Inventory Showrooms and Customer Migration in Omni-channel Retail: The Effect of Product Information

Research Collaboration with Warby Parker

David Bell – The Wharton School
Santiago Gallino – Tuck School of Business
Toni Moreno – Kellogg School of Management

May 2014
Inventory Showrooms and Customer Migration
- www.netgrocer.com
- www.diapers.com
- www.warbyparker.com
- www.yihaodian.com
- www.bonobos.com
Our Research Goal

- Uncertainty pooling
- Centralized inventory management
- Hide Stock-outs

- Access to Product Information
- Engaging Service Experience
- Immediate Purchase
Our Research Goal

What happens when an online retailer opens an “inventory showroom”?

– What happens to demand and customer behavior?
– What happens to fulfillment and returns?
Inventory Showrooms and Customer Migration
Home Try - On

5 DAYS

5 FRAMES

100% FREE
Home Try - On
Inventory Showrooms and Customer Migration
Showroom

SHOWROOMS

LOS ANGELES, CA – LOS FELIZ
LOS ANGELES, CA – DOWNTOWN
SAN FRANCISCO, CA
PHILADELPHIA, PA
OKLAHOMA CITY, OK
CHICAGO, IL
MIAMI BEACH, FL
CHARLESTON, SC
NASHVILLE, TN
RICHMOND, VA
3 ways to interact with customers

Traditional Online Retailing
- Surf the web
- Decide on your glasses

Online Home Try – On Program
- Select any five pairs of glasses
- They’ll ship them to you for free
- You’ll have five days to try out the frames

Visit a Showroom
- Locate one of the 20 Showrooms
- Visit the Showroom
Data

Sales and HTO information 02/2010—03/2013

– For sale transactions
  • Customer id, channel id, SKU, date(s)
  • ZIP Code

– For HTO transactions
  • Customer id, SKUs, date(s)
  • Conversion indicator (2-month window)
  • ZIP Code
Impact of Showrooms

• Naïve approach: compare online sales before and after opening a showroom at the showroom location
• DiD: use situations in which opening a showroom can be evaluated with a control group
Difference in Differences

- **Sales**
- **Time**

- **Treatment**
- **Control**

**ACTION**
Two definitions

• Showroom influence area:
  – We defined the areas under the influence of a showroom by measuring the distance from each ZIP code to each WP showroom. We assume that ZIP codes within 30 miles of the showroom are under the showroom influence.

• Home Try – On conversion:
  – WP provided the identification for those HTO that converted into a sales
Constructing Control Groups

Compare the lift in sales after opening a Showroom between ZIP codes that are close to a Showroom and ZIP codes that are not.

2256 ZIP codes were included in the analysis; 921 ZIP codes have a showroom within 30 miles.
Impact of Showrooms

We considered the following model to measure the impact of opening a showroom on sales:

\[ \text{Log}_{-}\text{Sales}_{it} = \beta_0 + \beta_1 \cdot \text{Showroom\_Open}_{it} + \text{Controls} + \epsilon_{it} \]

- \( \text{Log}_{-}\text{Sales}_{it} \): Is the logarithm of the total sales ZIP code \( i \) on week \( t \).
- \( \text{Showroom\_Open}_{it} \): Indicates if at location \( i \) on week \( t \) there was a showroom open.
- \( \text{Controls} \): Fixed effects for each ZIP code \( i \) and for each week \( t \).

We used a similar approach to look at the impact of online sales and HTO.
Impact of Showrooms

- **Total Sales**: 8.8%
- **Web Sales**: 3.5%
- **HTO Sales**: 5.0%

- **Expected since a new channel is being added**
- **Suggests an increase in awareness that drives additional sales**
- **Are some customers shifting channels?**
Product Information

Traditional Online Retailing

Home Try – On Program

Visit a Showroom
Mechanism Analysis

Larger than decrease in sales ~ 5.0%. Hence, HTO conversions increase

Implements HTO Efficiency

Improves Web Efficiency (No impact in HTO)
Implications

• When a showroom opens, the amount of information in the market changes
  – new customers are added and others migrate.

• Customers differ in their tolerance for fit uncertainty
  – the discrepancy between what they know about a product before buying it and what they learn when it is delivered.

• Therefore ...
  The inventory showroom facilitates a better matching between customers and channels (selecting on need for information) and results in a reduction in operational cost to serve customers.
Information and Fulfillment

• Online retailers benefit from centralized fulfillment, but can “suffer” from limited ability to deliver information

• Conjecture
  – Vertical Retailers with unique products—working on informational dimension (Showrooms)
  – Generalists Retailers with commodity products—working on the fulfillment dimension (focus on delivery innovation)