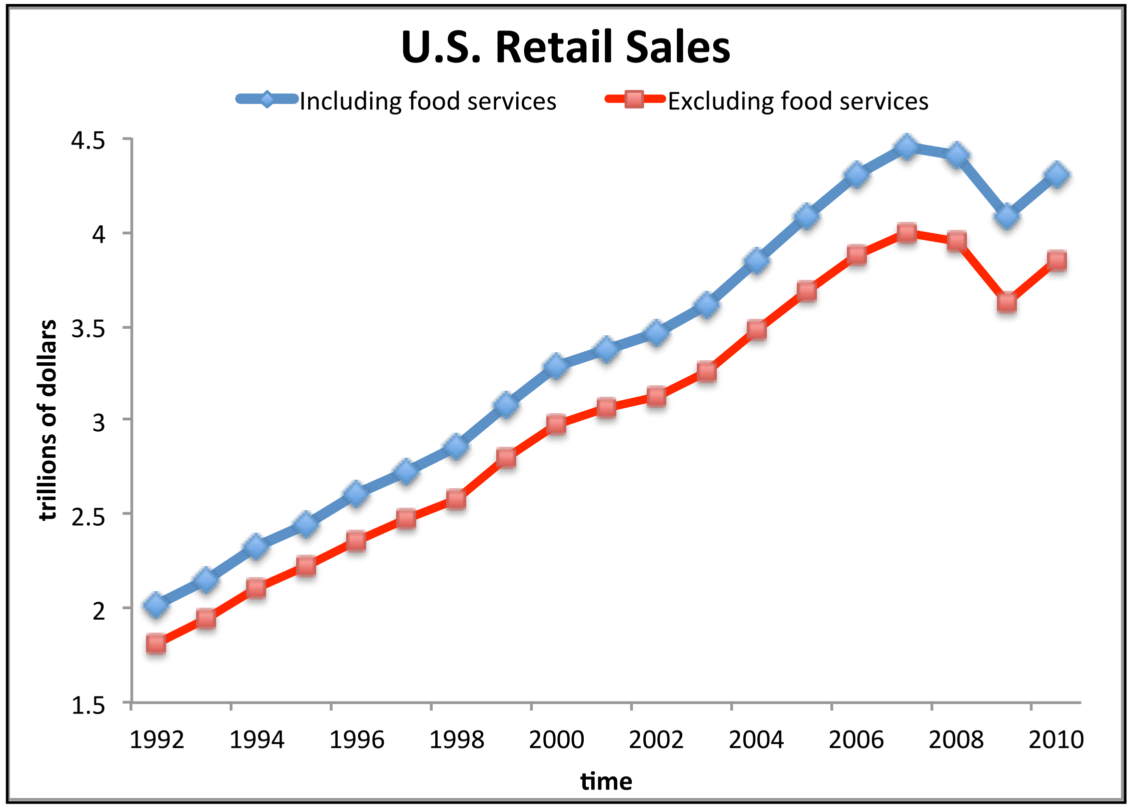
Dynamics of Store Brand Introduction: Uncertain Customer Tastes, Information Sharing, and Inventory

Arcan Nalca - Queen’s School of Business - 10/2012

Retail industry

- The direct contribution of retail trade to the economy was $74.2 billion in 2009, representing 6.2%of Canada's GDP.
- Retail employment was 11.9 % of the total working population in 2009.



- In 2010, U.S. retail industry generated $3.4 trillion in sales
  - $4.3 trillion if food service sales is also included.
- Sales of top 250 global retailers rose to $3.25 trillion in 2010.

Demand management mechanisms

- Retailers deploy demand management mechanisms in order to attract and retain more customers
  - personalized shopping experiences
  - individually customized product offerings

- Demand management mechanisms became so sophisticated that they are, by construct, **contingent on operational decisions**.
  - inventory, capacity, production planning, logistics
  - supply chain design, distribution channels
  - product return/refund, product assortment planning, new product development,
  - information sharing, supply chain management & contracting

Demand management mechanisms

Home plus
삼성 TESCO

Samsung + Tesco

Demand management mechanisms

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Demand management mechanisms

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- Virtual stores in subway stations. Delivers every two hours.
- **Operational Implications:** Shifting customers to the online system.

Price-matching guarantees

- A pricing strategy under which the retailer promises not to be undersold by matching any lower price offered by a competitor for the same merchandise
- BestBuy, Circuit City, Gateway, Futureshop, Sears, Home Depot, Staples
- 15 out of top 20 CE retailers in the U.S. and Canada (excluding warehouse clubs)

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- "Tesco Toes the Line in Sock Price War"*
  - Sport socks
  - Tesco, £8 + price guarantee.
  - Essential Sports, a small sporting goods store, £7

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  - Sport socks
  - Tesco, £8 + price guarantee.
  - Essential Sports, a small sporting goods store, **£0.1**
  - When consumers arrived at the store, the owner met them and suggested that they buy their socks instead at the local Tesco store.
- For its entire inventory of that day, Tesco had to match the price of £0.1

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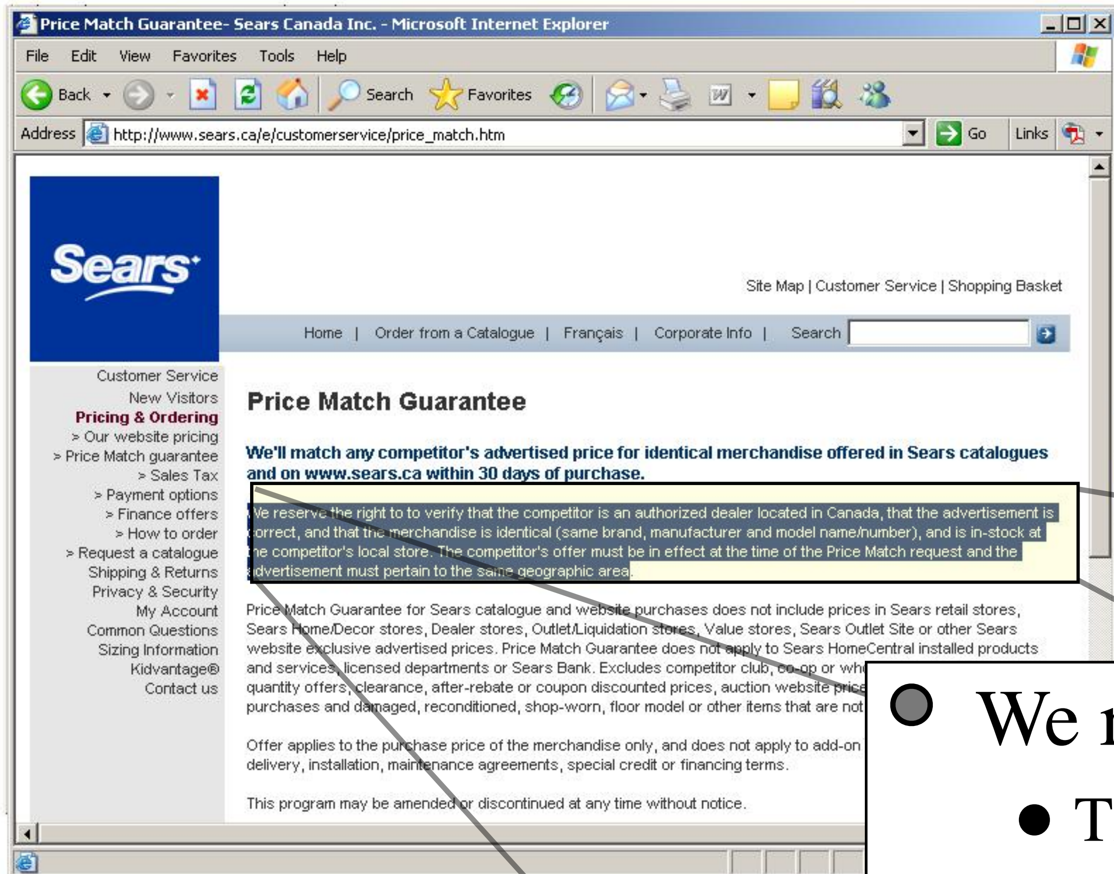
Availability verification clause



- We reserve the right to verify that
  - The competitor is an authorized dealer in Canada,
  - The advertisement is correct, and
  - The merchandise is identical (same brand, manufacturer and model name/number),
  - **The merchandise is in-stock at the competitor's local store.**

Current work

- Price-matching guarantees: tacit collusion + price discrimination + signaling

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- Availability contingency clause?

1. Price-matching guarantees under imperfect store availability

- Deterministic demand, price-search cost, store-switching cost
  - Main result:availability verification can be a significant profit enhancing mechanism and enable the retailers to price discriminate against informed customers.

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2. Price-matching guarantees under demand uncertainty

- Strategic firm decision to offer price-matching and availability contingency clause
- Customer decision making process: rational expectations equilibrium
- Main results: availability verification increases consumers’ surplus and reduces firm profits
- intensifies inventory competition and reinstitutes price competition.
- Inventory versus price consciousness
  - Price consciousness can be a reason for retailers to verify the availability

Current work

3. Money-back guarantees with restocking under retail competition

- Allow customers to return products that do not meet their expectations.
  - full or partial refund
- Q: Should the retailer salvage the returned units or restock & sell them as *open-box* items at a discount? What are the implications in terms of operational performance?
- Main results: Restocking increases prices further, but also increases the refund rate and decreases the restocking fees.
- The restocking opportunity increases the inventory efficiency of the retailer.
- Q: What happens in a competitive retail environment?

4. Store brand introduction

- Uncertain consumer tastes, information sharing, and inventory.

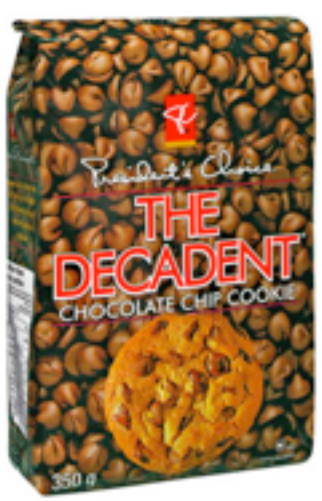
What is a store brand?

- Store brands (SB) are owned, controlled, and sold exclusively by a retailer.
  - Private label, store brand, own brands, house brands.
- National brands (NB) are designed by and belong to upstream leading manufacturers.
  - Distributed at a national or an international scale by different retailers.

Loblaws

President's Choice

Nestlé



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SB around the globe

- U.S. Sales: $91 billion/year as of October 2011*
- In 2009, 36% of shoppers bought more SBs than 2008; 75% say they won't return to NBs**
- Canada Sales: CAD$10.9 billion in 2009***
- Market share in Europe (PLMA)
  - Switzerland 53%
  - Spain 49%
  - U.K. 47%

*Private Brands U.S. Outlook: Flash in the Pan or the Real Deal?, The Nielsen Company, New York, NY, 2011
**In focus: Name Brands versus Private Label, The Checkout 2010, The Integer group and M/A/R/C Research
*** Global Private Label Trends, Agriculture and Agri-Food Canada Market Analysis Report April 2010

What we know about SB introduction

- What does SB introduction do?
  - Category expansion (Soberman and Parker 2004, Wolinsky 1987)
  - Better supply terms for the NB (Narasimhan and Wilcox 1998) by reducing the degree of double marginalization (Bontems et al. 1999, Mills 1995).
  - Attract customers from competing retailers (Corstjens and Lal 2000). But, better terms for the NB may benefit the competing retailers and not be preferred (Groznik and Heese 2010b).
- Why not competing NBs?
  - Also reduces the degree of double-marginalization (Scott Morton and Zettelmeyer 2004)
  - NBs want to differentiate, retailer targets the leading NB (Raju et al. 1995, Chen et al. 2009).
  - Swapping NB for SB (inferior) may hurt SC performance (Sachon and Martinez-de Albeniz 2009).
- What can NB manufacturers do?
  - co-op advertising (Karray and Zaccour 2006)
  - increasing the quality gap (Mills 1999)
  - supplying SBs (Dunne and Narasimhan 1999)
  - committing to low wholesale prices (Groznik and Heese 2010a)
  - innovation & new product introduction (Hoch 1996)

Motivation: Uncertain consumer tastes

- NB counterstrategy: innovation & new product introduction
  - Uncertainty about the selling product attributes and consumer tastes
- Through their customer contact - unique position in the supply chain - retailers quickly learn about highly valued product features

*Best Buy turning to private labels to raise margins, *Star Tribune*, June 17 2009

** Best Buy expands Private-Label Brands, *Wall Street Journal*, April 27, 2009

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- House brand sales jumped 40% during 2009

" Best Buy is *not in the business of innovating technology, but at innovating product development and commercialization*" *

Fernando Silva, VP of Exclusive Brands

- Success story: Insignia portable DVD player.
  - Won the 2007 Red Dot Product Design Award**

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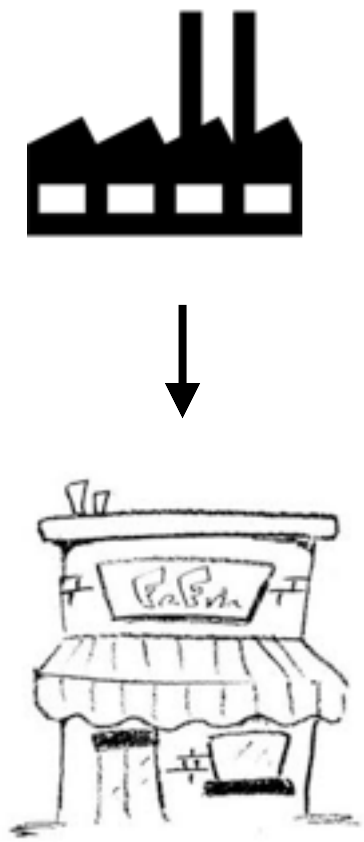
Research questions

- What should a retailer do if it acquires information about features that are missing in the new national brand product?
  - Gain competitive advantage for its SB?
  - Share this information with the NB manufacturer?

- What is the impact of store brand introduction and uncertain consumer tastes on the relation between the retailer and the manufacturer?

Model framework

period 1



period 2

Model framework

period 1

period 2

Model framework

period 1

wholesale price

order quantity

period 2

Model framework

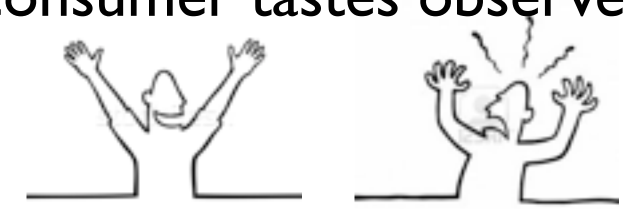
period 1

wholesale price

↓

order quantity

consumer tastes observed



retail price

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Model framework

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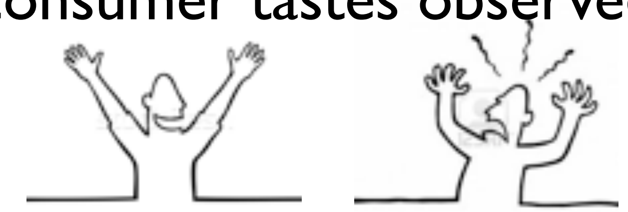

retail price

$$utility = valuation * equity - misfit - price$$

period 2

Model framework

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wholesale price

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retail price

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Valuation ~ U[0,1], customer heterogeneity

period 2

Model framework

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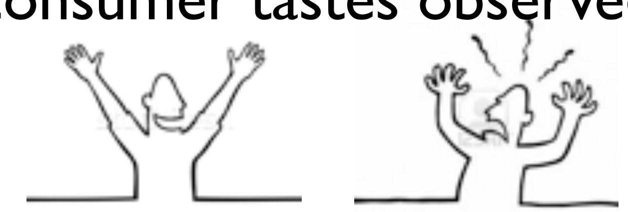

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$$utility = valuation * equity - misfit - price$$

Equity ∈ (0,1], SB equity < NB equity =1

period 2

- SBs can offer the same or even better quality (Quelch and Harding 2004, Zimmerman 2007).
- Customers pay a premium for NBs even when they perceive no quality differential between the two brands (Sethuraman 2003).
  - Customers are willing to pay a 37% premium
  - 80% of the premium is attributed to the brand equity
  - 85% of total brand equity is due to non-quality equity

Model framework

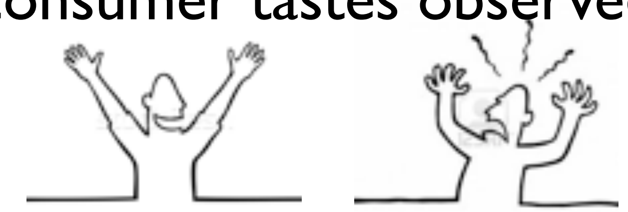
period 1

wholesale price

↓

order quantity

consumer tastes observed



retail price

$$utility = valuation * equity - \underline{misfit} - price$$

Misfit ~ binomial: homogeneous customers

period 2

Model framework

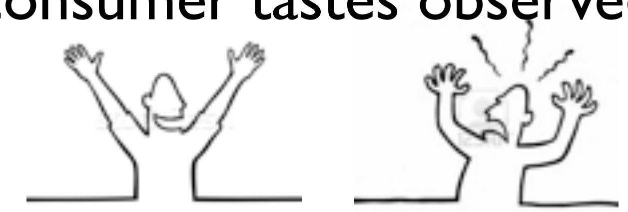
period 1

wholesale price

↓

order quantity

consumer tastes observed



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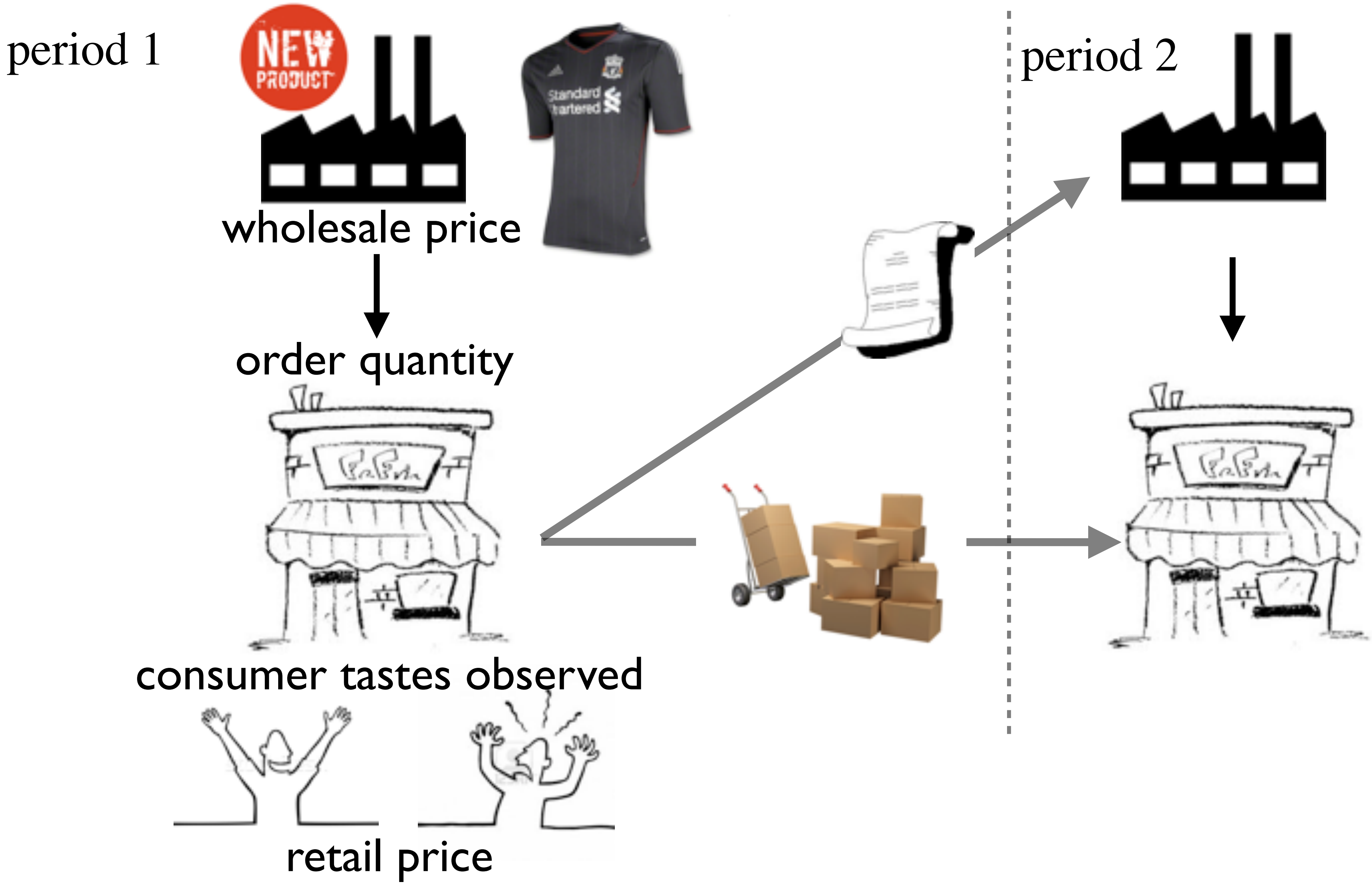
Misfit ~ binomial: homogeneous customers

period 2

Uzay Nalca

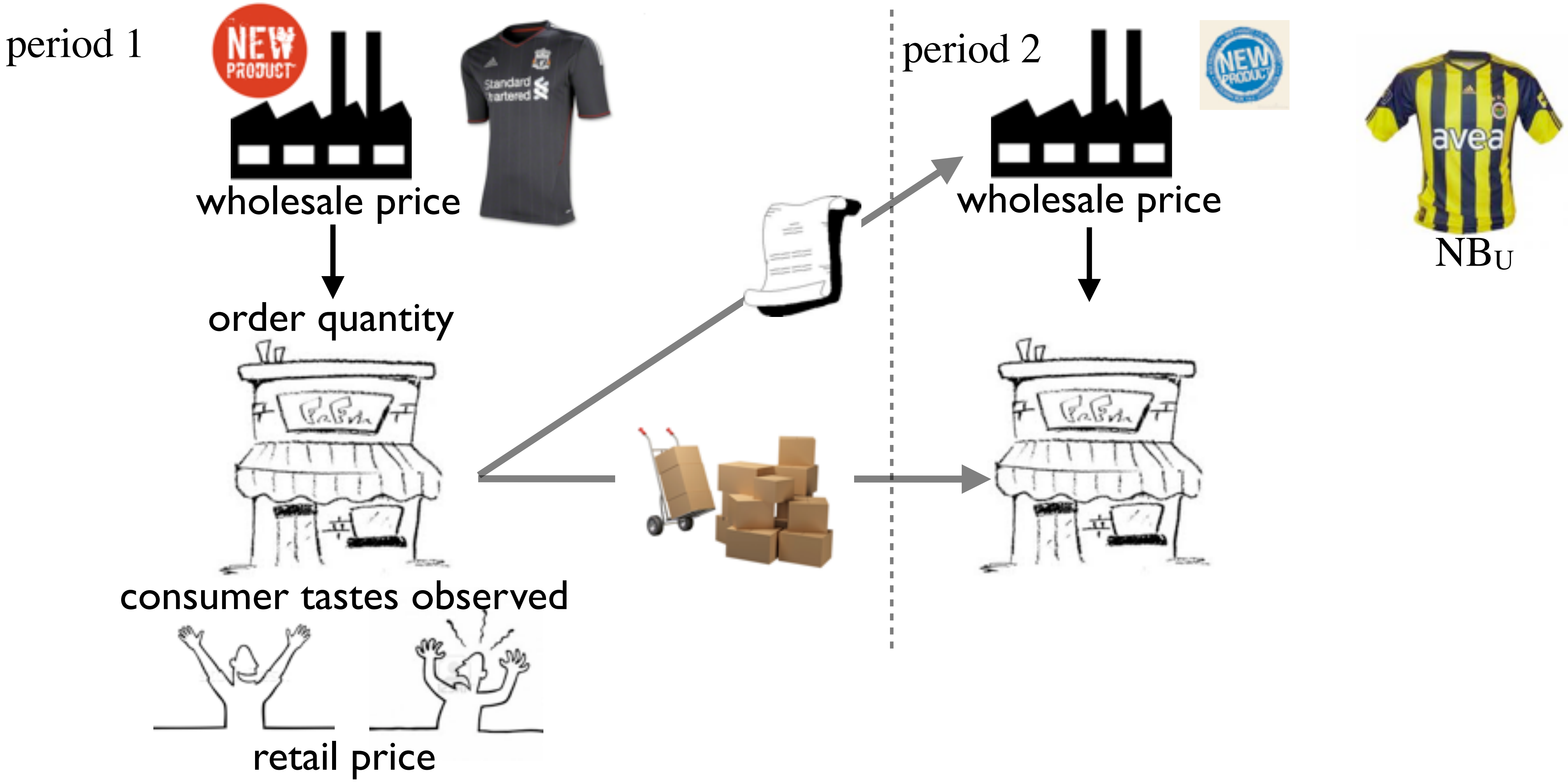
Model framework



$$utility = valuation * equity - misfit - price$$

$$u(NB_O) = V - \gamma - price$$

Model framework



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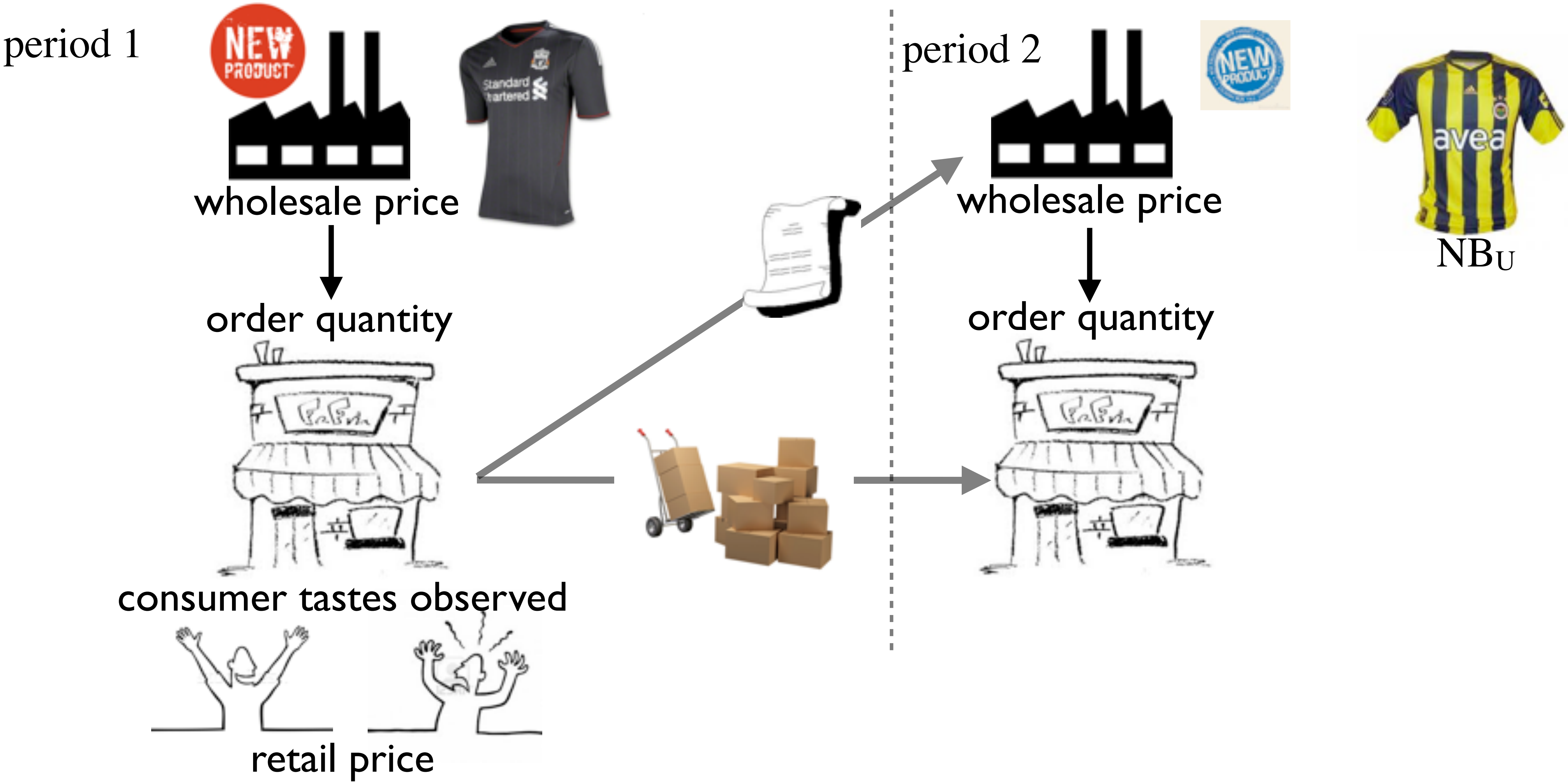

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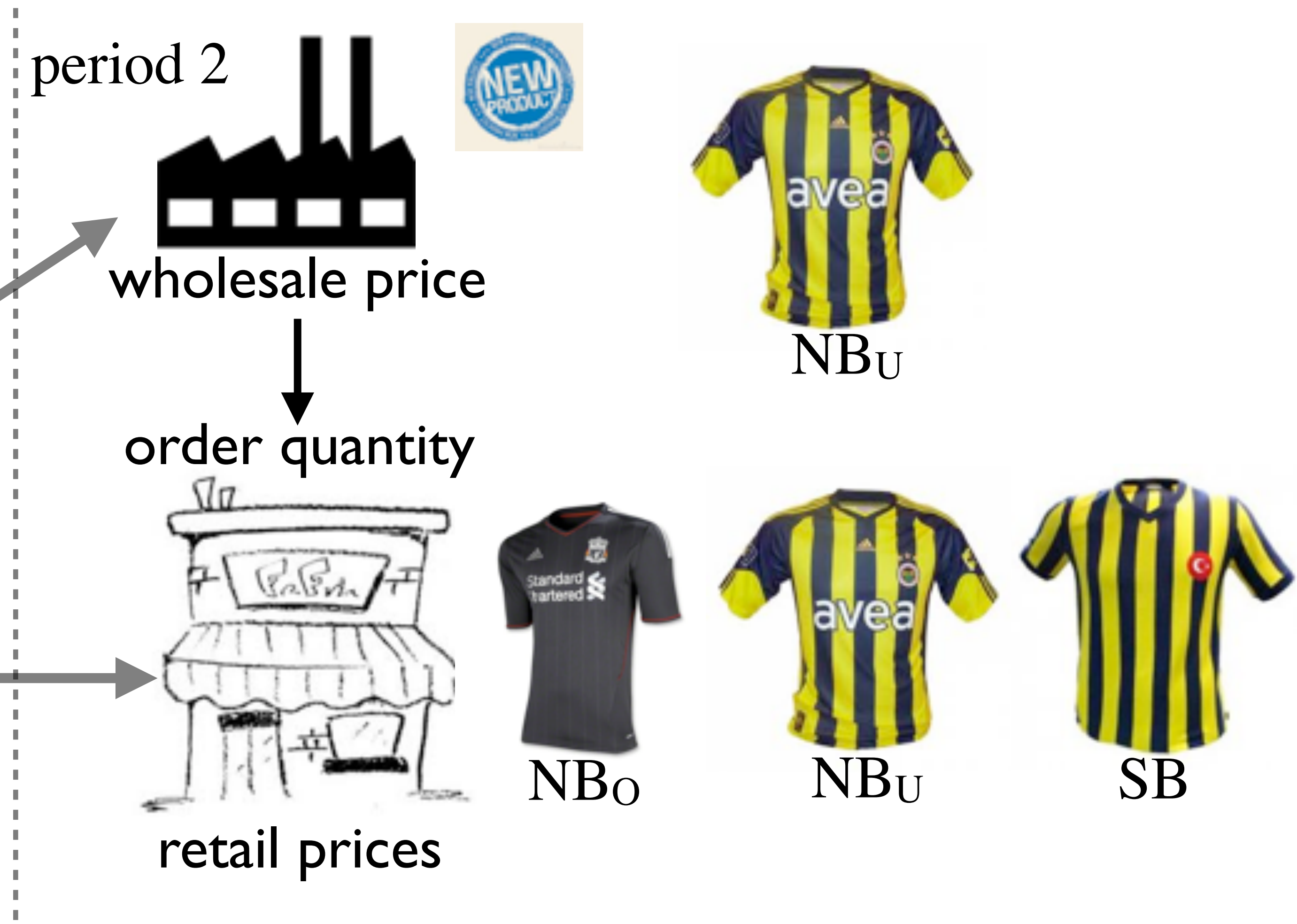

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$$u(NB_O) = V - \gamma - price$$
$$u(NB_U) = V - price$$
$$u(SB) = V.e - price$$

Analysis: Information sharing

No information sharing

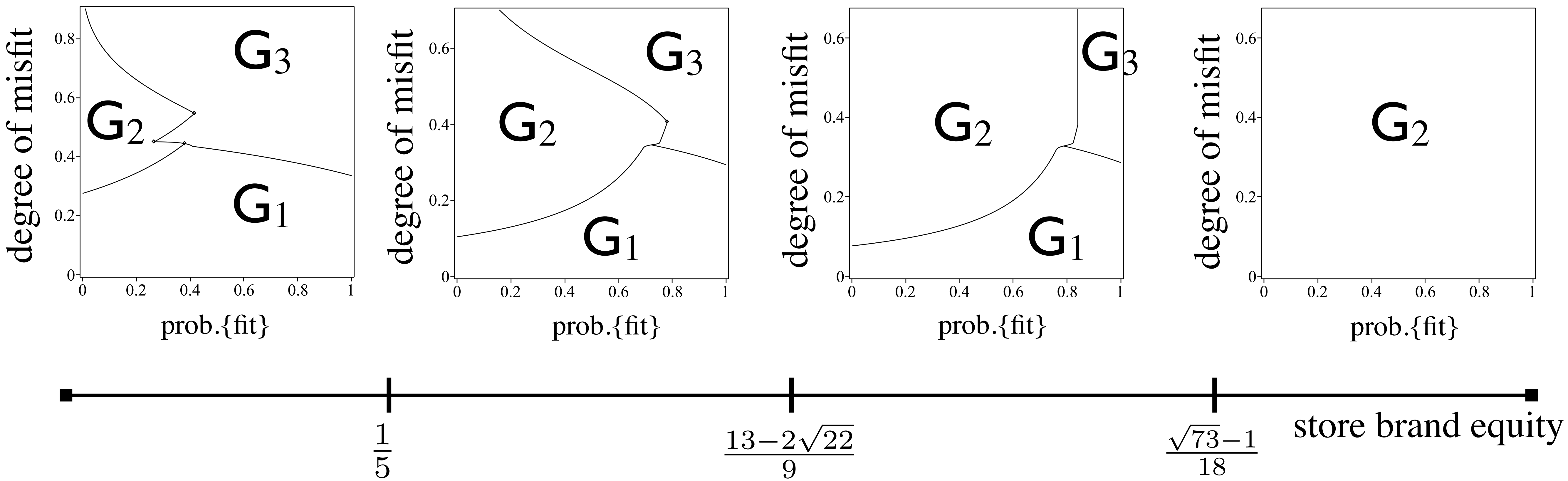
- Compete with a weaker NB
- SB: high demand
- NB: low demand, low margin

Information sharing

- Compete with a stronger NB
- SB: low demand
- NB: high demand, high margin

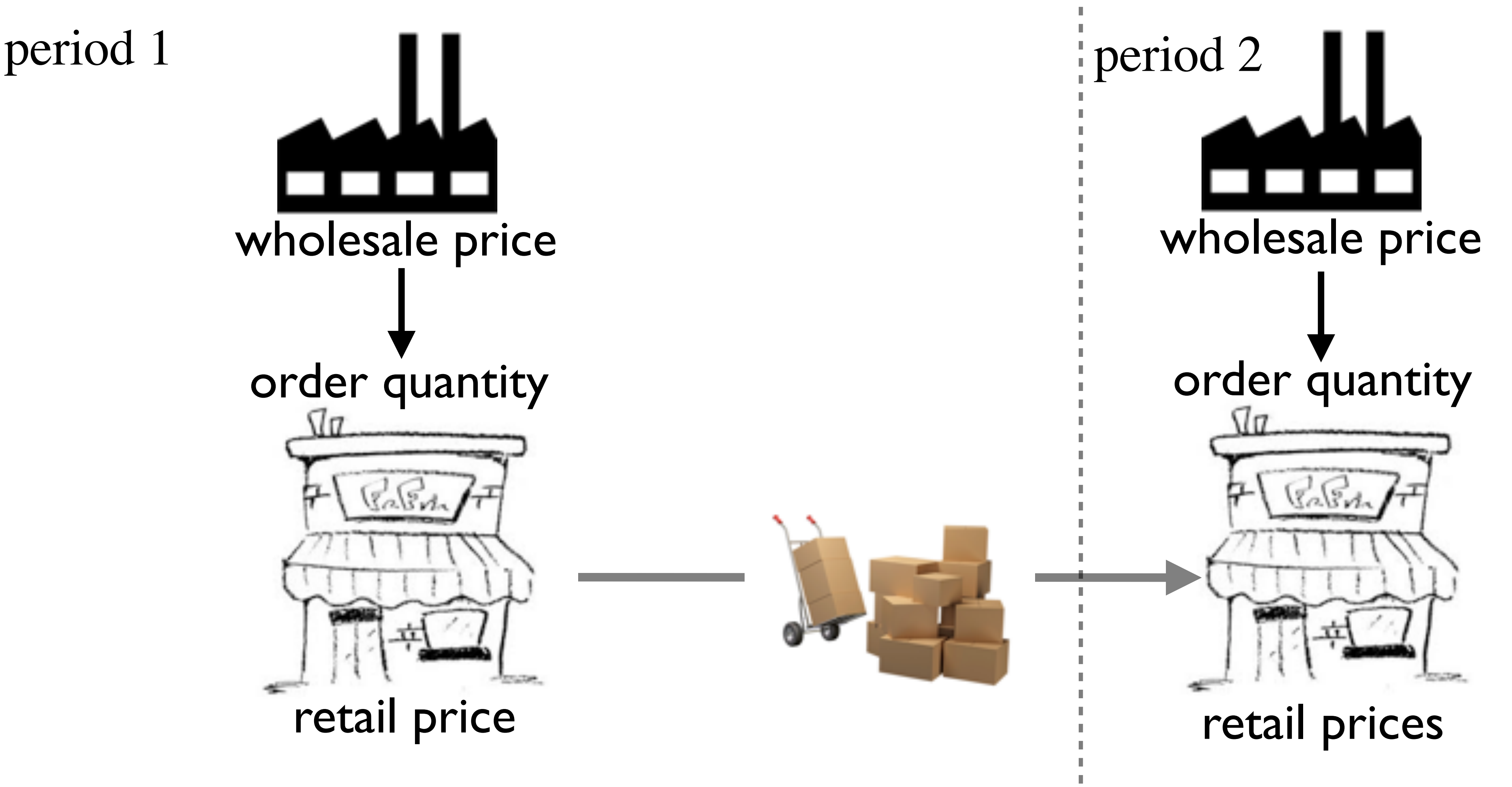
- Efficient market segmentation
  - Updated NB to high valuation customers with a higher margin (instead of a lower margin)
  - Updated NB to mid-valuation customers - instead of a SB
  - SB to low valuation customers
- The value of information sharing
  - Higher when the SB is weaker
  - Decreases with inventory

Analysis: Equilibrium solution(s)



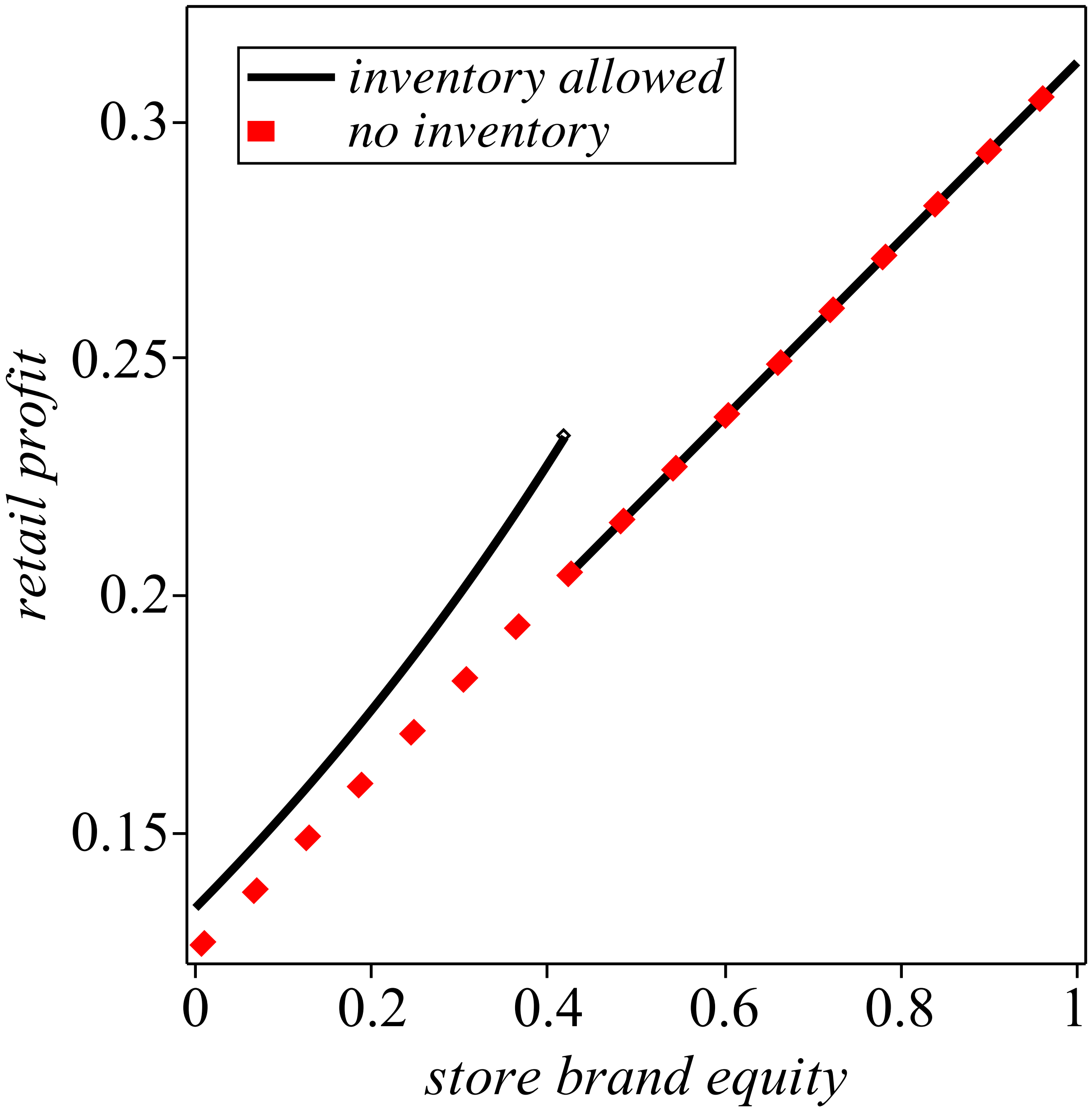
- G_1: Fixed-inventory pricing
- G_2: Clearance pricing
- G_3: Myopic pricing

Strategic inventory



- No uncertainty in consumer tastes & No SB
  - Carrying (strategic) inventory benefits the retailer and the manufacturer
    - Shifts most of the procurement to the first period
    - Benefits the manufacturer (high volume) in the first period
    - Benefits the retailer in the second period (low cost)

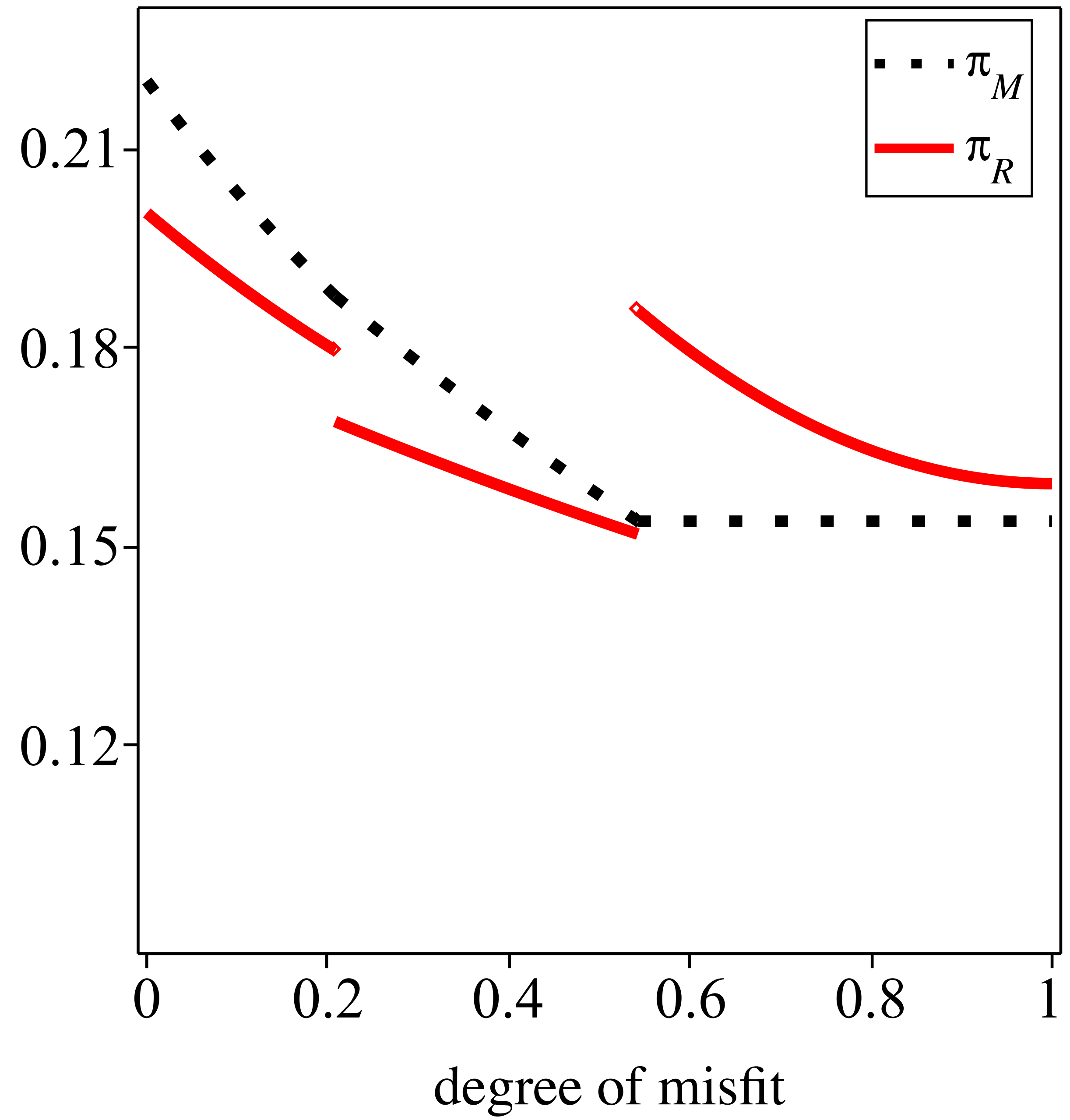
SB introduction & inventory



- SB introduction pressures the manufacturer to reduce price
  - But, it also decreases the level of strategic inventory
  - Does not benefit the manufacturer in the first period
- Strong SB pressures the manufacturer too much
  - Reduces any benefit of strategic inventory
  - The manufacturer hikes up the first period wholesale price.

Uncertain consumer tastes

- Degree of misfit forces the manufacturer to reduce the wholesale price
- May re-introduce the strategic inventory.
  - Fit: the retailer will have procured the ideal product at a much lower cost.
  - Miss: the retailer discards the remaining units (lost is not significant due to low cost) and obtains the ideal product by sharing information.

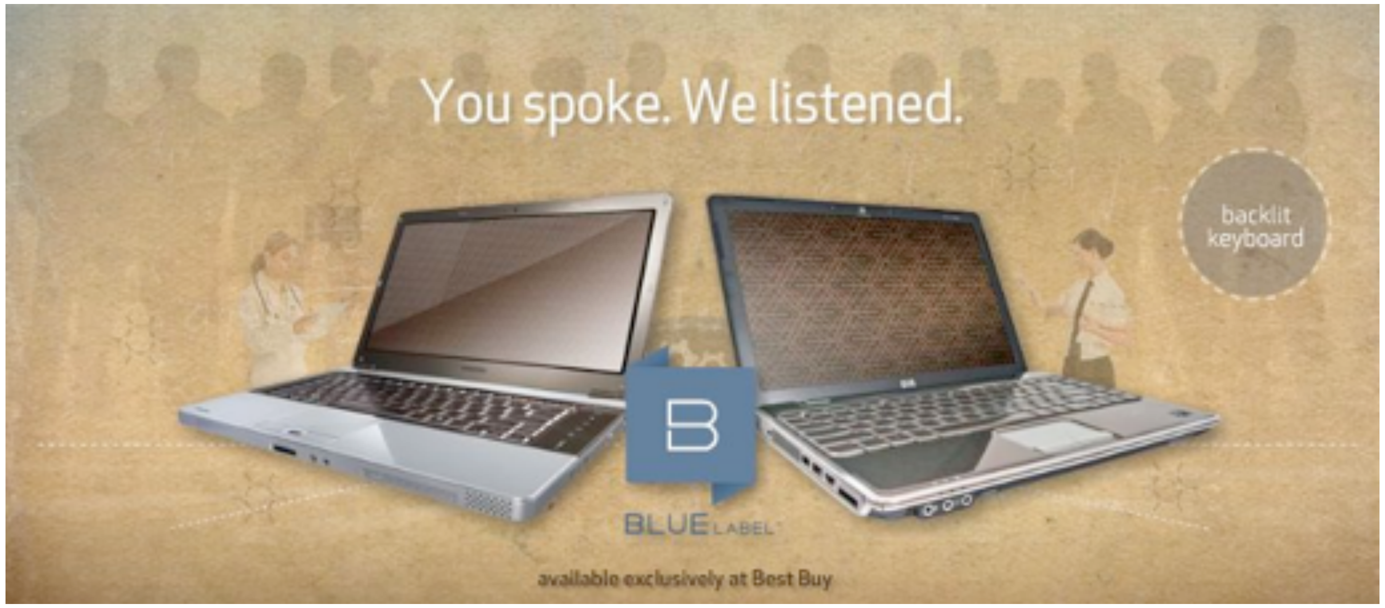


Conclusion

- The retailer has an incentive share information with the manufacturer about product attributes that are desired by customers
  - A stronger NB product increases the market segmentation ability

- Best Buy Blue Label

Exclusive products in collaboration with Dell, Sony, Toshiba.



Conclusion

- Improving its store brand equity may hurt the retailer even if there is no cost associated.
  - SB introduction is a substitute for strategic inventory.
  - The manufacturer takes action to remove retailers incentive to carry strategic inventory.
- The (ex-ante) high degree of misfit may benefit the retailer
  - The risk of a misfit forces the manufacturer to reduce her first period wholesale price
  - The retailer procures at a very low cost, such that it starts carrying inventory again.
- Strong store brand eliminates the negative effects of uncertain tastes - over time - by decoupling the two periods.

Thank you for your time!