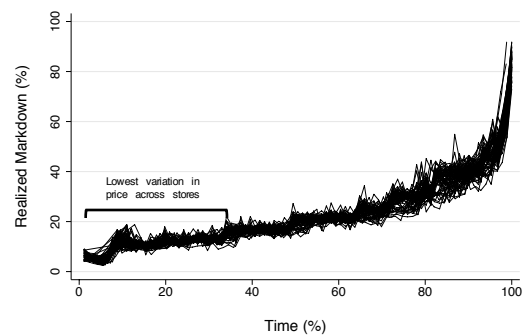
Mean Sentiment of Lowest Quintile

Year

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Empirical Context

- Store liquidation demand varies across stores and segments

- Local consumer sentiment and median household income vary across stores and over time

- Liquidation operator held prices relatively constant across stores

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Prices Across Stores

Realized Markdown (%)

Lowest variation in price across stores

Time (%)

Realized markdowns during the liquidation of a chain of 100 stores

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Empirical Context

- Store liquidation demand varies across stores and segments

- Local consumer sentiment and median household income vary across stores and over time

- Liquidation operator held prices relatively constant across stores

- Operator manages inventory in dollars rather than by count

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Does Liquidation Demand Vary with Local Economic Factors?

- Predict outcomes:
  - Liquidation revenue (*overall* and *first week*)
  - Asset recovery rate (ratio of overall liquidation revenue to initial inventory)

- With controls:
  - Initial inventory
  - Last-year sales over the store liquidation period
  - Retail chain fixed effect

- With local economic factors:
  - Median household income in store's block group or ZIP
  - Consumer sentiment in ZIP

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Results

	Revenue	First-Week Revenue	Asset Recovery Rate
Initial Inventory (Retail $)	0.600*** (0.171)	0.460*** (0.134)	
Last-Year Revenue	0.439* (0.210)	0.364 (0.247)	0.056* (0.026)
Median Household Income in Block Group	0.015** (0.006)	0.031* (0.013)	0.009** (0.003)
Consumer Sentiment in ZIP	-0.099* (0.040)	-0.21** (0.065)	-0.056*** (0.016)
Chain Fixed Effects	Yes	Yes	Yes
N	2,217	2,217	2,217
R²	0.96	0.88	0.55

Log-log model. Standard errors are in parentheses. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

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Interpretation

- Increasing household income by $35,000 (one S.D.) for the average store is associated with
  - 4.2% increase in liquidation revenue
  - 7.4% increase in first-week liquidation revenue
  - 3.2% increase in asset recovery rate

- Increasing consumer sentiment by 9 points for the average store is associated with
  - 2.9% decrease in liquidation revenue
  - 5.6% decrease in first-week liquidation revenue
  - 1.8% decrease in asset recovery rate

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Summary

- Across retail segments, **revenue** and **asset recovery rates** during store liquidation are **positively associated** with **local median household income**

- **Revenue** and **asset recovery rates** are **negatively associated** with **local consumer sentiment**

- Initial inventory, last-year revenue, local median household income, local consumer sentiment, and chain effects explain much of the variance in liquidation revenue (R^2 = 0.96)

- **Future research:** How do local economic factors affect other retail contexts, such as seasonal sales?

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