

# The influence of variety-of-options on consumers' attitudes toward the store and its sub-category

**Dr. Jungkeun Kim, AUT University**

**Dr. Jae-Eun Kim, University of Auckland**

**Dr. Kyuseop Kwak, University of Technology Sydney**

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# Buying a Chocolate

## □ Two Stores

- ✓ Store A = Relatively LOW quality store
- ✓ Store B = Relatively HIGH quality store



## □ Question: Which store provides larger variety of chocolate?

- ✓ Low quality store vs. High quality store

# Buying a Sandwich

## □ Buying a Sandwich I:

- ✓ A shopper looking for a sandwich encounters
  - a store with 10 different sandwiches
  - next door another store with 20 sandwiches.
- ✓ Typically the shopper would prefer the store *with the greater assortment*
  - Partly because they would perceive the store as being higher quality.

## □ Buying a Sandwich II:

- ✓ A shopper looking for a sandwich encounters
  - a store with 20 different sandwiches with large variation
  - another store with 20 sandwiches with small variation
- ✓ We expect that the shopper would prefer the store *with the large variation*
  - Partly because a broader spread of attributes may indicate greater choice and thus greater quality

# Background

## □ Positive effect of assortment

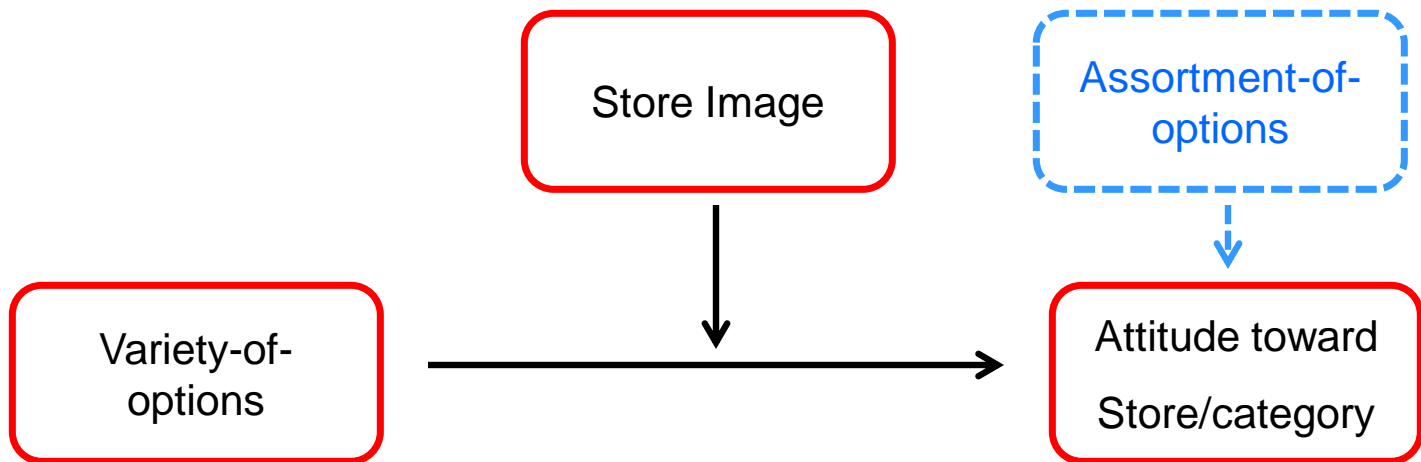
- ✓ Offering more options as a quality cue for the brand (Berger, Draganska, and Simonson, 2007).
- ✓ Positive relationship between assortment size and option attractiveness (Chernev and Hamilton 2009).
- ✓ Assortment-of-options is defined as “**the number of different items in a merchandise category**” (Levy and Weitz, 2012).

## □ Current research focus on variety-of-options

- ✓ Variety-of-options is defined as “**the size of the attribute space spanned by the variants within the category**” (Hamilton and Richards, 2009).
- ✓ Example
  - Small variety-of-options: Sandwiches \$4.00-\$6.00, 5 ingredients
  - Large variety-of-options: Sandwiches \$2.00-\$8.00, 15 ingredients

# Research questions

- ❑ What is the the influence of the *variety-of-options* on consumers' attitudes towards the store, and attitudes towards the sub-category, after controlling for the *assortment-of-options*?
- ❑ What is the moderating role of store image on above influences?



# Variety-of-options main effect

## ❑ Preference matching: Finding ideal attribute

- ✓ Customers can find her ideal product attribute from the large variety of options through preference matching (Loewenstein, 1999; Botti and Iyengar, 2004; Chernev, 2003a; 2003b)
- ✓ Example: Ice cream flavour – 30 vs. 3 flavours (Lancaster 1990)

## ❑ Variety seeking

- ✓ Providing the large variety-of-options (Kahn, Ratner and Kahneman, 1997; Ratner and Kahn, 2002)

## ❑ Reducing satiation

- ✓ Providing various attributes → Reducing satiation of consumption through (Inman 2001; Redden 2008)

## ❑ Signaling

- ✓ The variety-of-options = Greater cost of production → Signaling higher quality of product (Berger, Draganska, and Simonson 2007).

## ❑ Hypothesis 1:

- ✓ *(After controlling the impact of assortment-of-options effect), the attitudes toward the store and its subcategory will be higher when a store offers high variety-of-options than when a store offers low variety-of-options.*

# Interaction effect of variety-of-options and the store image I

## □ Theory #1: Different expectation

- ✓ A naïve economic theory regarding the relationship between store image and the variety-of-option
  - Low quality store provides a small variety-of-options
  - High quality store provides a large variety-of-options.
- ✓ What happens if a store provides high variety-of-options??
  - Low (vs. high) image store will get a benefit from providing the large variety-of-options due to “[positive disconfirmation of expectation](#)” (Oliver, 1997)”





# Interaction effect of variety-of-options and the store image II

## □ Theory #2: Different value function

- ✓ Chernev and Hamilton (2009): Moderating role of high vs. low option attractiveness on the assortment size effect.
  - Concavity of the value function (p.411) - The benefit of providing a large assortment is higher for the low (vs. high) option attractiveness condition.
- ✓ The similar effect on variety-of-options is expected





# Interaction effect of variety-of-options and the store image

## □ Theory #1: Different expectation

- ✓ A naïve economic theory regarding the relationship between store image and the variety-of-option

## □ Theory #2: Different value function

- ✓ Concavity of the value function

## □ Hypothesis 2:

- ✓ *The store image will moderate H1. Specifically, the positive effect of variety of options will be stronger for low store image condition rather than for high store image condition.*

# Study 1

## □ Overview

- ✓ Study design: 2 X 2 X 2 between-subjects factorial design
  - 2 (**Store image**: high store image vs. low store image)
  - 2 (**Variety-of-options in terms of brand**: large-8 brands vs. small-2 brands)
  - 2 (**Variety-of-options in terms of price/quality**: large vs. small)
- ✓ Participants: 96 undergraduate students (46.9% female)
- ✓ Experimental products: Chocolate

## □ Key Measurement

- ✓ Attitude toward the store (Cronbach alpha = .86)
- ✓ Attitude toward the chocolate category (Cronbach alpha = .90)
  - 1 = very bad/very unfavorable, 7 = very good/very favourable
- ✓ Manipulation check – *successful!*
  - Store image

# Study1: High Store Image Condition

## □ 8 Brands & large price/quality variety condition

Chocolate Brand	Price	Quality Index (out of 5 Stars)
<i>Belisto</i>	\$7.50	4.2
<i>Mosse</i>	\$11.00	4.8
<i>Jacek</i>	\$9.00	3.9
<i>Willcrisp</i>	\$10.00	4.8
<i>Penguin</i>	\$6.00	3.8
<i>Macadomiar</i>	\$15.00	4.9
<i>Togi</i>	\$10.00	4.7
<i>Rubby</i>	\$13.00	4.6

## □ 2 Brands & small price/quality variety condition

Chocolate Brand	Price	Quality Index (out of 5 Stars)
<i>Belisto</i>	\$9.50	4.5
<i>Belisto</i>	\$10.50	4.6
<i>Belisto</i>	\$9.50	4.4
<i>Belisto</i>	\$10.00	4.5
<i>Macadomiar</i>	\$9.00	4.4
<i>Macadomiar</i>	\$10.50	4.6
<i>Macadomiar</i>	\$10.00	4.4
<i>Macadomiar</i>	\$10.50	4.5

# Study1: Low Store Image Condition

## □ 8 Brands & large price/quality variety condition

Chocolate Brand	Price	Quality Index (out of 5 Stars)
<i>Belisto</i>	\$2.00	1.8
<i>Mosse</i>	\$5.50	2.8
<i>Jacek</i>	\$2.50	2.0
<i>Willcrisp</i>	\$4.00	2.5
<i>Penguin</i>	\$1.50	1.4
<i>Macadomiar</i>	\$6.00	3.5
<i>Togi</i>	\$3.50	2.5
<i>Rubby</i>	\$5.50	3.3

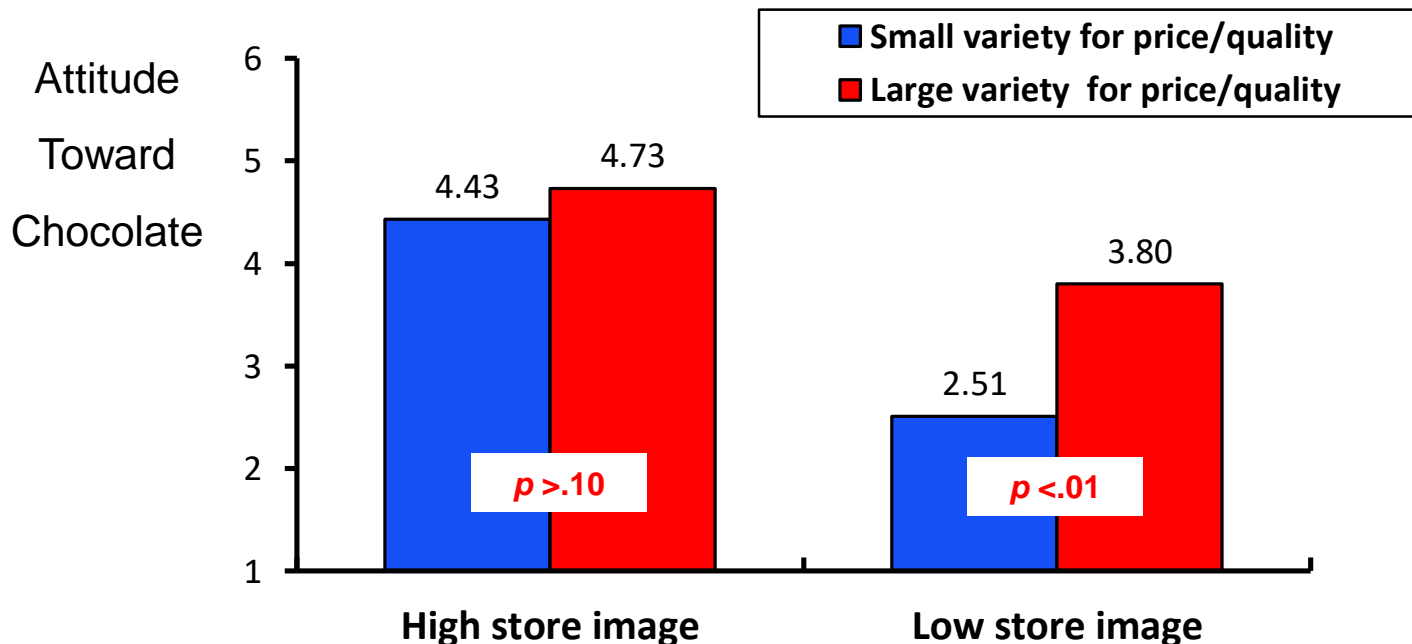
## □ 2 Brands & small price/quality variety condition

Chocolate Brand	Price	Quality Index (out of 5 Stars)
<i>Belisto</i>	\$3.50	2.5
<i>Belisto</i>	\$4.50	2.6
<i>Belisto</i>	\$3.00	2.4
<i>Belisto</i>	\$3.50	2.5
<i>Macadomiar</i>	\$3.00	2.5
<i>Macadomiar</i>	\$4.00	2.6
<i>Macadomiar</i>	\$3.50	2.4
<i>Macadomiar</i>	\$4.00	2.5

# Study1: Results

## □ Attitude toward chocolate category

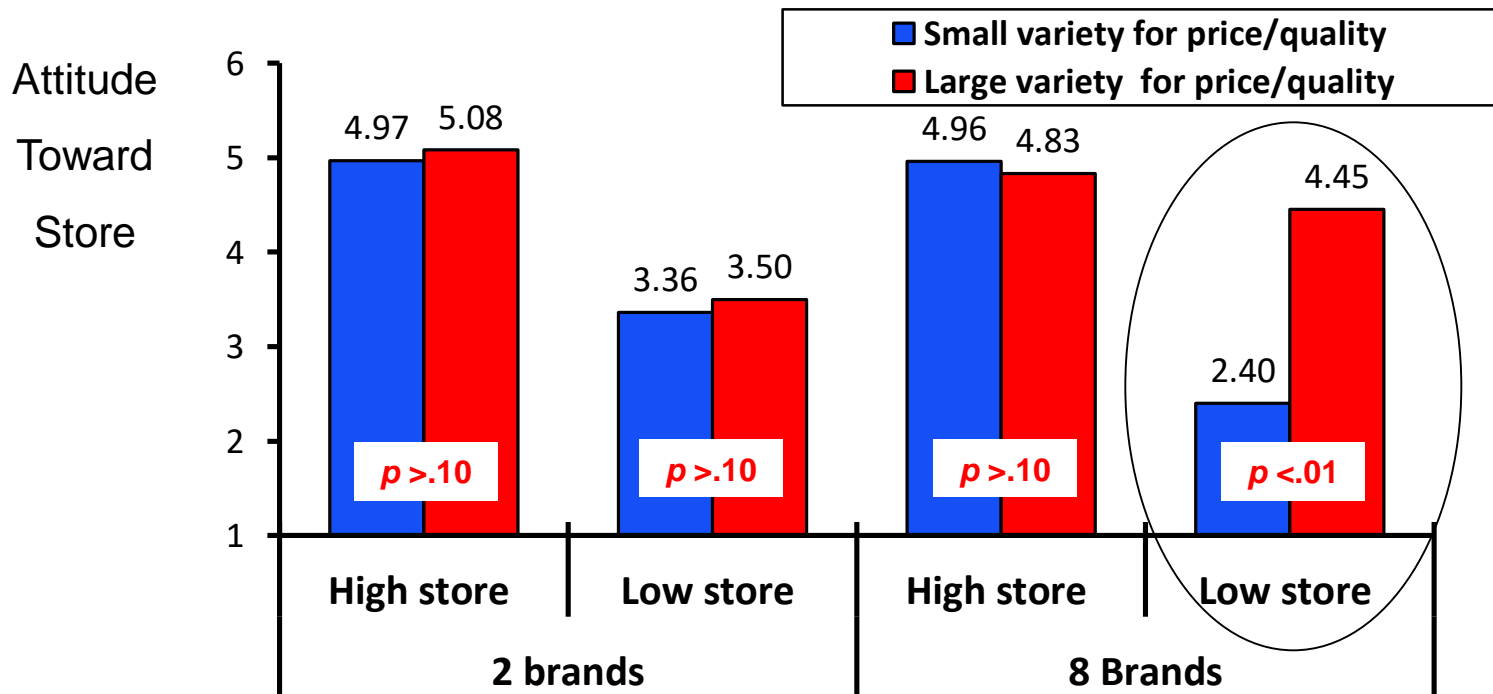
- ✓ Main effect of the variety-of-options for price/quality
  - $F(1, 88) = 13.91$ ;  $p < .01$ : Large ( $m = 4.29$ ) > Small ( $m = 3.62$ )
  - **Supporting H1**
- ✓ 2-way Interaction effect of store image and the variety-of-options for price/quality ( $F(1, 88) = 5.31$ ;  $p < .05$ ), **Supporting H2**



# Study1: Results

## □ Attitude toward store

- ✓ Main effect of the variety-of-options for price/quality
  - $F(1, 88) = 7.06; p < .01$ : Large ( $m = 4.50$ ) > Small ( $m = 4.08$ )
  - Supporting H1
- ✓ 3-way Interaction effect
  - $F(1, 88) = 7.06; p < .05$ , Supporting H2 for 8 brands condition



# Study 2

## □ Purposes of Study 2

- ✓ To show the effect of variety-of-options after **manipulating assortment-of-options simultaneously**
- ✓ To provide mediation results by measuring “*the perceived variety*” as a **mediator**.
- ✓ **To separate two underlying mechanisms** (i.e., Different expectation vs. Different value function) for H2.

## □ Study design: 2 X (3+1) between-subjects factorial design

- 2 (**Store image**: high store image vs. low store image)
- 3 (**Variety-of-option in terms of ingredients**):
  - Small variety-of-options with small assortment-of-options (assortment = 10)
  - Large variety-of-options with small assortment-of-options (assortment = 10)
  - Large variety-of-options with large assortment-of-options (assortment = 30)
  - **To show the effect of variety-of-options after controlling the impact of assortment-of-options effect**
- 1 (**Attribution manipulation**)
  - Attribution manipulation with large variety-of-options with small assortment-of-options
  - **To separate two underlying mechanisms (i.e., Different expectation vs. different value function)**



# Study2: Stimuli

## □ Attribution manipulation

- ✓ **Large** variety-of-options with **small** assortment-of-options:

TR-Mart provides 10 different types of chocolate items  
by mixing 3 chocolate type, 3 chocolate mix, 6 flavour, & 3 nut content

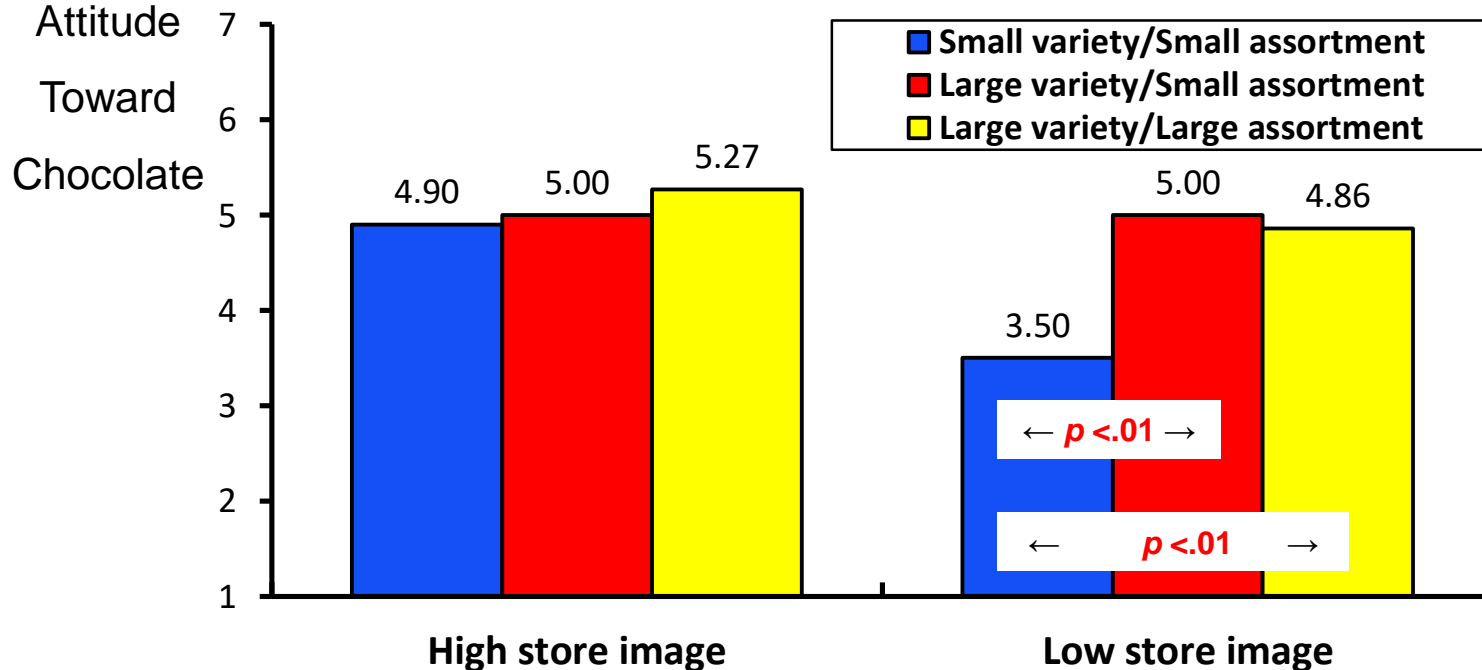
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**\*\* “TR-Mart provides lots of different chocolate type in term of chocolate type, mix, flavour, and nut content because the store has recently partnered with an additional supplier.”**

# Study 2: 2X3 ANOVA

## □ Attitude toward chocolate category

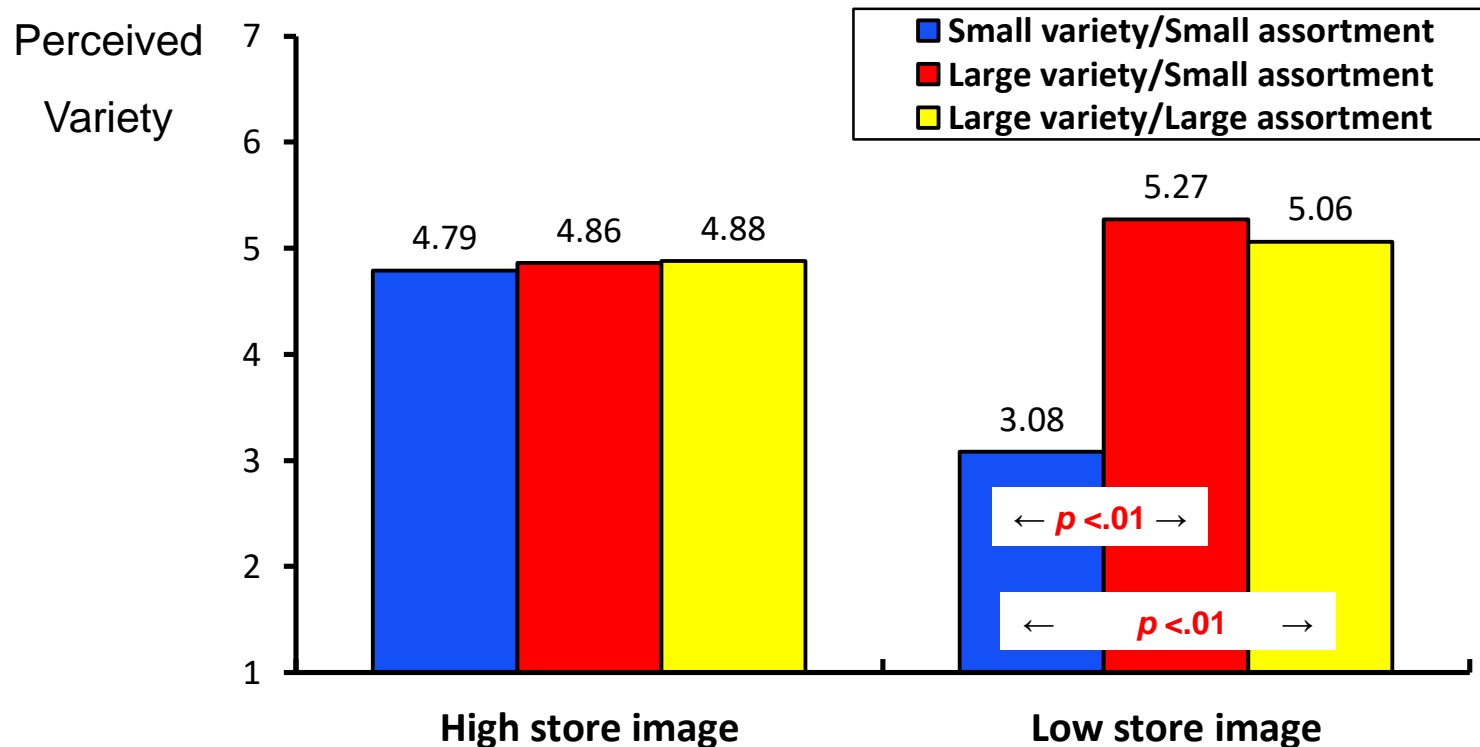
- ✓ Main effect of the variety-of-options for ingredient
  - $F(2, 80) = 5.09; p < .01$ : Small/Small ( $m = 4.25$ ) > Large/Small ( $m = 5.00$ ) = Large/Large ( $m = 5.06$ ), **Supporting H1**
- ✓ 2-way Interaction effect of store image and the variety-of-options for ingredient ( $F(2, 80) = 2.63; p = .08$ ),
  - **Supporting H2 (& NO assortment-of-options effect)**



# Study 2: 2X3 ANOVA

## □ Perceived variety in terms of ingredients

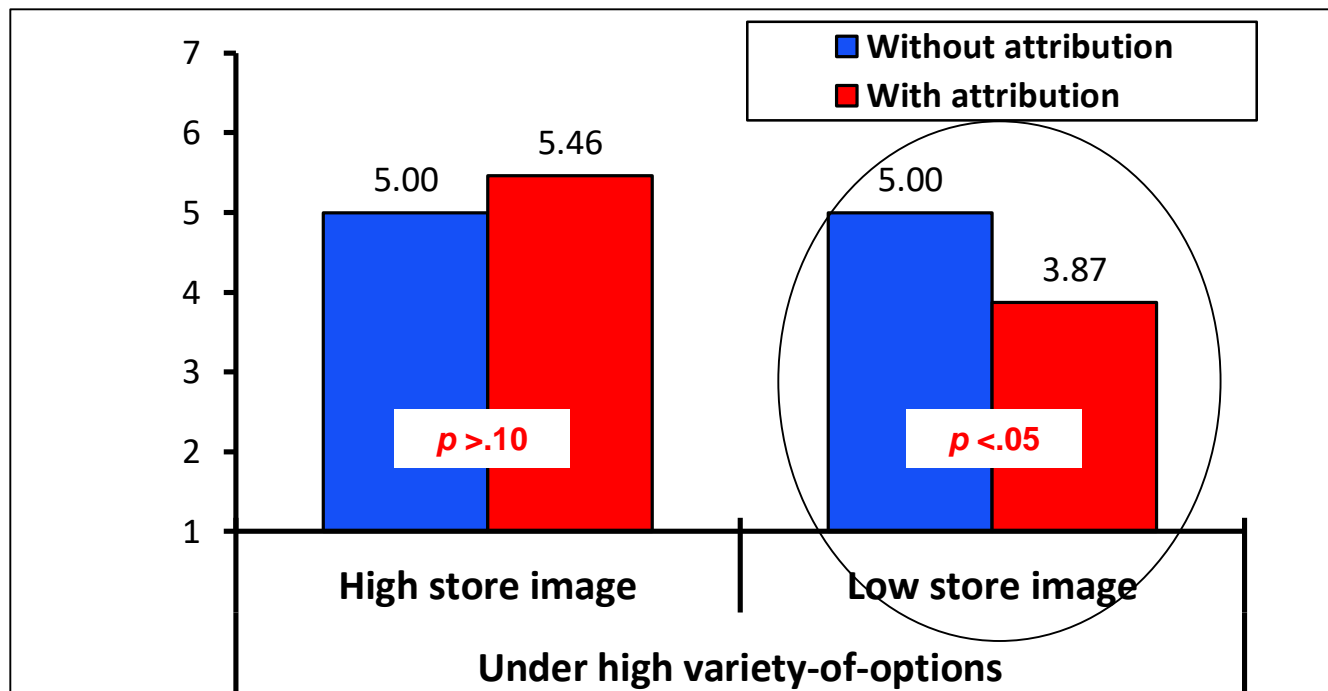
- ✓ Main effect of the variety-of-options on Perceived variety
- ✓ 2-way Interaction effect of store image and the variety-of-options for ingredient ( $F(2, 80) = 7.13; p < .01$ )
- ✓ Mediation analysis found **significant mediation of perceived variety**



# Study 2: Attrition Manipulation

## □ Attitude toward chocolate category

- ✓ Main effect of store image
- ✓ 2-way Interaction effect of attribution manipulation and the variety-of-options for ingredient ( $F(1, 42) = 5.04; p < .05$ )
- ✓ Supporting “different expectation” mechanism

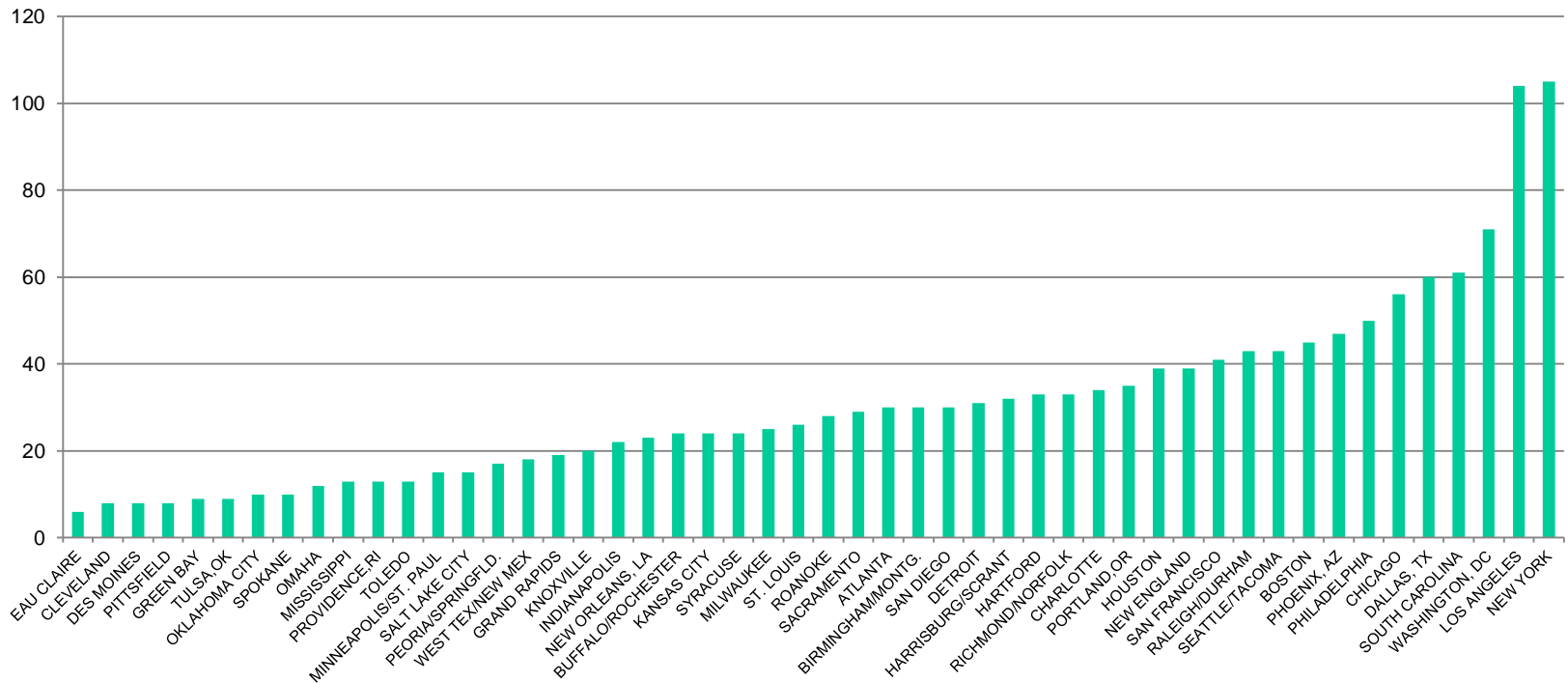


# Study 3 – Secondary data Analyses

## □ IRI Scanner data of yogurt in 2007

- ✓ Natural replication of lab experiment
- ✓ Of 1,540 grocery stores in 50 IRI Markets, 1,470 stores sold at least one SKU of yogurt

Number of Grocery Stores across IRI Markets



# Data (N=1,470 grocery stores) and Model

	Variables	Min	Max	Mean	Std. Dev.
Sales	Average unit sales per week	3.51	190.65	19.58	13.96
	Average dollar sales per week	2.73	175.11	19.40	12.85
Marketing Mix	Average unit price per OZ	1.23	3.21	2.01	0.24
	Average feature ads per week	0	0.44	0.12	0.06
	Average display per week	0	0.19	0.02	0.02
	Average price reduction per week	0	0.69	0.25	0.11
	Std. Dev. of diplayed price	0.33	1.91	1.24	0.17
Assortment	# of Yogurt SKUs	26	422	211.49	70.96
Quality of Store	# of premium SKUs	8	223	139.56	35.40
	% of premium SKUs	30.8%	100.0%	68.5%	12.6%
Variety of Options	# of Yogurt brands	2	20	8.67	3.29
	# of unique product type	1	12	6.80	1.59
	# of different sizes	6	29	19.95	3.80

$$\begin{aligned}
 UnitSales_j = & \beta_0 + \beta_1 UnitPrice_j + \beta_2 feat_j + \beta_3 disp_j + \beta_4 PR_j + \beta_5 \#SKU_j + \beta_6 \%Premium_j \\
 & + \beta_7 Variety_j + \beta_8 (premium \times variety)_j + \beta_9 VarietyofPrice_j + \varepsilon_j
 \end{aligned}$$

# Results (R\_square = 0.392)

Variables	coeff	se	t	p
Constant	2.323	0.292	7.952	0.000
Unit price	-1.224	0.172	-7.105	0.000
Feature	0.300	0.564	0.532	0.594
Display	4.658	1.128	4.130	0.000
Price reduction	0.820	0.317	2.587	0.010
Quality_Image	-2.451	0.323	-7.593	0.000
Variety_of_options	0.187	0.045	4.164	0.000
Quality_Image x Variety_of_options	-0.430	0.225	-1.908	0.057
Variety of Price (SD. of Price)	1.009	0.248	4.073	0.000

1. All marketing mix variables (except Feature ads) show significant expected signs
2. *Sales increases as variety of prices increases*
3. *Main effect of Variety of Options is positive and significant* → **H1 supported**
4. *Interaction effect of VO and Store Quality is also marginally significant* → with low quality store, sales increases as Variety-of-Options increases → **H2 marginally supported**



# Take-Aways

## □ **Variety-of-options effect**

- ✓ Variety-of-options (the range of the variance of attributes) is a significant determinant of attitudes towards the store and its sub-category
- ✓ This effect exists above and beyond assortment-of-options effect

## □ **Moderation effect of store image**

- ✓ It is the low-image store that can benefit significantly from having a large variety-of-options.

## □ **Suggesting new underlying mechanism**

- ✓ A naïve economic theory of different expectation is possible mechanism, i.e., positive disconfirmation of expectation



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**Thank you very much!**

# Study 1: Overview

## □ Procedure

- ✓ **Step 1:** Participants were asked to imagine shopping in a grocery market (i.e., TQ-mart) & Manipulation of “store image”
  - **High store image** condition: The store provided *higher* price and quality groceries, a *tidy and comfortable* shopping atmosphere, *outstanding* customer services, and *convenient* locations.
  - **Low store image** condition: The store provided *lower* price and quality groceries, an *untidy and uncomfortable* shopping atmosphere, *poor* customer services, and *inconvenient* locations.
  
- ✓ **Step 2:** Participants were asked to imagine buying chocolates & Manipulation of “variety-of-options in terms of brand” and “variety-of-options in terms of price/quality”
  - Variety-of-options in terms of brand: **2** vs. **8** brands for 8 options
  - Variety-of-options in terms of price/quality: Different range
    - **Large variety**: \$6.00-\$13.00 [3.8-4.9 /5 stars] for the high store image  
\$1.50-\$6.00 [1.4-3.5] for the low store image
    - **Small variety**: \$9.00-\$10.50 [4.4-4.6] for the high store image  
\$3.00-\$4.50 [2.4-2.6] for low store image
  
- ✓ **Step 3:** Measurement

# Study2: Stimuli

## □ Variety-of-options manipulation

- ✓ **Small** variety-of-options with **small** assortment-of-options:

TR-Mart provides 10 different types of chocolate items  
by mixing 2 chocolate type, 2 chocolate mix, 3 flavour, & 2 nut content

- ✓ **Large** variety-of-options with **small** assortment-of-options:

TR-Mart provides 10 different types of chocolate items  
by mixing 3 chocolate type, 3 chocolate mix, 6 flavour, & 3 nut content

- ✓ **Large** variety-of-options with **large** assortment-of-options:

TR-Mart provides 30 different types of chocolate items  
by mixing 3 chocolate type, 3 chocolate mix, 6 flavour, & 3 nut content

# Study2: Stimuli

## □ Attribution manipulation

- ✓ **Large** variety-of-options with **small** assortment-of-options:

TR-Mart provides 10 different types of chocolate items  
by mixing 3 chocolate type, 3 chocolate mix, 6 flavour, & 3 nut content

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**\*\* “TR-Mart provides lots of different chocolate type in term of chocolate type, mix, flavour, and nut content because the store has recently partnered with an additional supplier.”**

# Study 2: 2X3 ANOVA

## □ Mediation

- ✓ Step #1: IV → DV
  - Store image X variety → Attitude toward the chocolate category
  - $F(2, 80) = 2.63; p = .08$
  
- ✓ Step #2: IV → Mediator
  - Store image X variety → Perceived variety
  - $F(2, 80) = 7.13; p < .01$
  
- ✓ Step #3: IV (with Mediator as Covariate) → DV
  - Perceived variety:  $F(1, 79) = 13.97; p < .001$  – Significant
  - Store Image X variety:  $F(2, 79) = 0.42; p = .66$  – Insignificant
  
- ✓ Perceived variety as a mediator

# Additional condition - Study2: Stimuli

## □ Variety-of-options manipulation

- ✓ **Small** variety-of-options :

TR-Mart provides 10 different types of chocolate items  
by mixing 2 chocolate type, 2 chocolate mix, 3 flavour, & 2 nut content

- ✓ **Large** variety-of-options :

TR-Mart provides 10 different types of chocolate items  
by mixing 3 chocolate type, 3 chocolate mix, 6 flavour, & 3 nut content

## □ Value function - manipulation

- ✓ **Small** variety-of-options :

TR-Mart provides 10 different types of chocolate items  
by mixing 4 chocolate type & chocolate mix and 5 flavour & nut content

- ✓ **Large** variety-of-options :

TR-Mart provides 10 different types of chocolate items  
by mixing 6 chocolate type & chocolate mix and 9 flavour & nut content



# Quality of Store and Variety of Option

