Values of Scan Research

by

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Introduction

- Relatively few resources devoted to generating and/or organizing scanner data to be used as tools for major managerial decision making

- Little thought given to data collection and presentation in terms of which managerial staff members need the information, what needs the various staff members have, and in what form the staff members require the information

- Different levels of management likely to have different needs for information relative to type, complexity and time span

- Value of scan research #1 - development of firm-wide information management system

- Only since last few years through refinements by manufacturers of scanning checkout systems, combined with improved understanding of these systems by retail users have scanner data been generated with enough reliability and consistency for application in economic research

- Only limited use of scanner data as a basis for demand analysis

- Value of scan rsearch #2 - development of nontraditional data source to product economic analyses in general and demand analyses in particular

Use in Managerial Decision Making: Development of Firm-Wide Information Management System

- Work by Capps, Long, and Thomas

- Develop matrix of responsibilities by managerial level
  Chief Executive Officer (CEO)
  Merchandiser (MER)
  Store Manager (STM)
  Department Manager (DPM)
  EMID
  Scanning Coordinator (SCC)

- Match potential usefulness of scanner data to managerial level by responsibilty

- Table 1

The Information Management System

Example: CEO

- Reports on a monthly basis

- General summary of firm operations

- Personnel evaluation:

  Scanning Report: Feel for the discipline within the firm, zone or store; comparisons from store to store and zone to zone

Sales/Profitability Report: Evaluation of firm progress toward goals and strategies

- Table 2

  Capital Management/Profitability Report: Development of operating budgets and evaluation of product mix; design - to give CEO general indication of performance and profitability by store, zone, or for the entire firm

- Table 3

  Advertising Report: Overview of advertisements; monitor effectiveness of advertising

- Table 4

Time frame, type, and format of reports differ by managerial level

Benefit/Cost analysis to determine worthiness of this system

Use of Scanner Data in Economic Research

- Establishment of nontraditional database
- Advantages over aggregate annual, quarterly, or monthly time-series data--such data do not always represent current market conditions and typically too general for individual products
- Advantages over consumer panels and surveys--timeliness and relatively inexpensive method of data collection
- Scanner data both detailed and definitive source of data available to researchers
- Estimation of sensitivity to price changes (own-price, cross-price elasticities)
- Evaluation of new product performance (lean beef for example)
- Effects of promotional programs, especially advertising, on individual items
- Evaluation of space allocation and display
- Comparison with previous studies
  Key Question: Do analyses of scanner data agree with basic economic theory and current knowledge of demand elasticities from previous studies?
- Incorporation of socio-demographic factors
- Optimality of shelf space allocation, product mix, advertising, and pricing schemes

Table 1

Matrix of Potential Scanner Data Contribution
To Managerial Decision-Making

CEO = chief executive officer
STM = store manager
EMD = EMID
Mer = merchandiser
DPM = department manager
SCC = scanning coordinator

Level of potential scanner data contribution to managerial decision-making:
High (H), Medium (M), Low (L), and Not Applicable (*)

	Management Level					
	CEO	MER	STM	DPM	EMD	SCC
Facilities						
Real Estate	L	*	*	*	*	*
Buildings						
(1) merger	L	L	*	*	*	*
(2) new construction	L	L	*	*	*	*
(a) size	M	M	*	*	*	*
(b) design	L	M	*	*	*	*
(3) sale of existing sites	L	*	*	*	*	*
Equipment						
(1) purchase decision	L	M	*	*	*	*
(2) merchandising decision	M	M	*	*	*	*
Personnel						
Hiring decisions	L	L	*	*	*	*
Wage/Salary	L	*	L	*	*	*
Incentives/Bonuses	M	*	M	*	*	*
Insurance & Retirement	L	*	*	*	*	*
Job Descriptions	L	L	L	L	*	*
Supervision of Subordinates	M	M	H	M	H	*
Labor Scheduling	L	*	H	H	*	*
Training	L	M	M	M	M	M
Employee Evaluation	M	M	M	L	L	*
Capital						
Allocation						
(1) real estate	L	*	*	*	*	*
(2) buildings	L	*	*	*	*	*
(3) operating budgets	M	*	M	*	*	*
(4) equipment	L	L	L	L	L	*
(5) personnel	L	*	M	*	*	*

Table 1 (continued)

	Management Level					
	CEO	MER	STM	DPM	EMD	SCC
Inventory						
(1) product mix	M	H	L	L	*	*
(2) display	M	H	M	M	*	*
(3) processing & packaging	*	H	L	M	*	*
(4) ordering	*	H	H	H	*	*
(5) shrink	*	H	H	H	*	*
(6) price integrity	M	M	M	M	M	M
Goals & Strategies						
Merchandising						
(1) pricing	H	H	L	*	*	*
(2) advertising	H	H	*	*	*	*
Develop Image	L	L	L	L	*	*
Customer Service	L	L	L	L	*	*
Sales Objectives	H	H	H	H	*	*
Profitability						
(1) margins	H	H	H	H	*	*
(2) costs	M	M	M	M	L	*
(3) net profits	H	H	H	M	L	L
Support to other managers	L	L	L	L	H	H

Table 2

Personnel Evaluation Reports for the CEO

Scanning Report (Monthly)

	Total		Grocery		Produce		Meat		Deli	
	% Scan Pc-Pp	% Acc. Pc-Pp	% Scan Pc-Pp	% Acc. Pc-Pp	% Scan Pc-Pp	% Acc. Pc-Pp	% Scan Pc-Pp	% Acc. Pc-Pp	% Scan Pc-Pp	% Acc. Pc-Pp
Firm										
Zone 1										
Store 1										
Store 2										
Zone 2										
Store 1										
Store 2										

Sales/Profitability Trend Report (Monthly)

	Total		Grocery		Produce		Meat	
	Sales Pc-Pp-Py	GP Pc-Pp-Py	Sales Pc-Pp-Py	GP Pc-Pp-Py	Sales Pc-Pp-Py	GP Pc-Pp-Py	Sales Pc-Pp-Py	GP Pc-Pp-Py
Firm								
Zone 1								
Store 1								
Store 2								
Zone 2								
Store 1								
Store 2								

* Pc = period just completed
Pp = previous period
Py = same period the previous year

** This format should include other areas of interest such as frozen foods, the bakery or the deli.

Table 3

Capital Management/Profitability Report for the CEO

Capital Management/Profitability Report (Monthly)

	Sales				Gross Margin (%)				Gross Profit $			
	Total	Meat	Prod	Groc	Total	Meat	Prod	Groc	Total	Meat	Prod	Groc
Firm												
Zone 1												
Store 1												
Store 2												
Zone 2												
Store 1												
Store 2												

	Est. Inventory Turns				Weekly Avg.	Avg. $ Sales
	Total	Meat	Prod	Groc	Customer Count	Per Customer
Firm						
Zone 1						
Store 1						
Store 2						
Zone 2						
Store 1						
Store 2						

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* This format should include other areas of interest such as frozen foods, the bakery, or the deli.

Table 4

CEO Report for Evaluation of Advertising

Advertising Report (Monthly)

	# Specials				$ Sales Specials				% Sales to Total		
	Total	Groc	Meat	Prod	Total	Groc	Meat	Prod	Groc	Meat	Prod
Firm											
Zone 1											
Store 1											
Store 2											
Zone 2											
Store 1											
Store 2											

	Total GM				GM on Specials				# Coupons Redeemed			
	Total	Groc	Meat	Prod	Total	Groc	Meat	Prod	Total	Groc	Meat	Prod
Firm												
Zone 1												
Store 1												
Store 2												
Zone 2												
Store 1												
Store 2												

	Customer	Avg. $ Sales Per Customer				% Customers Purchasing Specials				% Customers Purchasing Only Specials			
	Count	Total	Groc	Meat	Prod	Total	Groc	Meat	Prod	Total	Groc	Meat	Prod
Firm													
Zone 1													
Store 1													
Store 2													
Zone 2													
Store 1													
Store 2													

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Table 5

Use of Scanner Data in Economic Research

Example: Construction of Demand Model

$EXP_{ijt} = f(P_{ijt}, P_{cjt}, P_{sjt}, N_{jt}, ADV_{ijt}, PAY, TS_{jt}, HOL_t, MONTH, EXP_{ijt-1}, SHSP_{ijt})$

where

EXP_{ijt} = Dollar sales on item i in store j in week t,

P_{ijt} = Price per unit on item i in store j in week t,

P_{cjt} = Prices per unit of complementary items in store j in week t,

P_{sjt} = Prices per unit of substitutable items in store j in week t,

N_{jt} = Number of customers in store j in week t,

ADV_{ijt} = 1 if advertising or promotional activity for item i in store j in week t, 0 otherwise

PAY = Set of binary variables to measure nearness to payday,

TS_{jt} = Total sales in store j in week t,

HOL_t = 1 if holiday occurs in week t, 0 otherwise

MONTH = Set of binary variables to measure seasonality of sales, M(k) = 1 if month k, 0 otherwise

$SHSP_{ijt}$ = Shelf space for item i in store j for week t.