



37000: Marketing Strategy

Brad Shapiro

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PHASE 1

PHASE 2

PHASE 3

Collect
~~underpants~~



Profit

Pharmaceutical
Patents

Investors balked at the deal on Monday, with shares of Gilead falling 9 percent on the announcement.

“For Gilead to give up effectively one-third of their value for an unproven asset still subject to significant ongoing clinical risk seems remarkable,” Geoffrey Porges, biotechnology analyst at Sanford C. Bernstein & Company, wrote in a note Monday.

Thomas Wei of Jefferies & Company estimated that Gilead’s sales of hepatitis C drugs would have to reach \$4 billion a year — difficult, but not impossible — to justify the purchase price.

An Outcry Over the Price of EpiPen

SEPT. 2, 2016



Why did I pick Sovaldi to talk about?

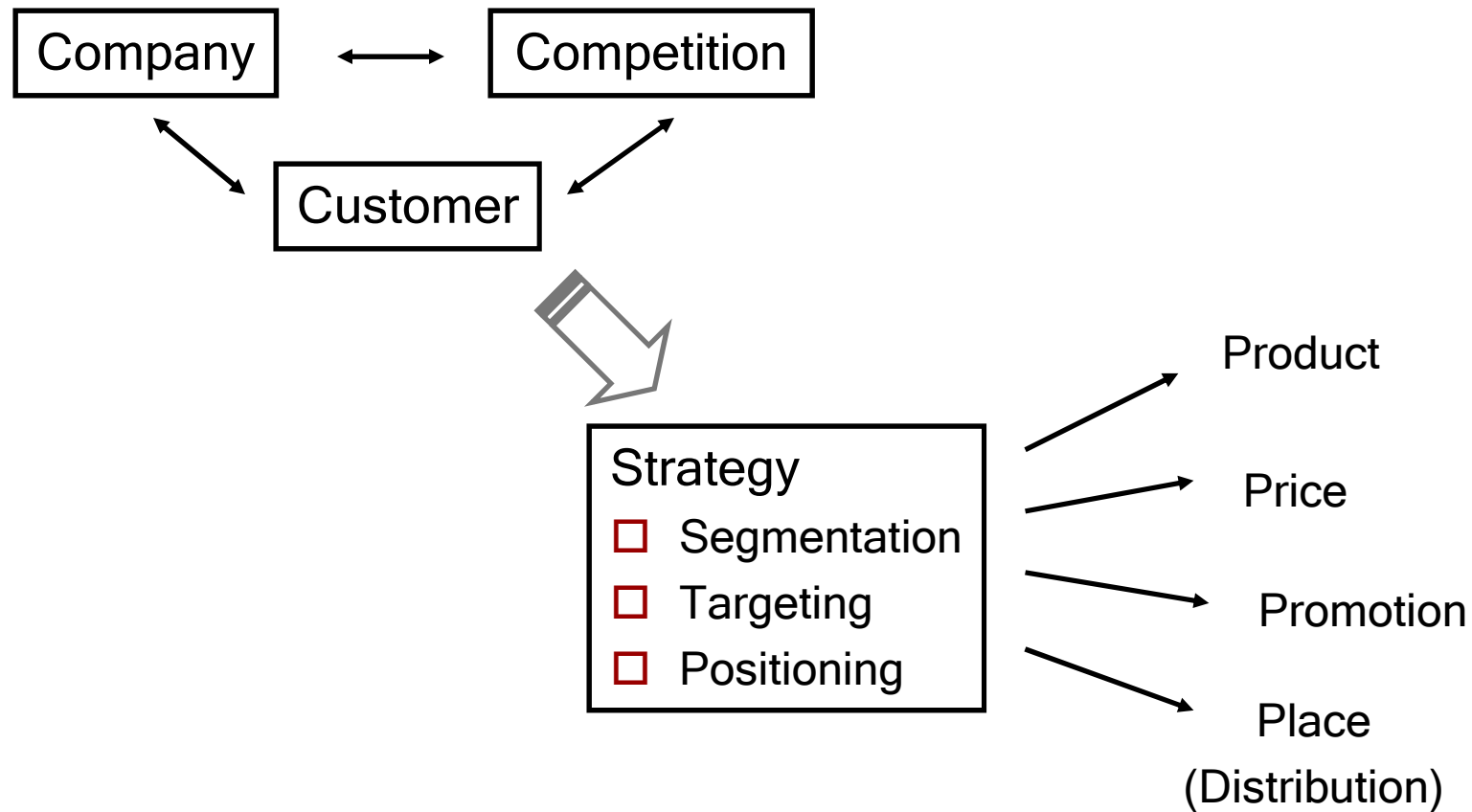
Marketing?



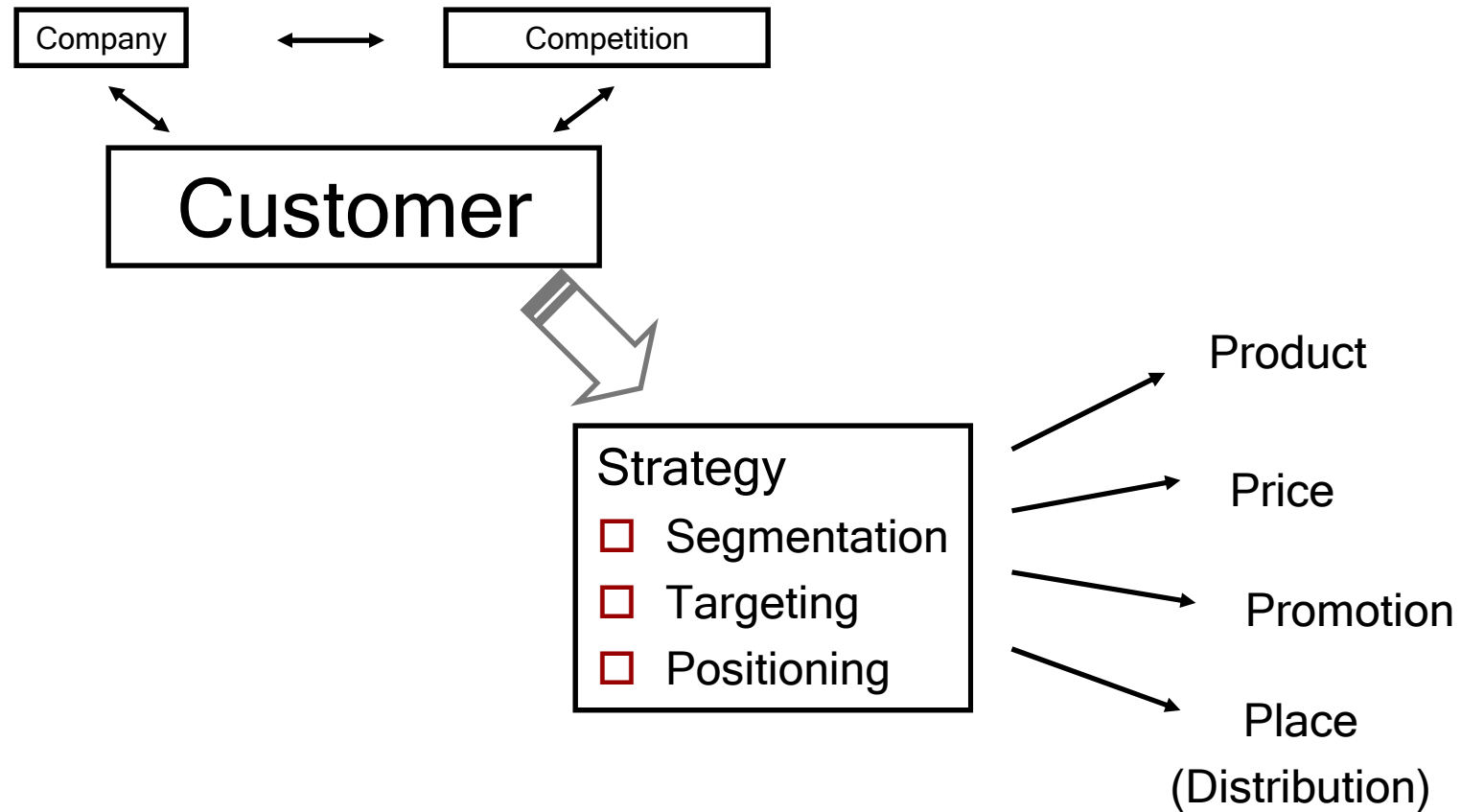


Course Overview

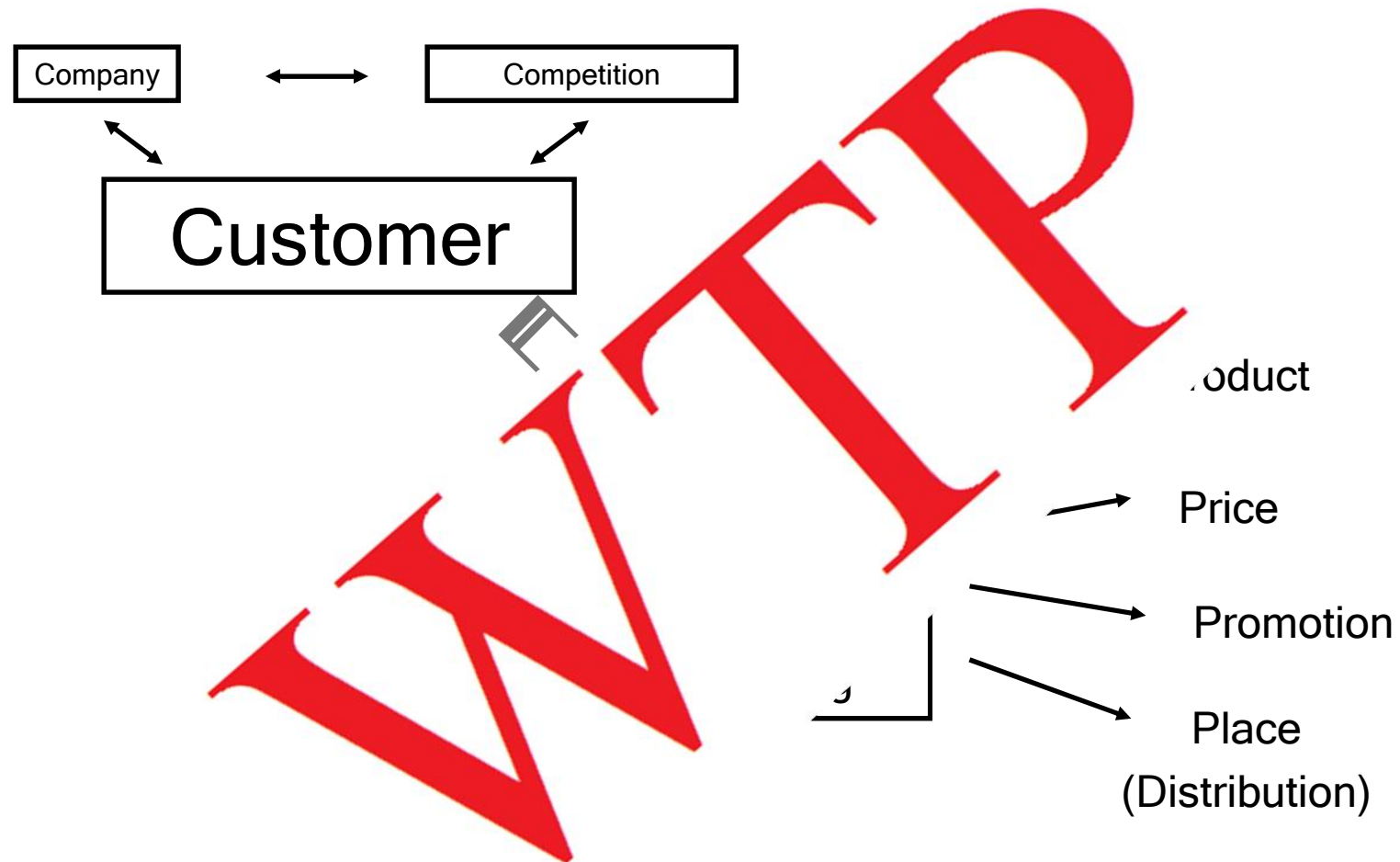
3 C's and the 4 p's



3 C's and the 4 p's



3 C's and the 4 p's



Customer-centric

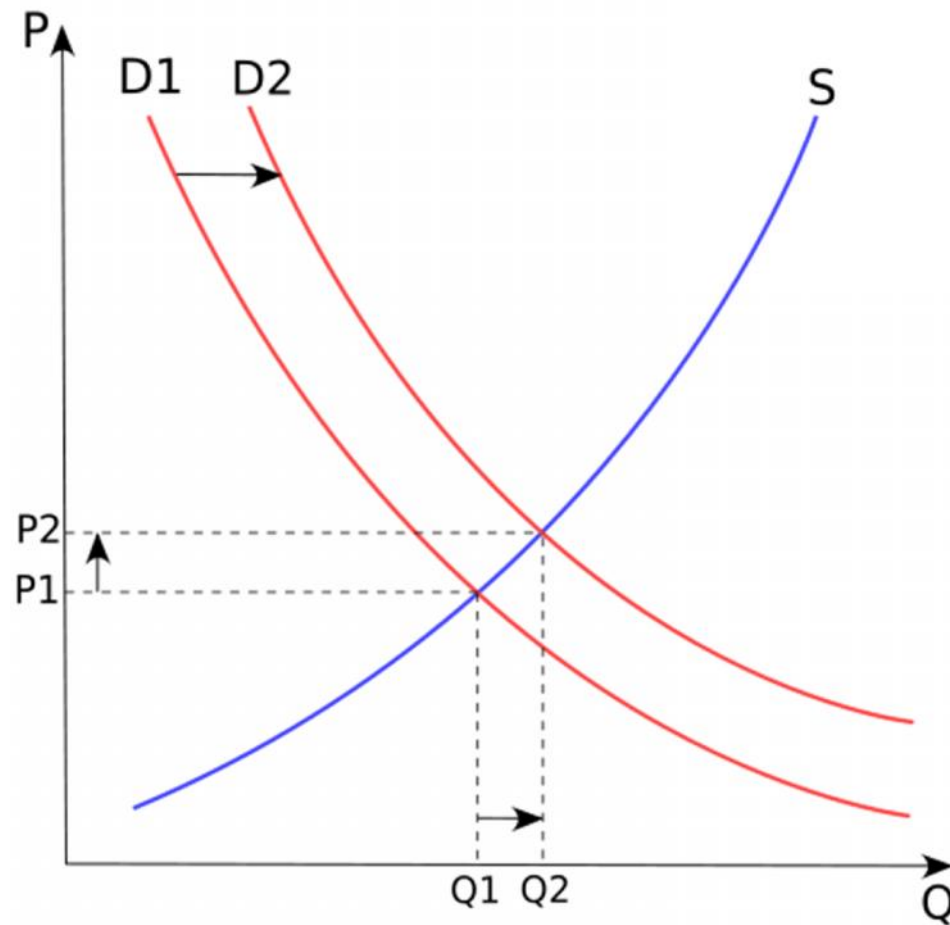
“There will always, one can assume, be need for some selling. But the aim of marketing is to make selling superfluous. The aim of marketing is to **know and understand** the customer so well that the **product or service fits him** and sells itself. All that should be needed is to make the **product or service available.**”

Peter Drucker (1973)

Base Disciplines



Economics



Supply/Demand is too Simple

What assumptions underlie a supply curve?

What to take from Economics?

- Demand
 - Deep understanding of consumer preferences
- Supply
 - Replace with models of imperfect competition
- Statistics / Econometrics
 - Data, Data, Data
 - Correlation is not Causation

Psychology / Behavioral Economics

- Systematically incorporate insights from psychology into models of consumer behavior
 - How should firms respond?
- If you like Nudge, Predictably Irrational, Stumbling on Happiness, etc.

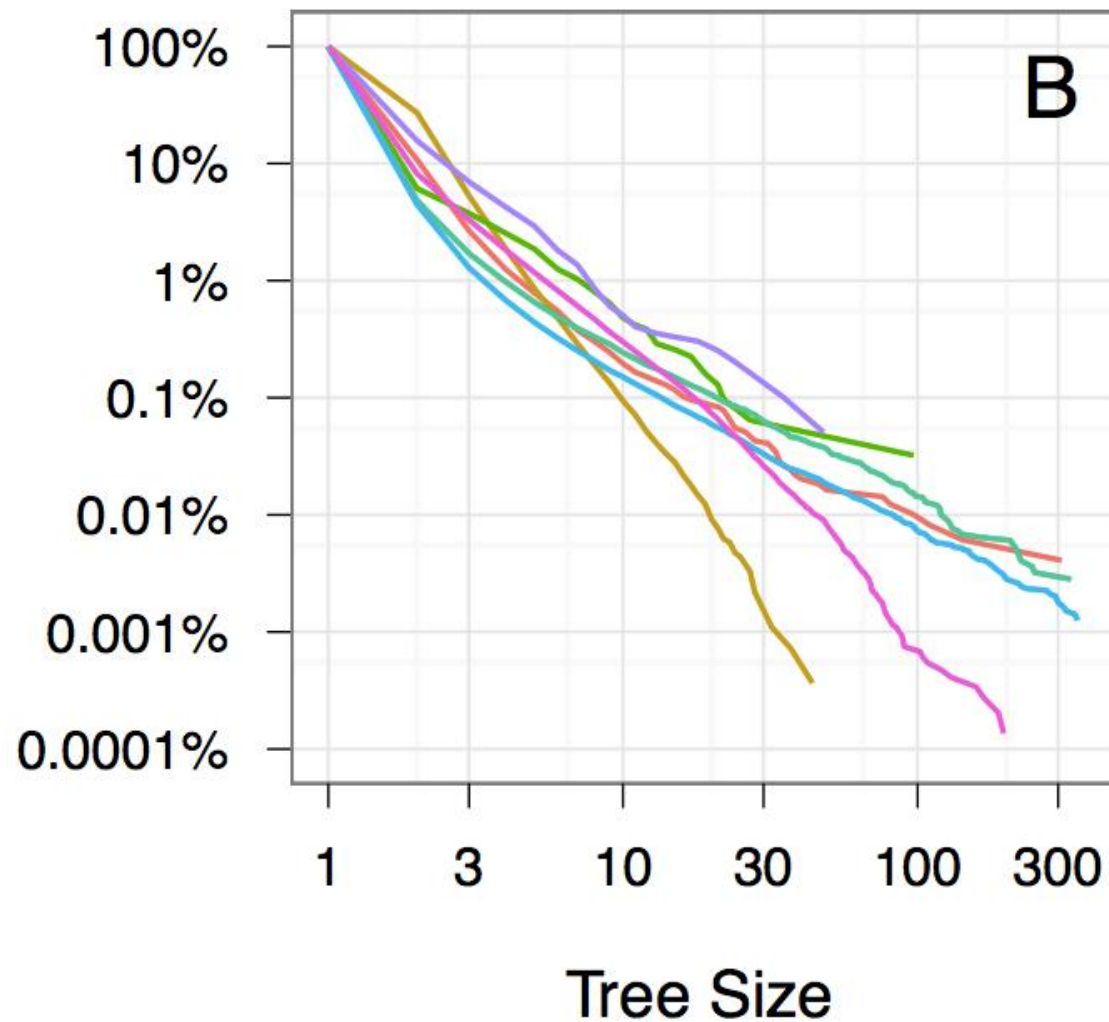
Applied Marketing

- Common wisdom about marketing?

Applied Marketing

- How do we connect statements to theory?
 - Under what circumstances?
 - Testable hypotheses
- Example:
 - “Lesson No. 1: Big advertising bets demand big calls to action”
 - “Consumers who visit a firm’s website are **more than three times as likely** to purchase a product as those who don’t visit.”
 - How should we think about social media?

Applied Marketing



A Framework

- Build on Economics
- Add in Psychology
- In conversation with practical “insights”

Goals

- To introduce you to the fundamentals of modern marketing practice.
 - 3 C's and 4 P's
- To familiarize you with practices that marketing consulting firms typically employ.
- To think about how to use data to analyze success and failure of decisions.

Big Data?

- “If iron ore was the raw material that enriched the steel baron Andrew Carnegie in the Industrial Age, personal data is what fuels the barons of the Internet age.”

NYTimes

“Letting Down Our Guard With Web Privacy”

HBR.ORG

Harvard Business Review



OCTOBER 2012
REPRINT R1210D

Data Scientist:

The Sexiest Job of the 21st Century



PHASE 1

PHASE 2

PHASE 3

Collect
~~underpants~~
Big Data!



Profit

About This Section

- B.S. Mathematics, B.A. Economics, M.S. Mathematics, Virginia Tech
- PhD Economics, MIT
- Practical
 - Wine importing and sales firm
- Research Interests:
 - Healthcare Industry
 - Advertising
 - Industrial Organization

About This Section

- There is a lot of variety across marketing strategy sections
- This section will emphasize:
 - Economics as the foundation
 - The importance of data
 - Rigorous statements informed by academic literature
 - When possible, tie to data and models



Logistics

Structure

- Every class
 - First part case (with one exception)
 - Second part “lecture”
- Cases:
 - Apply framework from previous week’s lecture
 - Present new / challenging scenarios
 - Take a stand, defend it using facts from the case and analysis done by you

Structure

- Open discussion
 - Critically evaluate proposed plans of action
 - Propose alternative viewpoints
- My perspective

Structure

- Lecture – 2 pronged
 - Marketing tools
 - Think rigorously about the causes and consequences of marketing actions
 - Read and evaluate output from statistical analysis
 - Academic Literature
 - What have we learned from careful studies?

Course Outline

- Weeks 1-4: Understanding Customers
 - Consumer preferences
 - Segmentation, Targeting and Positioning
 - Consumer behavior and psychology (guest)
 - Dynamic customer relationships and CLV
- Week 5: Product
 - Product line decisions, new products & the product lifecycle
- Week 6-7: Pricing
 - Competitive Pricing Strategy
 - Dynamic Pricing, Price Discrimination, Promotion
- Week 8: Branding (guest)
- Week 9: Advertising

Misc

- TA: Lori Knapp
 - dknapp@chicagobooth.edu
- Feedback
 - Please get in touch
- Taking classes with the other section
 - Must get approved ahead of time with Lori and submit assignments with earliest section

Assignments

- Groups
 - 4 or 5 per group. Please submit to Lori by next week.
 - Can be combined across sections. Assignments must be turned in with the earliest section

Submitting Assignments

- All assignments are due BEFORE the start of the earliest class of your group.
- Submit as hard copy in class.

Grading for the Class: Participation 15%

- Attendance
 - I do not distinguish “excused” from “unexcused.” If you need to miss a class, miss a class. You are responsible for the material and assignments.
- Contribution to a meaningful dialogue
 - Not about volume of comments.
 - Subjective evaluation by me.

Grading for the Class: “Minor” Cases 15%

- 6 *Group Case Memos*:
 - Outline of main discussion points for class
 - Take a stand.
 - No more than 1 page.
 - As long as you make a recommendation, you will get a “check”.
 - Exceptional memos could get “check-plus”.
Expect < 2 per memo, could be 0.

Grading for the Class: 2 Major Cases 15%

- Major *group* case write-up
 - StickK (week 4) and Uber (week 7)
 - No more than 4 pages. Appendix no more than 3 pages.
 - Make a clear marketing recommendation supported by facts and your analysis.
 - StickK (comments, “check” only), Uber (0-10) by Lori
 - If you want a re-grade, I will be the re-grader, and I am MUCH harsher than Lori. Your grade could/probably will go down.

Grading for the Class: Quant Assignments 15%

- Several (either 4 or 5) *Individual* Quantitative Assignments
- Designed to give you hands on experience in creating and interpreting marketing metrics
- It is recommended you put considerable effort into these in order to understand the concepts.
- Graded on “check” basis, with possibility of “check-plus” for exceptional work.
- If you understand these, the exam will be very easy.

Grading for the Class: Group Project 15%

- Product line extension.
- More details to come later.
- Graded 0-100 by me.
- Presented in week 10.

Grading for the Class: Final Exam 25%

- Take home, individual
- Time limit, honor system
- Open book, open note
- Could be any subset of: Basic theory questions, reading and interpreting data, quantitative or case write-up.

Grading (applies to ALL of your classes)

- Average GPA of incoming class: 3.6
- Mandated average GPA in each class at Booth: 3.3
- On average, if you expect the same grades as you had in college, you will be disappointed.
- Vast majority of class ends up with B+. Why?
- Grades are not disclosed outside of Booth.

Grading

- Negotiating for or arguing about your grades is not a good use of your time or mine.

Grading – Basic Stats

- No one who attended every class did worse than B.
- No one who missed more than 2 classes did better than B+.
- Class attendance and participation very strongly correlated with final exam grade.
 - Final exam grade drives most of the variation in the grade distribution

Break

- Take a break now.
- Think about forming your groups.
- See you back here in a few minutes.



37000: Marketing Strategy

Consumer Preferences

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Goals of this Lecture

- 1) Introduce a consumer-centric framework for thinking about marketing problems.
 - 1) The product as a bundle of attributes for which consumers are willing to pay.
- 2) Show you how to conduct and interpret analysis of consumer preferences using:
 - 1) Conjoint analysis
 - 2) Observational demand analysis
- 3) Carefully consider situations where we could easily make mistakes



Marketing Fail

- Which would you prefer?
 - A Soft, buttery homestyle bun. Fresh, crisp, lettuce. A juicy, quarter-pound patty of 100% pure domestic beef. Sweet, slivered, Spanish onions. A new “secret sauce” for grown-ups.
 - An ungodly chemical stew of robotically destroyed pig-parts, smoke-flavored, dyed with fake grill marks, and then, absurdly, molded with “rib” shapes on top

Marketing Fail



Marketing Fail



- “Find recipes online, store and organize them, and watch cooking videos”. You can “use your mini to track calories, carbs, and protein with ease”.
- “Once you get beyond how cute they are, you’ll find that netbooks can do a lot more than check your e-mail”

Marketing Fail

- Failed product launches are easy to find
- But....
 - Every single strategic action you will take is based upon an expectation of who your customers are and how they will react
 - Pricing
 - Promotions / Coupons
 - Product Line Decisions
 - Advertising

How Do We Learn about Consumers?

- Ask People (or observe)!
- Qualitative studies (great for getting general ideas):
 - Ethnographic
 - Focus Groups
- Quantitative studies
 - Concept Tests
 - Conjoint Studies
 - Use real data

A Word of Warning

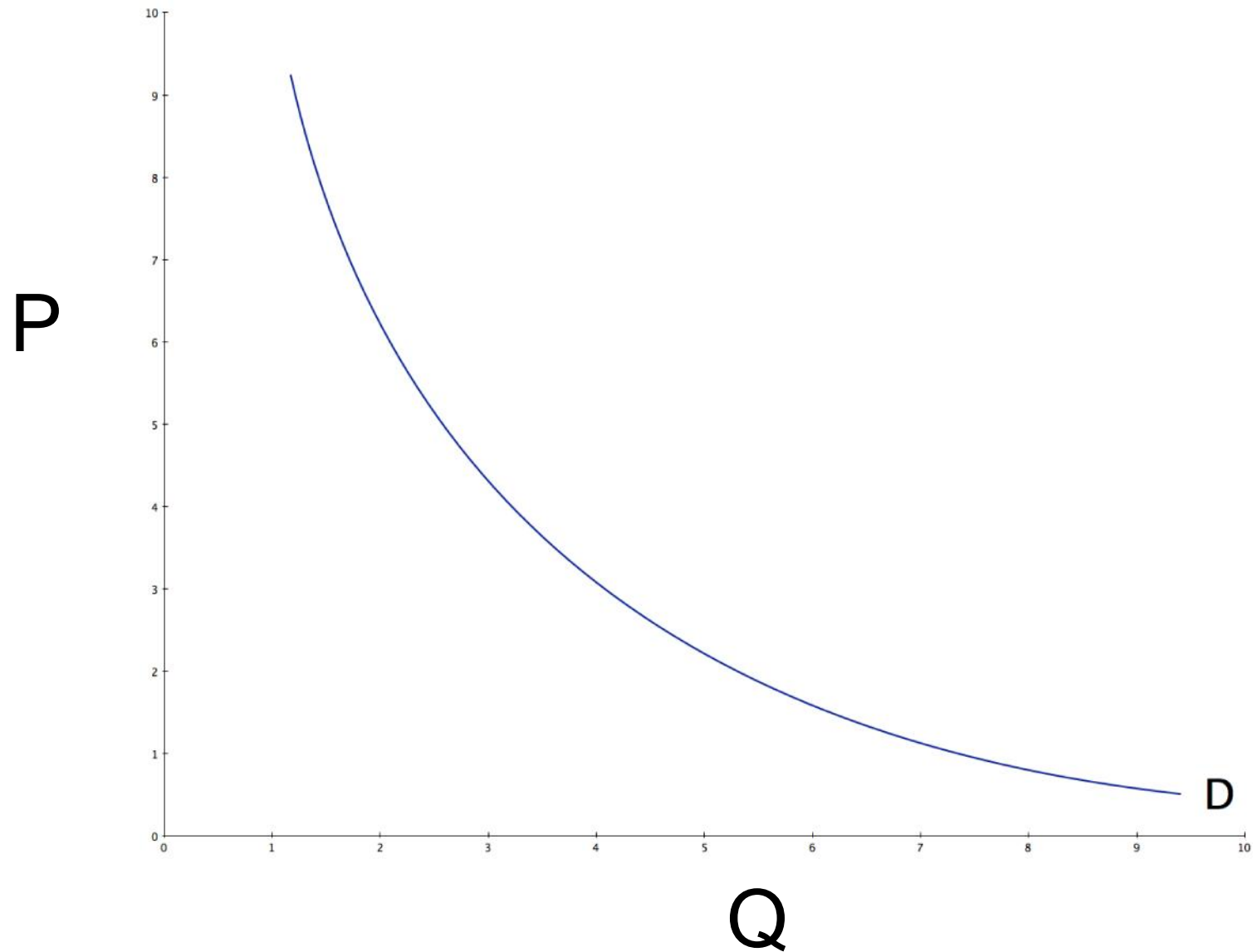
“If I had asked people what they wanted, they would have said faster horses.”

Henry Ford

Outline

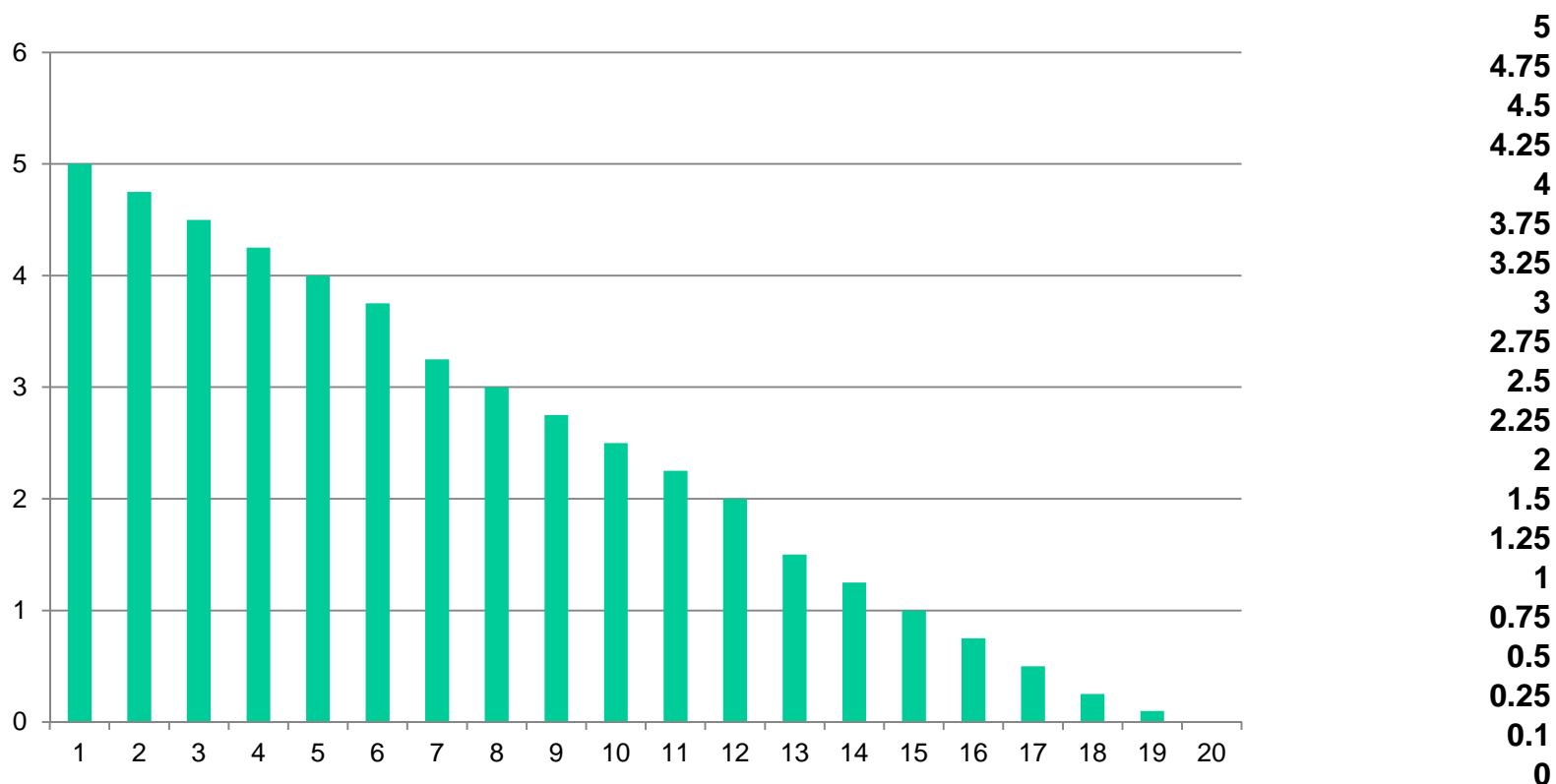
- Understanding Consumer Preferences
 - What's wrong with demand curves
 - A marketing framework
 - What makes up a product? (bundle of attributes)
 - Consumers have different preferences over those attributes
 - Using surveys and data to estimate these preferences
 - Qualitative (focus groups)
 - Conjoint
 - Actual Data!

What is a Demand Curve?



Willingness to Pay

- Imagine that 19 people like good chocolate and their willingness to pay is (highest to lowest):



Understanding Demand

- The Good
 - Fundamentally about WTP which is **the** key marketing concept
 - Gives us price elasticities
- The Bad
 - Can't estimate it
 - Despite 30 years of trying
 - Very limited heterogeneity
 - Across consumer (for a product) and within a consumer
 - Doesn't tell us anything about new products
 - Doesn't give us elasticities wrt anything but price

What is a Product?



What is a Brand Effect?



What is a Product?

- A product is a bundle of attributes
 - Sometimes real and sometimes perceived
- Think about estimating preferences/WTP for *individual attributes* that make up a product
 - Always include price
 - This gives us **better** than price elasticities
 - Brand is included separately
 - This can be especially important with certain product types

Printer Attributes

bLaser	Laser/LED (light emitting diodes) printer (L)
bInkJet	Inkjet/micro-dry printer (J)
bImpact	Impact (dot matrix) printer (I)
bTT	Thermal transfer (only used in multifunction devices) (T)
bColor	Color printer (C)
bMF	Multifunction device (MF)
<i>Performance Measures</i>	
nSpeedBW	Maximum speed in black and white mode, pages per minute
nRAM	Memory buffer size, Kb
nCPU	On-board CPU speed, mHz
nFonts	Number of resident fonts
bPS	Supports Adobe PostScript language
bUSB	Universal Serial Bus (USB) interface
bSCSI	Small Computer System Interface (SCSI)
<i>Printing Quality Measures</i>	
nResBW	Maximum resolution in black and white mode, in dots per inch (dpi); $\sqrt{DpiX * DpiY}$
nColors	Number of colors used to generate an image
<i>Paper Handling Measures</i>	
nPHC	Paper handling capacity, in pages
bA3	Supports printing on A3 paper size
bA2plus	Supports printing on A2 paper size and above
bDuplex	Supports duplex (double-sided) printing
<i>Miscellaneous</i>	
nFootPrt	Footprint, width×depth, sq.in.
bPort	Portable printer
bNIC	Network Interface Card (usually Ethernet) included
nExtras	1+sum of the following dummies: scanner, color scanner, copier, color copier, fax, color fax, PC fax, message center
bRefurb	Refurbished and factory-serviced models

Beer Attributes

Table 6 Product Attributes

Variable Name	Variable Meaning
A_P	Above Premium
A-B	Anheuser-Busch
B_P	Below Premium
Bud	Bud
Bud L	Bud Light
Coors	Coors
Coors L	Coors Light
High Life	Miller High Life
Ice	Ice beer/Malt liquor
Import	Import beer
Miller Genuine Draft	Miller Genuine Draft
Michelob	Michelob
Bitter	Bitter aroma
Calories	Calories
Flavor	Sharp flavor
Fruity	Fruity aroma
Head	Appearance of the head
Smooth	Smooth mouth-feel

Tastes for Attributes

- Consumers have **differing** tastes for these attributes
- Sometimes these are based on **observed** traits and sometimes **unobserved**
- Examples:
 - Size of car:
 - Father of 5
 - Single mid-life crisis
 - Different tastes in beer
- The art is in finding observables that explain purchase!

Why do we Care?

- Breaking apart the problem
 - No longer about just taste for a product
- Substitution
 - Which consumers?
 - Which competitors?

Competition

- Not just about the characteristics of your product.
 - Also need to think about current and potential competitors
- Sovaldi
 - Which characteristics would you think about?
 - Who are the current and potential competitors?

In Math

$$U_{ij} = b_{i1}X_{1j} + b_{i2}X_{2j} - a_{ip_j} + b_{ig}\gamma$$

- Example:
 - Laptops

Example



Weight:	2.9	3.5	4.0
CPU:	50	46	45
Brand:	Apple	Lenovo	Dell
Price:	\$1000	\$800	\$650

Two Types of People

Type A



Type B



Tastes

Weight: -.3

CPU: .4

Brand: (.5, .1, .1)

Price: -.07

-.2

.02

(8,3,1)

-.02

Utility of Type A Person

- $U = -0.3*(Weight) + 0.4*(CPU) + 0.5*(Apple) + 0.1*(Lenovo) + 0.1*(Dell) - 0.07*(Price)$
- Apple:
 $-0.3*(2.9) + 0.4*(50) + 0.5*(1) + 0.1*(0) + 0.1*(0) - 0.07*(1000) = -50.37$
- Lenovo:
 $-0.3*(3.5) + 0.4*(46) + 0.5*(0) + 0.1*(1) + 0.1*(0) - 0.07*(800) = -38.55$
- Dell:
 $-0.3*(4.0) + 0.4*(45) + 0.5*(0) + 0.1*(0) + 0.1*(1) - 0.07*(650) = -28.6$

Utility of Type B Person

- $U = -0.2*(Weight) + 0.02*(CPU) + 8*(Apple) + 3*(Lenovo) + 2*(Dell) - 0.02*(Price)$

- Apple:

$$-0.2*(2.9) + 0.02*(50) + 8*(1) + 3*(0) + 1*(0) - 0.02*(1000) = -11.58$$

- Lenovo:

$$-0.2*(3.5) + 0.02*(46) + 8*(0) + 3*(1) + 1*(0) - 0.02*(800) = -12.78$$

- Dell:

$$-0.2*(4.0) + 0.02*(45) + 8*(0) + 3*(0) + 1*(1) - 0.02*(650) = -11.9$$

Two Types of People

Which is which?



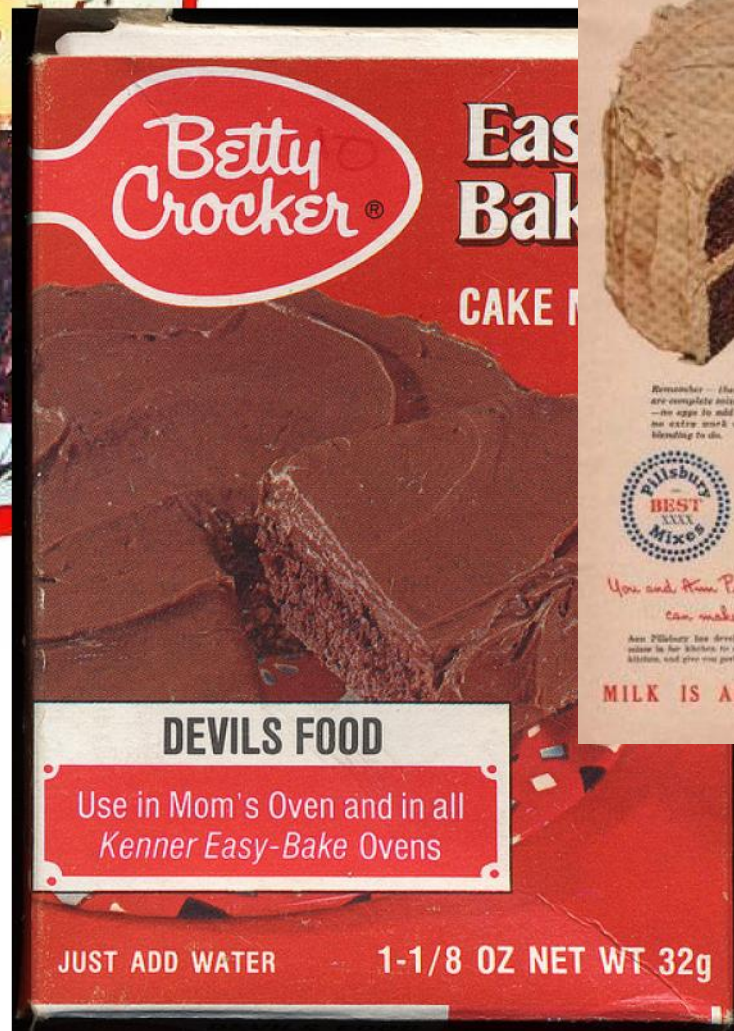
Tying it together

- Basic models assumes people have full information about all products and choose the one with the highest utility
- Other assumptions:
 - Lexicographic
 - Only the most important attribute matters
 - Minimal acceptance
 - First product where all attributes meet a minimum level

The Devil is in the Details



“You would be amazed to find how often we mislead ourselves, regardless of how smart we think we are, when we attempt to explain why we are behaving the way we do”



"A Gifted Gal"

*-that's what a man thinks
when his lady makes
elegant cakes like these*

*Light, tender
white cake*

*Rich
chocolate fudge
cake*

Easy, quick...with the new
**Pillsbury
CAKE MIXES**
WHITE & CHOCOLATE FUDGE

*Remember - these
are complete mixes
-no eggs to add -
no extra work of
blending to do.*

*You and Ann Pillsbury
can make a great team*

Ann Pillsbury has developed these new cake
mixes in her kitchen to save you time in your
kitchen, and give you perfect results every time.

Plan a new triumph for yourself - with superb cakes like
these. In these two new cake mixes Pillsbury provides
the finest ingredients-special cake flour, shortening,
eggs, sugar. Everything is blended completely and per-
fectly to give the same fine results every time you bake.
You simply add milk-and milk only. No "halfway
mix," to which eggs and other ingredients must be added,
can possibly give you such satisfying ease and conven-
ience as these two Pillsbury mixes.
Still into cakemaking this new way. Open up a pack-
age and bake a wonderful cake today-white or choco-
late fudge-the two flavors America likes best.

MILK IS ALL YOU ADD TO THE 2 NEW PILLSBURY CAKE MIXES

Problems?

Extensions

- Search costs
 - One role for advertising
- Learning / Experience goods
 - Especially true for knowing brands
 - New Products
- Habits
- Context
 - Purchase Occasion
 - Environment
- Choice overload

When Does This Break Down?

- This all works great for things with repeated decisions
 - But, we live in a world of uncertainty
 - So, might work well for
 - Frequent purchases (often applied to CPG)
 - Important decisions where people gather a lot of information
 - But, what about infrequent, unimportant ones?

Takeaways

- Think about consumer preferences as:
 - Over a bundle of attributes (including brand)
 - Rich consumer heterogeneity
- This does two things:
 - Clarifies thinking
 - Helps us solve the real problem – what are the important ones
 - Will help us estimate preferences

Takeaways

- This framework makes marketing strategy an entirely customer-driven (rather than product-driven) exercise.
- You aren't thinking about a product. You are thinking about your customers, what are their needs, and what are the attributes that they are willing to pay for over and above the next best alternative.

Eliciting Consumer Preferences

- Qualitative:
 - Focus groups / ethnographic
 - Concept Tests / Purchase Intent score
 - Tells you how a consumer feels about a certain product
- Quantitative
 - Conjoint
 - Actually gets at underlying preferences
 - Actual Data
 - Use observational data to elicit preferences

Ethnographic Research

- Follow people around:
 - In 2004, Marriott hired IDEO Inc. to rethink the hotel experience for an increasingly important customer: the young, tech-savvy road warrior.
 - IDEO dispatched a team of seven consultants, including a designer, anthropologist, writer, and architect, on a six-week trip. Covering 12 cities, the group hung out in hotel lobbies, cafés, and bars, and asked guests to graph what they were doing hour by hour.
 - Marriott in January announced plans to reinvent the lobbies of its Marriott and Renaissance Hotels, creating for each a social zone, with small tables, brighter lights, and wireless Web access, that is better suited to meetings. Another area will allow solo travelers to work or unwind in larger, quiet, semiprivate spaces where they won't have to worry about spilling coffee on their laptops or papers.
 - Business Week, The Science of Desire, June 4, 2006

Concept Test

- Generally used for new products or for positioning / advertising decisions
- Present ideas to consumers in their fully developed phase
- Ask consumers how likely they are to purchase the product

Concept Test - Challenges

- How do you present the idea?
 - Describe in very general terms
 - How do you feel about a product that does X
 - Give specific prototypes / advertising copy
- How do you structure response variables?
 - Would you buy this product?
 - Five point scale
 - What do you like or dislike about this product?

Concept Test - Example

- “Our product is a powdered mixture added to milk that gives all the day’s needed nutrition along with good taste and high convenience. The product comes in three flavors (chocolate, vanilla, and strawberry) and individual packets, six to a box, at \$2.49 a box.”



Qualitative Research

- Pros
- Cons

Conjoint

- We want to understand *individual* WTP for *individual* characteristics (and brands), i.e., actually generate estimates of the utility function we've been talking about

$$U_{ij} = b_{i1}X_{1j} + b_{i2}X_{2j} - a_i p_j + b_{ig}\gamma$$

- Want to estimate this formula! But how?

Conjoint – Choice Based

- Decide which attributes are important
 - Concept, ethnographic could help
- Make hypothetical products with different levels of each attribute
- Present the consumer with 2 complete hypothetical products and ask them to pick which one they would buy.
- Do this with the same consumer for a number of pairwise choices.

Conjoint

- We should not (except in certain cases):
 - Ask people how they feel about individual characteristics
 - Ask them how much they are willing to pay for the product
 - Ask them anything in absolute terms
 - This is all an exercise in relative trade-offs

Conjoint

- Instead, we will:
 - Ask consumers to think about whole products
 - Include price as one of the attributes of that product (why include price?)
 - Ask them to compare products relatively
- This is called conjoint analysis
 - Sawtooth software

Example

Questions: How much do airline customers value services like free-baggage, free drinks etc? Are airlines better off increasing ticket price instead of unbundling pricing?



Conjoint Example: Attributes and Levels

3 Airlines



2 Price levels: \$275, \$250



Extras for Baggage, Pillows and Soft-drinks



Hypothetical choice for consumer



* Option 1

Airline:	Jet Blue
Ticket Cost (round trip):	\$275
Baggage Cost:	\$20
Pillow and Blanket Cost:	Free
Soft Drink Cost:	\$2



* Option 2

Airline:	Delta
Ticket Cost (round trip):	\$250
Baggage Cost:	\$20
Pillow and Blanket Cost:	\$5
Soft Drink Cost:	\$2

- Iterate through the options:
 - Change price and see when people start to shift choices.
- There are smart ways to deal with large choice sets
 - Adaptive Conjoint (like the GMAT)

Alternative: Ratings Based Conjoint

#	Brand Origin	Body Type	Engine Type	Price	1	2	3	4	5	6	7
1	Japanese	Sedan	Gasoline	\$20,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	European	SUV	Gasoline	\$40,000	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	American	SUV	Electric	\$30,000	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	European	Sports Car	Hybrid	\$30,000	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Japanese	Sports Car	Electric	\$40,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
#	Brand Origin	Body Type	Engine Type	Price	1	2	3	4	5	6	7
6	American	Sedan	Gasoline	\$30,000	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	European	Sedan	Hybrid	\$40,000	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Japanese	SUV	Hybrid	\$20,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	American	Sports Car	Hybrid	\$30,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	European	Sedan	Electric	\$20,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
#	Brand Origin	Body Type	Engine Type	Price	1	2	3	4	5	6	7
11	Japanese	Sports Car	Gasoline	\$30,000	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	American	Sports Car	Gasoline	\$40,000	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	European	SUV	Electric	\$30,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	Japanese	Sedan	Electric	\$20,000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
15	American	SUV	Hybrid	\$30,000	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Alternative: Ratings Based Conjoint

- Rather than having a series of choices, each consumer will rate all of the options at the same time, on a “willingness-to-buy” scale.
- The software can also handle this type of choice data.

Conjoint – The Output

- After running either conjoint method through the software, we will get coefficients on each attribute.

$$U_{ij} = b_{i1}X_{1j} + b_{i2}X_{2j} - a_i p_j + b_{ig}\gamma$$

- These coefficients are called “Part-Worths”
- How much each “part”, or attribute, is “worth” in utils.

Example: Courtyard by Marriott

Attribute	Levels	Description	Part Worths
Hotel Size	1	Small (125 rooms) 2-story hotel (.00)*	1.06
	2	12-story (600 rooms) with large lobby, meeting rooms, etc. (7.15)	0.00
Corridor/View	1	Outside stairs and walkways to all rooms. Restricted view. People walking outside window. (.00)	0.00
	2	Enclosed central corridors and stairs. Unrestricted view. Rooms have balcony or large window. (.65)	1.85
Pool Location	1	Not in courtyard (.00)	0.00
	2	In courtyard (.00)	1.37
Pool Type	1	No pool (.00)	0.61
	2	Rectangular pool (.45)	1.25
	3	Freeform pool (.50)	0.29
	4	Indoor/outdoor pool (.85)	0.00
Landscaping	1	Minimal landscaping (.00)	0.81
	2	Moderate landscaping (.10)	0.97
	3	Elaborate landscaping (.50)	0.00
Building Shape	1	"L" shape building with modest landscaping (.00)	0.00
	2	Building forms an outdoor landscaped courtyard for sitting, eating, sunning, etc. (.45)	0.37

*Figure in parentheses after each description = price premium.

Table 2: Part worths are shown for attribute levels within the external factors/facilities facet. Similar output was developed for the other facets for each target segment (for example, low-end business travelers) and the total market.

Conjoint

- Advantages:
 - Can vary the product characteristics yourself
 - Can make up new products
 - Can easily estimate a separate utility function for each individual.
- Disadvantages
 - Representative sample?
 - Do people really behave like they say that do?
 - Can they actually imagine the products you're asking them to rank?

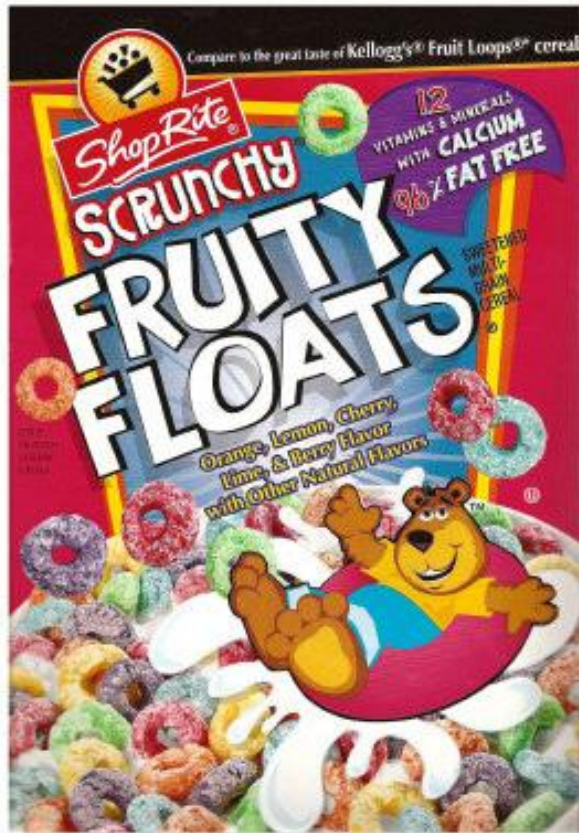
Conjoint

- You'll go through the conjoint problem in greater detail in the homework.
- I want you to know exactly how this process works and how to read the output.

Using Observational Data

- Just another way to estimate these same “Part-Worths” in the Utility function
- If we know:
 - The choice set that a consumer was exposed to (prices, characteristics, etc.)
 - What choice they made
- Then
 - We infer that they have made the best choice given the options (revealed preference)
- Exactly the same as conjoint

Using Observational Data: Example



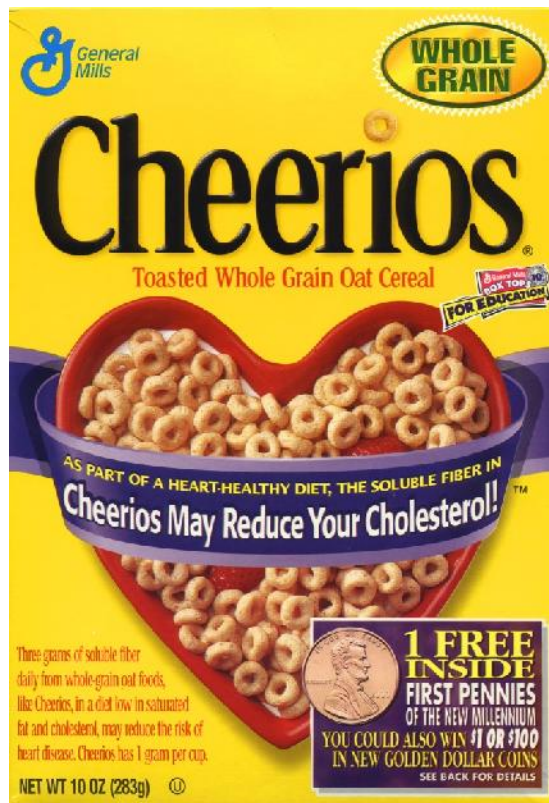
\$2.00

Brand



\$3.00 \$2.75 \$2.50

Using Observational Data: Example



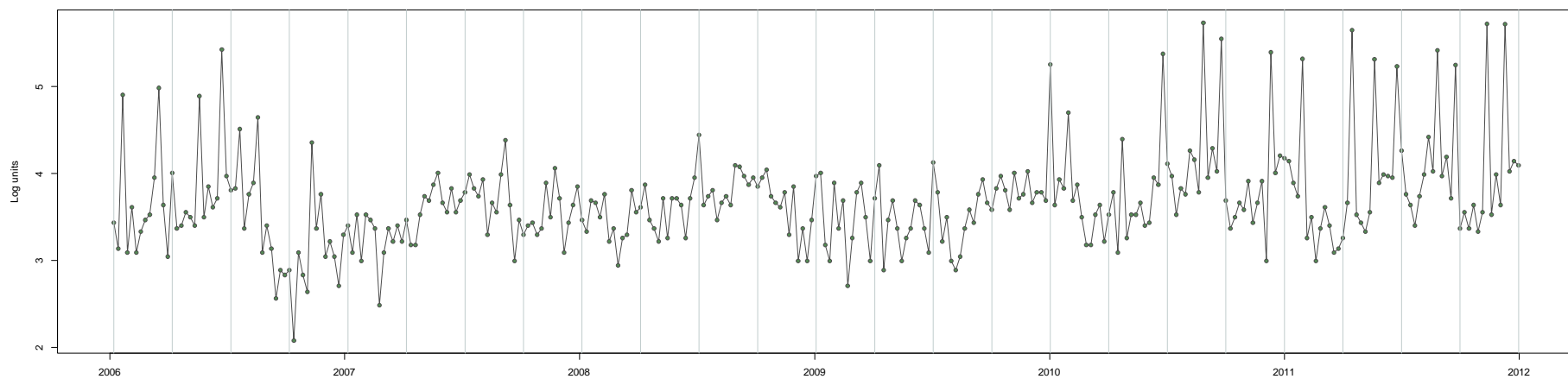
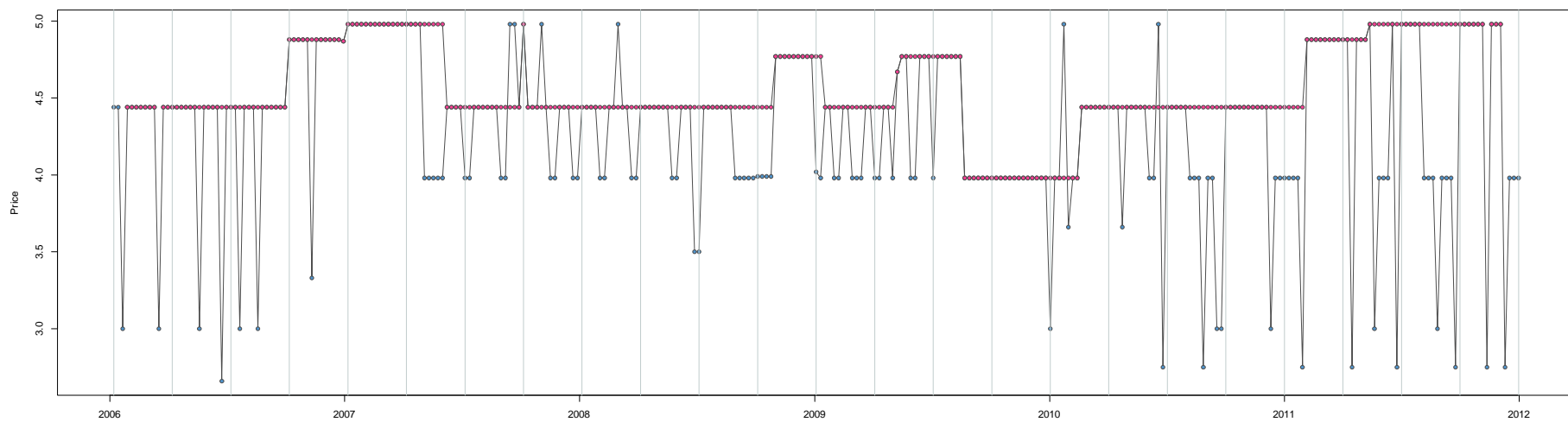
Same thing with other characteristics

Using Observational Data

- We then tie this changes in purchase behavior back to consumer observables to incorporate heterogeneity.
 - Demographics / and past purchase behavior
 - Who substitutes to which kind of products as prices change?
 - Who substitutes to new products / characteristics?
- Allows us to map out consumer preferences across different types of consumers
- Since each consumer only makes one purchase, harder to trace out heterogeneity

Using Observational Data

- A danger:
 - What happens to the price of turkeys during Thanksgiving?
 - What happens to the price of gasoline during the summer months?
- Generally try and use high-frequency promotions that retailers run
 - There are a lot of these.
- Take Data-Driven Marketing for more on this



INGLES MARKETS - Oconee County, SC. UC store ID: 2401296. Missing weeks: -0.32 %

Using Observational Data

- Advantages:
 - Doesn't suffer from any survey problems
 - Consumers are in the “wild”
 - Natural context
- Disadvantages
 - Can be hard to run / complicated
 - Sometimes doesn't have the variation you need
 - Data can be bad / none can exist for what you're interested in

Individual Purchase Data

- Consumers come home and scan the products that they've purchased
 - IRI Homescan / Nielsen
- Or purchase behavior is tracked on their computer:
 - Comscore
- Because these are recruited panels
 - Almost always have demographics
 - Sometimes have attitudinal

But, you Need Variation

- If you want to understand how consumers will respond to price, you need to see price changes at some point.
 - Don't need to see every possible point (can extrapolate)
 - Need “good” variation!
 - Need some variation in product attributes
- What if you don't have it:
 - Create it yourself with conjoint
 - Run experiments!
 - (create your own)

How Students Can Access Kilts-Nielsen Data

Courses:

- 37103 – Data-Driven Marketing (Prof. Hitsch). Scanner data.
- 37202 – Pricing Strategies (Prof. Dubé). Scanner data.
- 41201 – Big Data. Consumer Panel data

Online Nielsen Data Resource - www.nielsenacademics.com

- Online learning portal focused on the needs of students and faculty
- Site registration required- email Natalie.Foster@ChicagoBooth.edu for details.

You have a utility function, now what?

$$U_{ij} = b_{i1}X_{1j} + b_{i2}X_{2j} - a_i p_j + b_{ig}\gamma$$

- We can use this utility function to:
 - Predict choices (each consumer will pick the product for which they get the highest utility)
 - Determine which attribute is the most important to a consumer or group of consumers.
 - Compute a consumer's Willingness-to-Pay for an attribute
- You will learn exactly how to do this in Quant Assignment 1

Marketing Fail – Bringing it Back Together



Marketing Fail – Bringing it Back Together



- “Find recipes online, store and organize them, and watch cooking videos”. You can “use your mini to track calories, carbs, and protein with ease”.
- “Once you get beyond how cute they are, you’ll find that netbooks can do a lot more than check your e-mail”

Consumer Preferences Takeaways

- We developed a customer-driven framework
 - Consumers have different tastes (WTP!) for particular attributes
 - A product is simply a sum of attributes that the consumer values
- We learned how to estimate these with market research
 - Qualitative (ethnographic / focus groups)
 - Quantitative
 - Conjoint studies
 - Use real data

Consumer Preferences Takeaways

- Using things like conjoint, we can take serious the idea that one size does not fit all.
 - Estimate preferences separately for each consumer using conjoint.
- Using these preferences, we can learn about:
 - Customer Willingness to Pay (WTP)
 - Predict consumer choices
 - Determine which attributes customers find to be the most important

Quant Assignment 1

- Complete the conjoint tutorial in Chalk
- Given conjoint output, answer interpretation questions.
- Individual assignment due prior to the start of week 2 class.

Supplemental: Survey Design

- Market researchers spend a lot of time designing survey techniques
 - Take Oleg Urminsky's class for more on this
- Here are challenges that survey designers face:
 - Recreating context is hard
 - People have bad memories
 - People have other incentives

Recreating Context is Hard

- *In-store music affects product choice*
 - On French music days 77% of the wine sold was French
 - On German music days 73% was German
- *The Influence of Background Music on Shopping Behavior: Classical Versus Top-Forty Music in a Wine Store*
 - “rather than influencing patrons to purchase greater quantities of wine, the classical music induced them to purchase more expensive wines.”

People Have Bad Memories

- One in five of the shoppers (21.1%) did not even offer a price estimate; they seemed to have no idea of the price of the item they had chosen.
- Less than half (47.1%) were able to state the correct exact price (55.6% gave a price within 5% of the objective price), and 31.8% gave a price estimate that was inaccurate.
- Price estimates of those who were inaccurate were off by an average of 30 cents (about a 15% error)

Maybe This is All OK?

Table 1

Main Census Bureau Surveys Used in the NIPA Annual Estimates

Survey	Sample	Main Data Used	Main GDP Components Affected
Annual Retail Trade Survey	22,000 retail firms	Sales, inventories	Consumption of goods, inventory change
American Housing Survey	55,000 homes	Occupied housing, rents	Housing consumption, rental income
Current Population Survey	50,000 households	Occupied housing	Housing consumption, rental income
Service Annual Survey	30,000 service businesses	Sales	Consumption of services, software investment
Annual Survey of Manufactures	55,000 establishments	Shipments, inventories	Fixed investment, inventory change, capital consumption
Annual Wholesale Trade Survey	7,100 wholesale firms	Inventories	Inventory change
Annual Survey of Government Finances	All state and local governments	Miscellaneous	Government consumption and investment, consumption of services, indirect business taxes

- Wisdom of the crowd type arguments don't work for marketing
 - We need to pin down exact values for individual types

A Dilemma

- Marketers **need** to understand consumer preferences and yet the easiest method, surveys, doesn't cut it.
- Provide a framework based on economics and psychology:
- Allows us to:
 - Organize thoughts
 - Use observational data
 - **Carefully** use survey data
 - When/Where/What to ask



Nielsen Marketing Data at the Kilts Center for Marketing Chicago Booth

Autumn 2015

CHICAGO BOOTH



Kilts Center
for Marketing

Nielsen Data Sets at the Kilts Center

Consumer Panel Data

- Demographically balanced, longitudinal panel of 40,000-60,000 U.S. households that continually provide information on their households, products purchased, and time and location of purchases

Retail Scanner Data

- Weekly pricing, sales volume, and causal data provided by participating retail store point-of-sale systems in all U.S. markets
- 30,000-35,000 grocery, drug, mass merchandiser, and other stores

TV Advertising Data

- Advertising occurrences, expenditures and impressions across a range of TV media in all U.S. markets

Consumer Panel Data

(Kilts Center data starts in 2004)

Purchases



Collected via scanner after each shopping trip

- UPC Code & Description
- Product Characteristics (brand, size, flavor, etc.)
- Price
- Quantity
- Presence of Deal
- Coupon Value
- Store Location
- Retail Chain Code
- Channel Type
- Total Spent on Trip

Panelists



Collected annually

- Demographic data
- Geographic data
- Product Ownership data
- Projection Factor

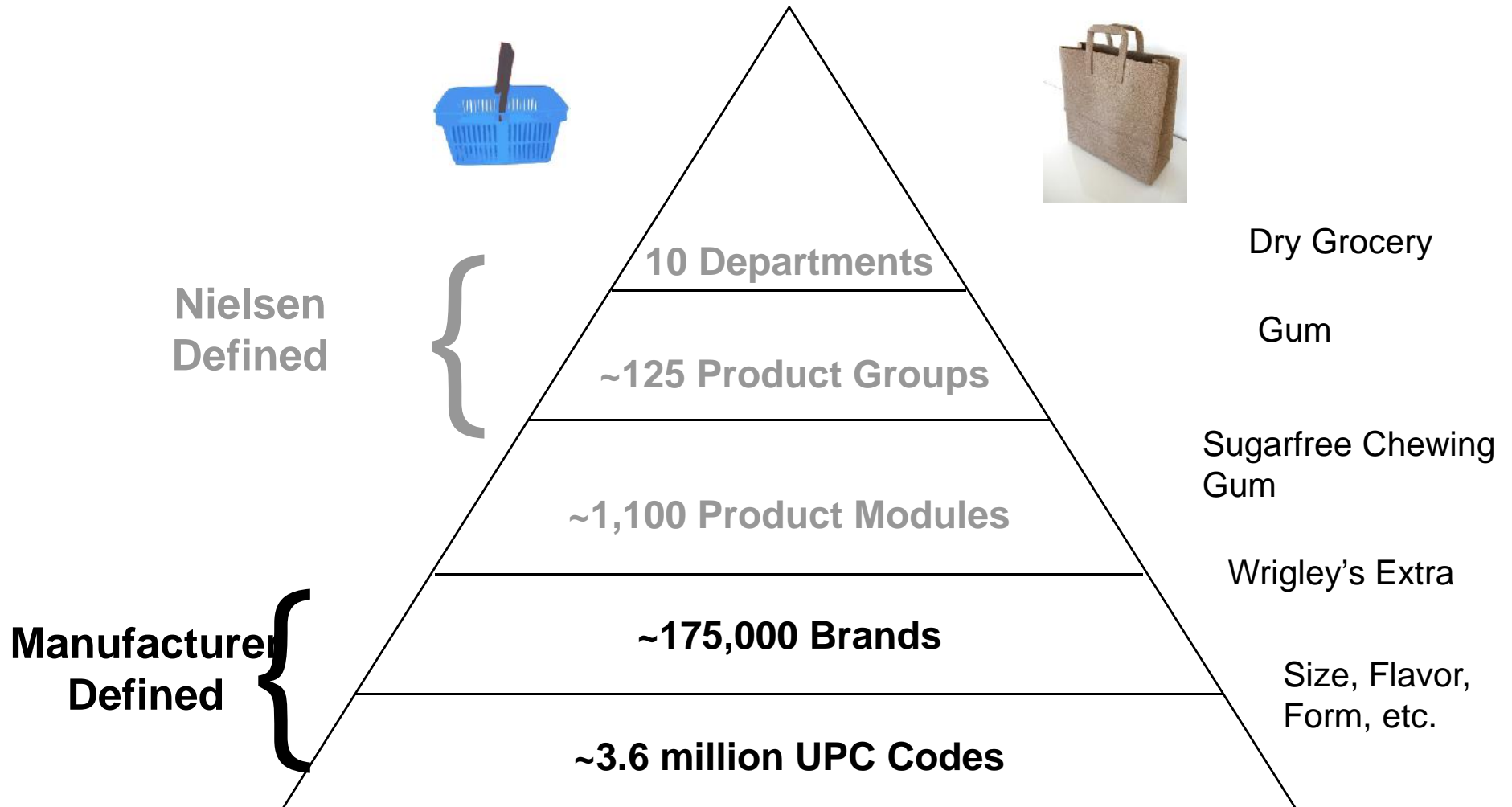
Retail Scanner Data (Kilts Center data starts in 2006)

- Week Ending Date
- UPC Code and Description
- Product Characteristics (brand, size, flavor, etc.)
- Units Sold
- Average Price
- Feature Indicator
- Display Indicator
- Store Location
- Retail Chain Code and Channel Type



**Sent weekly by stores to
Nielsen**

Consumer Panel and Retail Scanner Data Product Hierarchy



TV Advertising Data

(Kilts Center data starts in 2004)

Media Outlets:

- Network and Cable TV
- Syndicated TV
- Spanish Language Network TV
- Spot TV
- Network Clearance Spot TV
- Syndicated Clearance Spot TV
- Spanish Language Cable TV

Measures:

- Occurrences, Expenditures, Impressions

Demographics Breaks:

- National TV – 38 breaks
- Local TV – 20 breaks

Geographies:

- 225 U.S. Markets

Products:

- Over 2,000 Product Categories

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Examples of faculty research using Nielsen Data

“The Secrets of Shopping,” Featuring research by Jean-Pierre H. Dubé, Matthew Gentzkow, and Jesse Shapiro. *Capital Ideas*, (2013 print and online editions). <http://www.chicagobooth.edu/capideas/magazine/summer-2013>

“The Evolution of Brand Preferences: Evidence from Consumer Migration,” Bart J. Bronnenberg, Jean-Pierre H. Dubé, and Matthew Gentzkow. *American Economic Review*, (2012). <http://faculty.chicagobooth.edu/matthew.gentzkow/research/brands.pdf>

“Investigating brand preferences across social groups and consumption contexts,” Minki Kim · Pradeep K. Chintagunta. *Quantitative Marketing and Economics* (2012). <http://link.springer.com/article/10.1007/s11129-011-9117-0/fulltext.html>

“Brand History, Geography, and the Persistence of Brand Shares,” Bart J. Bronnenberg, Sanjay K. Dhar, and Jean-Pierre H. Dubé. *Journal of Political Economy*, 117(1), 87-115 (2009). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1273022

“Do Switching Costs Make Markets Less Competitive?” Jean-Pierre H. Dube, Günter Hitsch, and Peter E. Rossi. *Journal of Marketing Research*, 46(4), 435-45 (2009). http://papers.ssrn.com/sol3/papers.cfm?abstract_id=907227

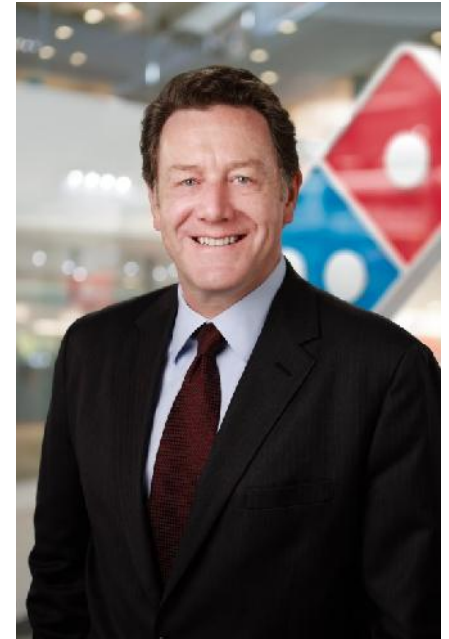
Kilts Fall Premiere

Patrick Doyle '88
President and CEO
Domino's Pizza

Tuesday, October 13
11.30 am – 1.00 pm

Join us for the Kilt's Center's annual Fall Premiere to hear Mr. Doyle tell the story of Domino's Pizza and how his experience at Chicago Booth prepared him for the challenges he faces in his work today, and those he may face in the future.

Lunch will be provided courtesy of Domino's Pizza.
Register online at: <http://research.chicagobooth.edu/kilts/events>



*Patrick Doyle
President and CEO
Domino's Pizza*

The **Kilts Center for Marketing** supports the marketing community at Chicago Booth. For current students, we offer scholarships, programming, alumni connections, and resources that complement the curriculum in ways that facilitate career success.

Learn more online:
www.ChicagoBooth.edu/kilts

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Check out the **Kilts Center Blog** featuring Professor Pradeep Chintagunta:
www.kiltscenter.tubmlr.com