THE KILTS CENTER FOR MARKETING

NIELSEN DATA SEMINAR
AN INTRODUCTION TO SCANNER DATA

NOVEMBER 5, 2012
KILTS DATA CENTER

• **What is the Data Center?** In partnership with the Nielsen company, the Kilts Center provides select marketing data to approved academic researchers.

• **Why is this important?** The Nielsen data available at Chicago Booth are unique, compared to other types of data widely available to academics, in their breadth (e.g. # of years, # product categories, etc.). For academic researchers, these data provide new opportunities for cutting edge research in marketing, economics, public policy, and other areas.

• **What do faculty do with the data?** Academic questions being explored with these data:
  – What are the trends of consumers use of probiotics that are present in many consumer products & goods?
  – How do consumers buying habits differ between types of retailers?
  – How are consumers’ WOP (willingness to pay) changed over time when markets are volatile.

• **Who can have access to the data?** Raw data are available to U.S.-based tenured and tenured-track faculty and PhD students who are pursuing academic research. This is stipulated by our licensing agreement with Nielsen. The Kilts Center is working on providing Booth MBA students non-research based opportunities to work with and learn from these data in ways that contribute to their career success.
3 NIELSEN DATA SETS AT THE KILTS CENTER

• **Consumer Panel Data**: data starting in 2004 include a demographically balanced, longitudinal panel of ~40,000-60,000 U.S. households who continually provide information about their households, products bought, and when and where they make purchases from any retail outlet.

• **Retail Scanner Data (i.e. POS)**: 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), starting in 2006.

• **TV Advertising Data**: advertising occurrences, expenditures and impressions across a range of TV media in all U.S. markets, beginning in 2004.
HOW STUDENTS CAN BENEFIT FROM NIELSEN DATA

Courses:

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

Nielsen Data Student Seminar:
The annual Kilts Center offers students an opportunity to learn more about the Nielsen data - what it is and how to use it. Students hear a panel of second-year students share their experiences with Nielsen data during their Marketing internships and receive a glossary of terms.

Watch the event recording >
http://media.chicagobooth.edu/mediasite/Viewer/?peid=2b1b2555024b4408be65bec0e93964a11d
Nielsen Academics is an online learning portal focused exclusively on the needs of students and faculty.

Suggested modules and resources for Booth MBA students:

- **Nielsen Company Information** outlines the ways that brand managers might utilize Nielsen throughout the course of their work.
- Resources about **consumer and retail measurement**, which is helpful for describing types of data available and how they were collected. This includes detail on available dimensions and metrics plus their definitions.
- **Quick reference guides** to datasets (e.g. Homescan, Retail Scanner, and Spectra) that introduce the data and list terms and facts.

Site registration required. Email kbell0@ChicagoBooth.edu for details.
CONSUMER PANEL DATA

**Purchases**
- Collected via scanner after each shopping trip
  - UPC Code & Description
  - Product Characteristics (e.g. brand, size, flavor)
  - 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

- Week Ending Date
- UPC Code and Description
- Product Characteristics (e.g. brand, size, flavor)
- 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

- **10 Departments**
  - **Dry Grocery**
  - **Gum**
  - **Sugar-free Chewing Gum**
    - **Example**
      - **Wrigley’s Extra**
      - **Size, Flavor, Form, etc.**

- **~125 Product Groups**
- **~1,100 Product Modules**
- **~175,000 Brands**
- **~3.6 million UPC Codes**

**Nielsen Defined**

**Manufacturer Defined**
EXAMPLES OF FACULTY RESEARCH USING NIELSEN DATA


WAYS TO LOOK AT DATA

POPULAR EXAMPLES OF HOW DATA CAN BE “CUT”

1. MARKETS
   - REGIONS (SOUTHWEST VS. NORTHEAST)
   - CITIES (TOM’S OF MAINE SELLS BETTER IN PORTLAND THAN IN BILOXI, MI)
   - CUSTOMERS (WAL-MART, HARRIS-TEETER, KROGER, ETC.)

2. PRODUCT “HIERARCHIES”
   - CATEGORY (E.G., EVERY LAUNDRY DETERGENT SOLD IN THE U.S.)
   - MANUFACTURER (E.G., ALL LAUNDRY DETERGENTS SOLD BY P&G)
   - BRAND (E.G., ALL TIDE-BRANDED LAUNDRY DETERGENTS)
   - CHARACTERISTICS (E.G., ALL MOUNTAIN FRESH SCENTED TIDE LAUNDRY DETERGENTS)
   - SKU (E.G., ONE SPECIFIC PRODUCT – SIZE, SCENT)

1. TIMEFRAME
WHAT INFORMATION DOES NIELSEN CAPTURE?

THERE ARE FOUR VARIABLE “FAMILIES” THAT MATTER MOST

1. VOLUME
2. PRICES
3. MERCHANDISING/PROMOTION
4. DISTRIBUTION
VOLUME METRICS

TOTAL VS. PROMOTED VS. BASELINE VOLUME

• TOTAL VOLUME SOLD
  • CAPTURES EVERYTHING THAT WAS SOLD

• VOLUME SOLD ON PROMO
  • CAPTURES VOLUME SOLD WITH ANY ASSOCIATION WITH A PROMOTION (FEATURE, DISPLAY, OR BOTH)
  • OFTEN, BUT NOT NECESSARILY, IMPLIES A LIST PRICE REDUCTION

• BASE VOLUME
  • A CALCULATION OF VOLUME THAT WOULD HAVE BEEN SOLD WITHOUT A PROMOTION
  • BASELINE IS NOT [(TOTAL UNITS) – (UNITS SOLD ON PROMO)]
    • GOAL IS TO CAPTURE WHAT WOULD HAVE BEEN SOLD WITHOUT THE PROMOTION (E.G., I WILL BUY OLD SPICE WHEN I NEED IT, ON SALE OR NOT)
    • INCLUDES SOME UNITS SOLD ON PROMO
HOW NIELSEN STANDARDIZES VOLUME MEASUREMENT

1. **UNITS GENERALLY ARE NOT WHAT YOU “PICK UP” IN STORES**
   - NOT SIMPLY A TUBE OF TOOTHPASTE OR BOX OF CEREAL

2. **TO CORRECT FOR VARIATION, UNITS ARE “EQUIVALIZED”**
   - NIELSEN MUST MAKE “ADJUSTMENTS”
     - PRODUCTS COME IN DIFFERENT SIZES
     - CONSUMERS DO NOT ALWAYS PURCHASE SAME SIZES (E.G., TRAVEL VS. HOME)
     - EACH CATEGORY HAS A SPECIFIED CONVERSION
       - EXAMPLE: OUNCES OF CEREAL, POUNDS OF CREAM CHEESE, ROLL OF TOILET TISSUE, ONE DISPOSABLE DIAPER

3. **NON-SKU RAW DATA WILL BE UNHELPFUL**
   - DO YOU CARE THAT 30 BILLION OUNCES OF TOOTHPASTE WERE SOLD LAST YEAR?
   - AT AGGREGATE LEVEL, LOOK MOSTLY AT “TRANSFORMATIONS”
     - EXAMPLE: ABSOLUTE/RELATIVE RATE OF GROWTH, MARKET SHARES
VOLUME METRICS

VOLUME REPRESENTS SELL-THROUGH, **NOT** SELL-IN

**WHAT IS THE DIFFERENCE?**
- **SELL-IN**: MANUFACTURER $\rightarrow$ STORE (FROM WAREHOUSE)
- **SELL-THROUGH**: STORE $\rightarrow$ CONSUMER (FROM SHELF)

**WHY DOES IT MATTER?**
- NIELSEN MEASURES RETAILER SALES, **NOT** MANUFACTURER SALES; MOST COMPANIES TRACK MANUFACTURER SALES THROUGH OTHER MEANS
- PACE OF SELL-THROUGH MAY NOT REFLECT SELL-IN
  - EXAMPLE: INVENTORY BUILD = RATE OF SELL-THROUGH < RATE OF SELL-IN
PRICE METRICS

AVERAGE VS. PROMOTED VS. BASELINE PRICES

• **AVERAGE EQUIVALIZED PRICES**
  • The weighted average of all retail prices
  • Includes both sale and non-sale prices
  • No adjustments for variation in pricing (geographic, channel)

• **PROMO PRICES**
  • The weighted average of all retail prices for units sold on promo

• **BASELINE PRICES**
  • A calculation of the average retail price for non-promoted units
  • Best analog for “list price” (what wholesalers request retailers to charge)
PRICE METRICS

CRITICAL: PRICES INCLUDE A RETAIL MARKUP/MARGIN

• WHAT IS A RETAIL MARKUP?
  • WHOLESALE PRICE: WHAT A MANUFACTURER CHARGES A RETAILER
  • RETAIL PRICE: WHAT A RETAILER CHARGES A CONSUMER
  • MARKUP: THE PROFIT A RETAILER EARNs ON A SKU
    • EXAMPLE: $1.00 WHOLESALE PRICE WITH 25% MARKUP = $1.25 RETAIL PRICE

• WHY DOES THIS MATTER?
  • MANUFACTURERS DO NOT SELL AT PRICES SEEN IN NIELSEN DATA
  • MUST DISCOUNT NIELSEN PRICES BY RETAILER MARKUP
    • CAN RANGE FROM 10-50%
    • GOOD RULE OF THUMB = 30%
THREE TYPES OF PROMOS

• FEATURE
  • AN ADVERTISEMENT SPONSORED BY A RETAILER IN A WEEKLY NEWSPAPER, A SUNDAY PAPER, AN IN-STORE SUPPLEMENT, OR A DIRECT MAIL CAMPAIGN FROM THE RETAILER

• DISPLAY
  • AN EXHIBIT OF GOODS, SOMETIMES WITH DECORATIVE MATERIAL AND ADVERTISING.
  • CALLS ATTENTION TO MERCHANDISE TO INDUCE PURCHASE
    • EXAMPLES: END-OF-AISLE DISPLAY, SHELF “TALKERS”

• TEMPORARY PRICE REDUCTION (TPR)
  • TEMPORARY (7 WEEKS OR LESS) DECREASE OF 5% OR GREATER FROM THE NORMAL SELLING OF A PRODUCT
PROMOTION METRICS

PROMOTIONS ARE TACTICAL, NOT ALWAYS VALUE-DESTROYING

• LOTS OF GOOD REASONS TO RUN A PROMOTION
  • OPPORTUNITY TO PRICE DISCRIMINATE BETWEEN CONSUMERS
  • SPOTLIGHT NEW PRODUCT INTRODUCTION
  • “PANTRY STUFF” AHEAD OF COMPETITOR LAUNCH

• NOT ALL PROMOTIONS ARE FUNDED BY MANUFACTURERS
  • RETAILERS USE PROMOS ON “DESTINATION” CATEGORIES TO DRIVE TRAFFIC
    • DIAPERS, MILK, CEREAL ARE POPULAR EXAMPLES
  • DATA DOES NOT DISCRIMINATE – A PROMO IS A PROMO
ALL COMMODITY VOLUME (% ACV) IS A DISTRIBUTION VARIABLE

• WHAT IS % ACV?
  • % ACV FOR A BRAND IS ITS DISTRIBUTION, WEIGHTED BY THE SIZE OF THE STORE
  • ADJUSTS FOR FACT THAT NOT ALL STORES SEE SAME CONSUMER TRAFFIC

• EXAMPLES OF HOW DO WE USE DISTRIBUTION IN ANALYSIS?
  • NEW PRODUCT INTRODUCTION
    • PACE OF ROLLOUT TO STORES → HOW QUICKLY IS IT AVAILABLE FOR PURCHASE?
  • ONGOING BUSINESS REVIEW
    • UNDERPERFORMING BRANDS GET PULLED OFF SHELVES (% ACV DECREASES)
  • NORMALIZING WHEN EVALUATING COMPETITION OR PORTFOLIOS OF SKUS
    • HOW WELL DO GLAD TRASH BAGS SELL AT STORES THAT ALSO SELL HEFTY TRASH BAGS?
    • DOES OLD SPICE DEODORANT SELL BETTER AT STORES THAT ALSO SELL OLD SPICE BODY WASH?
% ACV METRICS

EXAMPLE OF HOW % ACV WORKS

• WORLD HAS TWO STORES
  • STORE A = $400 in TOTAL SALES (ALL PRODUCTS)
  • STORE B = $100 in TOTAL SALES (ALL PRODUCTS)
  • TOTAL UNIVERSE = $400 + $100 = $500

• WHAT HAPPENS IF SARA LEE MEAT IS SOLD ONLY IN STORE A?
  • IF SOLD IN 1 OF 2 STORES, DOES THAT MEAN SARA LEE’S DISTRIBUTION IS 50%?
    • NO! THIS MAKES LITTLE SENSE AS STORE A IS MORE ATTRACTIVE B/C MORE PEOPLE SHOP THERE (AS DETERMINED BY QUANTITY OF MONEY SPENT IN THE STORE)

• WHAT IS THE % ACV?
  • SARA LEE HAS AN ACV OF 80%
    • STORE A % ACV = ($400 STORE A SALES)/($500 TOTAL UNIVERSE SALES) = 80%
    • STORE B % ACV = ($100 STORE A SALES)/($500 TOTAL UNIVERSE SALES) = 20%
ADDITIONAL WORDS OF WARNING

MITIGATING VOLATILITY DUE TO PROMOTIONS

• DATA IS EXTREMELY MESSY WEEK-TO-WEEK
  • PROMOTIONS DRAMATICALLY SKEW BRAND PERFORMANCE
    • EXAMPLE: VOLUME CAN INCREASE OR DECREASE BY +50%

• SOME WAYS TO SMOOTH DATA (GOOD → BETTER → BEST)
  1. DROP DATA POINTS (STORES) WHERE THERE WAS A PROMO
  2. LOOK ONLY AT 4+ WEEK PERIODS
  3. CONSTRUCT ROLLING 12 WEEK PERIODS
  4. COMPARE THIS WEEK TO THE SAME WEEK A YEAR AGO
REAL-WORLD APPLICATION

FIVE TYPES OF PROJECTS WHERE NIELSEN CAN HELP

1. ANALYZING CATEGORY DYNAMICS
2. BUSINESS REVIEW
3. COMPETITIVE ANALYSIS
4. NEW PRODUCT INTRODUCTIONS
5. EVALUATING LIFT/ROI FROM PROMOTIONS