The 2003 Supermarket Panel
Annual Report

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Acknowledgments

The Supermarket Panel is an activity of The Food Industry Center. Members of the research team for the 2003 Panel were:

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Finally, we thank the individual owners, store managers/directors and others who participated in the 2003 Panel. By sharing their time and knowledge, they have made this unique, in-depth view of the supermarket industry at the store level possible.

The 2003 Supermarket Panel
Executive Summary

The Food Industry Center established the Supermarket Panel in 1998 as the basis for an ongoing study of the supermarket industry. Since 2000 the core of the Panel has been a random sample of stores drawn from the approximately 32,000 supermarkets in the U.S. that accept food stamps.

The purpose of collecting data on supermarket operations and performance is to:

- Provide timely, useful information for the industry through benchmark reports and annual summaries, trends on key indices of technology adoption, competitive positions and performance.
- Be a ready source of data for research on current and emerging issues – to be able to track the changes in operation and its impacts on performance over time.

This report presents findings from the 2003 Supermarket Panel, and provides an overview of findings from the past four years. The 2003 Panel includes 391 stores that are a representative cross-section of the supermarket industry. The Panel tries to follow the same stores over time. Of the 391 stores, 268 were in the Panel in 2002. Nine percent of the stores have been in the Panel all four years. At least one store from every state is in the Panel.

New in 2003

- The Panel was offered over the Internet. Forty-seven percent responded on-line.
- An index on variety offering was created.
- Questions about offering irradiated fresh ground beef are included (with a follow up study).

Supply Chain Technology Practices

- The Supply Chain Score measures the extent to which stores have adopted computerized methods of communicating with suppliers, handling inventory management, ordering, invoicing, and analyzing consumer purchases. The average score has almost doubled in four years.
- Stores in groups (chains) with more than 750 stores and/or supercenter formats have adopted supply chain practices most intensively.
- Internet/Intranet is used by at least two-thirds of all stores; over ninety percent of stores in groups with more than 50 stores use this technology.
- Vendor managed inventory has been adopted by only 42 percent of stores in the biggest store groups with much lower rates of adoption in smaller store groups.
- A higher Supply Chain Score benefited significantly higher sales per labor hour.

Service and Variety Scores

- About eighty percent of stores in all size groups offer bagging and custom meat cutting.
- Variety pays off in better performance for five out of eight measures. Variety helps to grow annual percentage sales.

Supercenters/Top Stores/Unions

- Supercenters have significantly higher sales per labor hour and per transaction. They have lower sales growth.

- Fifty-three percent of supermarkets face supercenter competition. They have somewhat higher sales per square foot of selling area and higher annual sales growth than stores that do not face supercenter competition.
- Eleven percent of stores in the 2003 Panel qualified as "top stores." They had above the median levels for each of three performance measures: weekly sales per square foot, sales per labor hour, and annual percentage sales growth.
- Top stores are more likely to have a unionized labor force, be a price and variety leader, and be wholesaler supplied.
- One-third of 2003 Panel stores have unionized labor. These stores have more productive labor with significantly higher sales per labor hour.

Statistically Significant Drivers of Performance Over Time

The descriptive profile and analysis of the Panel provide useful insights on the structure of the supermarket industry and factors associated with strong performance. However, statistical regression analysis identifies whether a variable is significantly correlated with a performance measure *holding all else constant*. This section presents findings from a multivariate regression analysis of five key performance measures.

These regression analyses are summarized on the table below. If a characteristic is listed on the table it was a significant correlate in at least three out of the past four years. For example, in the last row, the only variable that was consistently significant for increasing *annual percentage sales growth* is being in an area with higher household incomes. Having a warehouse format decreased sales growth and three other factors were significant in at least three years but alternated with positive and negative effects.

Significant Explanatory Factors for Store Performance, 2000 - 2003

Performance Measure	3 years of positive influence	3 years of negative influence	Mixed influence
Weekly Sales	More population density Warehouse format Food and Drug format Price Leader	Larger selling size	
Sales per labor hour per square foot	More population density Warehouse format Unionized Labor		
Payroll as a percent of sales	Unionized Labor		
Gross profit			Larger selling size Variety leader
Annual percentage sales growth	High household income	Warehouse format	More population density Quality leader Service leader

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1. Introduction

The Food Industry Center established the Supermarket Panel in 1998 as the basis for an ongoing study of the supermarket industry. Since 2000, the core of the Panel has been a random sample of stores drawn from the approximately 32,000 supermarkets in the U.S. that accept food stamps.

This report summarizes findings from the 2003 Supermarket Panel. It includes 391 stores that represent a cross-section of the U.S. supermarket industry. The Panel tries to follow the same stores over time and of the 391 stores 268 were in the Panel in 2002. Nine percent of the stores have been in the Panel all four years.

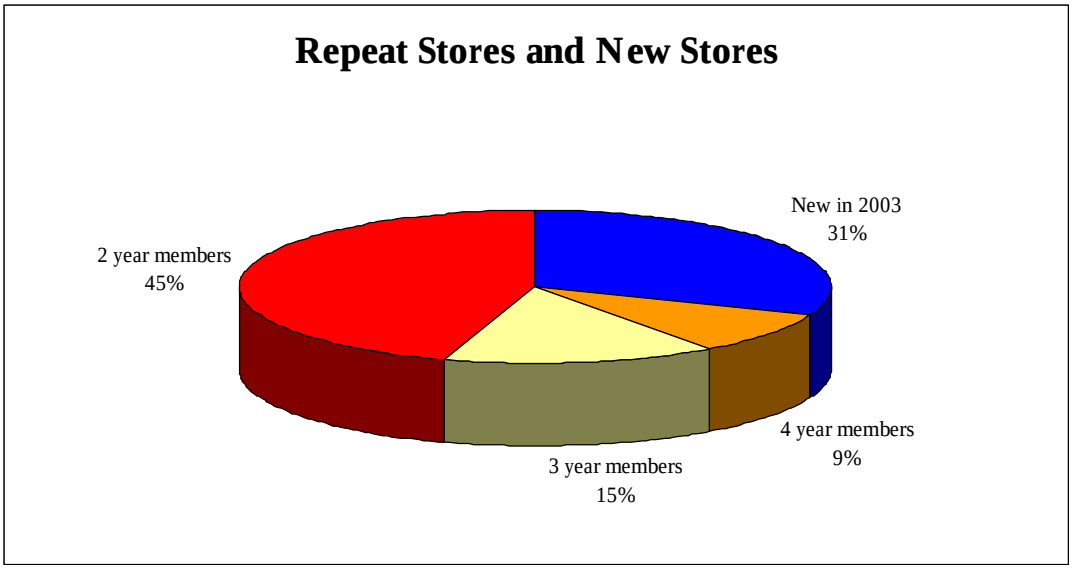

Figure 1.1 Percent of Stores Who are New and Continuing in the Panel

For the first time we offered the Panel survey over the Internet. Almost half of the respondents in 2003 filled out the survey on-line. Stores new to the panel were about 20 percent more likely to use the on-line method than repeat stores.

- ***The Panel was offered on-line for the first time in 2003. Forty-seven percent of respondents filled it on-line.***

The Panel is comprised of individual stores that provide information annually on store characteristics, operations, and performance. The Panel has two overall objectives:

1. Provide timely, useful information for the industry through benchmark reports and annual summaries, and trends on key

indices of technology adoption, competitive positions and performance.

2. Be a ready source of longitudinal, cross-section data for research on current and emerging issues.

- ***The Panel is unique in tracking stores over time.***

The Panel is unique because the unit of analysis is the individual store and the same stores are tracked over time. This makes it possible to trace the impacts of new technologies and business practices as they are adopted.

Information provided by the 391 Panel stores is the basis for the in depth view of the industry presented here. In general, these findings highlight significant relationships among store characteristics, business practices, and performance. These relationships should not be interpreted as cause and effect.

- ***391 stores participated in the 2003 Supermarket Panel. 268 of these stores are repeat participants.***

The remainder of this report begins with a brief description of the data collection procedures for the 2003 Supermarket Panel and a descriptive profile of the participating stores. The descriptive profile includes breakdowns by the size of the group (chain) to which the store belongs and format.

Each participating store in the 2003 Panel received a confidential benchmark report comparing it to peer stores similar in format and selling area. Index scores for three key management practices – supply chain management, variety offerings and service offerings – were important features of the benchmark report. Sections 3 through 5 present detailed findings on store practices and performance. Trends in store behavior and performance are identified and graphed where appropriate.

- ***10.7 percent of stores met all three criteria to qualify as Top Stores in 2003.***

In Section 6 we examine how supercenter/hypermarket stores differ from other supermarkets, and we present an updated analysis of the impacts of competition from supercenters. In Section 7 we explore the characteristics of top performing stores, updating an analysis first presented in the *Annual Report* for the 2001 Panel. In section 8 we present new information about the effect of unionized labor and in Section 9 we present a more comprehensive analysis of drivers for key measures of store performance, using regression analysis to measure relationships between performance and individual store characteristics while controlling for other factors.

2. Profile of the 2003 Supermarket Panel

The Sample

- ◊ The population for the Panel was defined by the 32,695 establishments classified as supermarkets in a United States Department of Agriculture's list of the 146,625 establishments in the United States that accept food stamps.
- ◊ 2000 stores were invited to participate in the 2003 Panel; 599 participated in the 2002 Panel; 1401 were drawn at random from the universe of supermarkets.
- ◊ Data collection procedures for the 2003 Panel are detailed in Appendix A.

- ***2000 Panel participants were drawn from the 32,695 supermarkets in the U.S.; 47% participated via the Internet; Overall response rate was 19.6%***

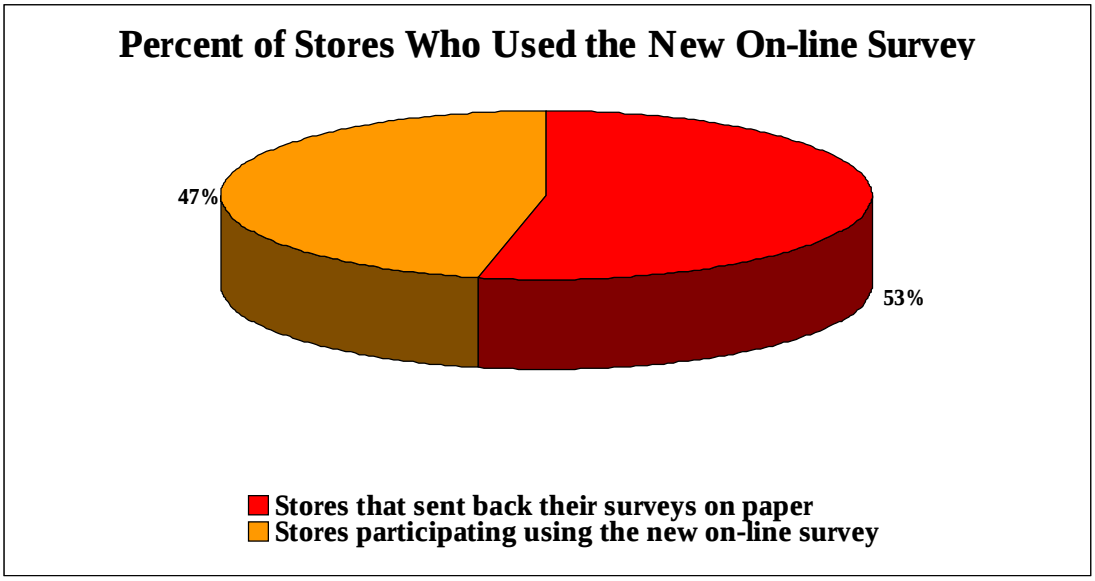

Figure 2.1 Percent of Stores Using New On-line Survey

In an effort to decrease data entry errors and reduce the cost of conducting the Panel survey, an ***on-line version of the Panel survey was introduced this year***.

- ◊ 391 Supermarkets completed the 2003 Panel; 182 completed the Panel on-line.
- ◊ 268 of the 2003 supermarkets were repeat Panel members from 2002.
- ◊ 37 stores have been in the panel since the year 2000; another 57 have participated since 2001.

- ***Sixty-nine percent of the 2003 panel members were in the Panel in 2002, demonstrating a value to repeat participants.***

The overall response rate was 19.6% in 2003. This compares to response rates of 22.2% in 2002 , 15.6% in 2001 and 17.2% in 2000.[1]

Comparison of Panel Store Characteristics to Findings from Other Studies

The Panel Represents Supermarkets in the U.S.

The Food Marketing Industry Speaks, published by the Food Marketing Institute and the *Annual Report of the Grocery Industry*, published by Progressive Grocer are widely read annual studies of the supermarket industry. Both provide comprehensive overviews of conditions, issues, and trends in the industry; neither collects detailed data at the

Table 2.1. Median Store Characteristics for U.S. Supermarkets

	Median Store Characteristics		
Characteristic	Supermarket Panel	*Speaks*[1]	*Progressive Grocer*[2]
Selling Area (square feet)	30,000	44,000	28,838
Annual Store Sales	$11,710,920	$18,801,328	$12,490,000
Weekly Store Sales	$225,210	$361,564	$240,000
Annual Sales Growth	0.6%	2.4%	--
Sales per Transaction	$22.12	$24.63	$27.61
Weekly Sales per Square Foot of Selling Area	$7.75	$11.13	$8.33
Sales per Labor Hour	$123.20	$137.68	--
Annual Inventory Turns	16	17	--
Gross Profit as a Percent of Sales	25.0%	28.4%	--
Payroll as a Percent of Sales	10.0%	9.4%	--

[1] Source: *The Food Marketing Industry Speaks, 2003*, Food Marketing Institute, 2003. (Data from 2002)

[2] Source: *70th Annual Report of the Grocery Industry*, a special supplement to *Progressive Grocer*, April 2003.

1 See Appendix A for details on response rates by ownership strata and region, a description of procedures for constructing frequency weights, and a table of the frequency weights. Response rates differed by ownership group size and by region. To correct for these response imbalances, the population, sample, and respondents were grouped into strata defined by ownership group size and region; frequency weights were constructed for use in the statistical analysis of the Panel data. Unless noted otherwise, all analyses in this report are based on weighted data.

individual store level. Stores in the Panel are quite similar to other industry-wide figures as reported in *Speaks*, and *Progressive Grocer* (Table 2.1). This indicates that the stores in the Supermarket Panel represent the universe of supermarkets in the United States rather well. Stores in the Panel have somewhat lower sales by every measure.

Store Format

Store format classifications were based on store characteristics rather than on respondents' selection from a list of possible formats. In the past there appeared to be some confusion about format definitions, and at times a significant number of respondents did not choose a format for their stores. In order to prepare benchmark reports for these stores, formats had to be assigned on the basis of store characteristics. Therefore, all store format classifications were based on store characteristics as defined for the six formats presented in Table 2.2. For example, a Superstore is one that has more than 40,000 square feet, bagging, and no pharmacy.

Table 2.2 Store Format Definitions

Format	Selling Area (square feet)	Bagging	Pharmacy	Percent of Sales from Grocery
Conventional	Up to 25,000	Yes or No	No	–
	or			
	25,001 to 40,000	Yes	No	–
Superstore	More than 40,000	Yes	No	–
Food/Drug Combination	20,000 to 75,000	Yes	Yes	–
	or			
	75,000 to 100,000	Yes	Yes	More than 30%
Warehouse	25,001 to 100,000	No	No	–
Super Warehouse	25,001 to 100,000	No	Yes	–
Supercenter/Hypermarket	75,000 to 100,000	Yes	Yes	Up to 30%
	or			
	More than 100,000	Yes or No	Yes	–

Store Profiles by Size of Ownership Group

Ownership group size is the number of stores owned by the same owner of the store responding.[2] Larger groups of stores can be the basis for greater efficiency in procurement, distribution, advertising, employee training, and implementation of new technologies. Table 2.3 shows median characteristics and performance measures for stores in five ownership group size categories that range from single store independents to groups with more than 750 stores. As noted above, ownership group size is based on common ownership; many large groups include stores with several different names.

- ***Stores in smaller ownership groups (chains) tend to be outside metropolitan areas and use third party wholesalers for their supplies.***

The number of stores represented in each category is determined by summing the frequency weights across stores. It estimates the total number of stores in the group size in the U.S. The smaller number in parentheses is the actual number of Panel stores in the group size category prior to weighting. For example, the 142 single store independents in the 2003 Panel represent an estimated 7,826 single store independents nation-wide.

Store characteristics

There are striking differences in stores across these group size categories. Often, however, there are no consistent trends across categories.

- ***Stores in large groups (chains) are in metropolitan areas and have their own distribution centers.***

  - ◊ Nearly all stores in groups of 50 or fewer stores are wholesaler supplied. As group size increases beyond 50 stores the parent company is increasingly likely to operate its own distribution system. These stores are also newer and larger.
  - ◊ Stores in ownership groups with fewer than 50 stores tend to be smaller and older.
  - ◊ Stores in ownership groups of ten or fewer (known as independents) are less likely to be in a metropolitan area.

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2 The ownership group size measure based on the responses given by the store's manager were checked against data from the population database and, in many cases, modified to reflect verifiable information on group size. Ownership group size is the number of stores owned by the same owner as the store responding. An ownership group may include stores with several distinct names and formats. For example, a single company could own eighty stores that operate under three different names. Manager responses to the question about group size often differ widely for stores known to be in the same ownership group, especially for ownership groups made up of formerly independent chains. Also, managers of independently owned stores that share a common name with other independent stores sometimes report the number of stores with a common name rather than the number of stores under common ownership. Ownership group sizes were adjusted to reflect externally available, verifiable information. This means that a store's ownership group size in this report may not be the same as that reported by the manager, but it reflects more accurately the true group or chain size. This adjustment is made before any researcher has access to the data. No researcher can match store names to store groups. Only the data manager has access to store names.

Table 2.3 Descriptive Profile of the Panel for Stores Grouped by Ownership Group Size

OWNERSHIP GROUP SIZE	Single Store	2-10 Stores	11-50 Stores	51-750 Stores	>750 Stores
NUMBER OF STORES REPRESENTED	7,826 (142)	4,169 (51)	2,688 (30)	9,777 (112)	8,245 (56)
STORE AND MARKET CHARACTERISTICS					
• Median Selling Area (sq. ft.)	13,000	19,000	28,000	40,000	43,000*
• Median Store Age (years)	33	23	32	15	14
• Mean Ownership Store Group Size (No. stores)	1	3	28	289	1537
• Percent Wholesaler Supplied	96	97	90	13	0
• Percent Located in an SMSA	48	58	80	91	76
MEDIAN PERFORMANCE MEASURES					
• Weekly Sales	$103,000	$115,000	$240,000	$351,000	$306,000
• Weekly Sales per Square Foot	$7.13	$7.14	$8.17	$9.01	$7.29
• Sales per Labor Hour	$100.00	$96.09	$121.15	$134.72	$153.57
• Sales per Transaction	$16.13	$15.12	$23.91	$25.00	$22.92
• Annual Inventory Turns	21.0	14.0	13.0	16.0	13.0
• Percent Employee Turnover	32.0	23.7	34.0	32.0	31.3
• Gross Profit as a Percent of Sales	25.0	24.9	26.5	25.5	25.4
• Payroll as a Percent of Sales	11.0	10.5	9.5	9.8	9.5
• Annual Percentage Sales Growth	1.9	0.0	-1.0	1.4	-0.9
NUMBER OF STORES BY FORMAT					
• Conventional	7,253 (129)	2,802 (36)	1,413 (14)	2,920 (29)	1,854 (11)
• Superstore	524 (12)	856 (11)	798 (10)	3,681 (36)	4,930 (35)
• Food/Drug Combo	49 (1)	147 (2)	166 (2)	988 (16)	234 (2)
• Warehouse	0	364 (2)	213 (2)	966 (8)	455 (3)
• Super Warehouse	0	0		264 (4)	723 (4)
• Supercenter/Hypermarket	0	0	98 (2)	958 (19)	49 (1)
NUMBER OF STORES BY REGION					
• Northeast	2,309 (26)	423 (6)	656 (4)	2,460 (15)	1,148 (7)
• South	1,216 (15)	2,016 (7)	460 (3)	2,467 (13)	4,199 (19)
• Midwest	2,939 (75)	868 (22)	682 (15)	3,680 (74)	441 (9)
• West	1,362 (26)	862 (16)	890 (8)	1,170 (10)	2,457 (21)

*** Red numbers highlight the largest or best response in each row.**

Store Performance

- ***Single stores maintain sales growth in 2003.***

- ***Stores in the West and South are more likely to belong to a group of more than 750 stores. Single stores are most common in the Northeast and Midwest.***

- ◊ Stores in large groups (over 50) have considerably larger sales per labor hour (Figure 2.2).
- ◊ Stores in mid-sized groups (11-50 and 51-750) have the largest weekly sales per square foot and the largest dollar sales per transaction.
- ◊ Inventory turns and annual percentage sales growth are highest in the single stores.
- ◊ Employee turnover is lowest in the 2-10 store groups.
- ◊ Payroll as a percent of sales is highest in single stores and lowest in mid-sized and very large groups.
- ◊ Median gross profit as a percent of sales is similar across all group sizes.

Relative to results for the 2002 Panel, weekly sales per square foot, sales per labor hour, and gross profit as a percent of sales are slightly higher for the 2003 Panel. On the other hand, annual inventory turns, the percentage of employee turnover, and the annual percentage sales growth are lower for the 2003 Panel. Sales growth for single stores was exactly the same in both years (1.9%) whereas sales growth in all other groups sizes fell. Median values for sales per transaction and payroll as a percent of sales varied across the years with some values increasing, some staying the same, and some decreasing across the year and within ownership size groups.

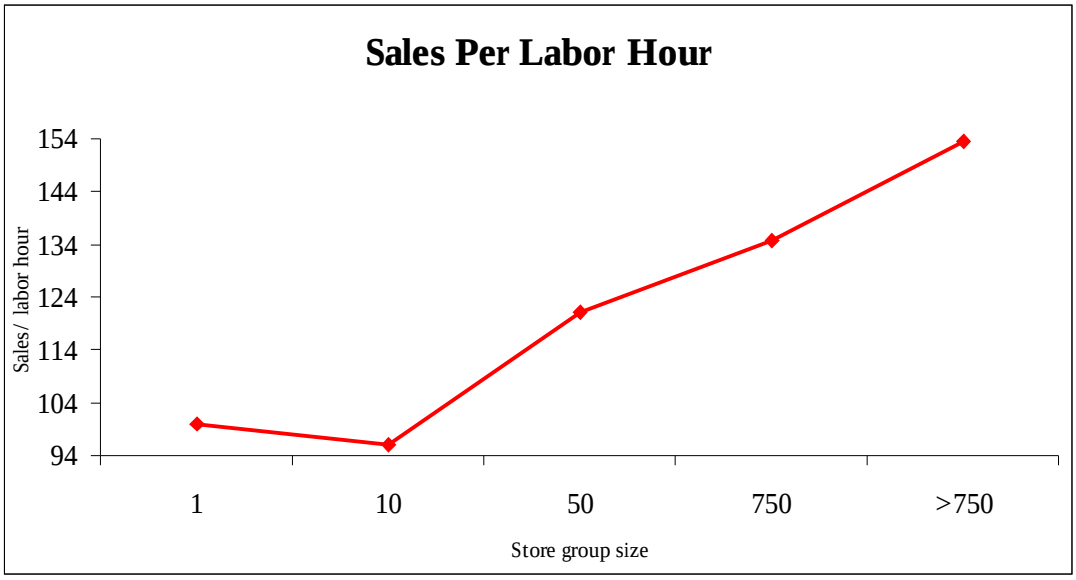

Figure 2.2 Sales Per Labor Hour by Group Size, 2003

Figures in the two lower sections of Table 2.3 indicate the distribution of stores by format and region within each group size category. These are estimates for the entire population. With regard to format, the number of superstores trends upward with ownership group size. Groups with 51-750 stores have the greatest number of conventional stores, food/drug combos, warehouses, and supercenters. Super warehouses tend to populate the largest group size. The vast majority of independent stores (group size less than 11) have a conventional format.

With respect to region, it is noteworthy that 41% of stores in the South are in groups with more than 750 stores. In the Midwest, 43% of stores are in groups of 51-750 stores and 34% are single stores. About one-third of the stores in the Northeast are in groups of 51-750 and one-third are single stores. In the West, 36% of the stores are in ownership groups with more than 750 stores.

- ***Smaller stores (and groups) have greatest sales growth.***

Store Profiles by Store Format

Supermarket formats are changing to better respond to customers' desire for cost savings, convenience, quality, variety, and service. Table 2.4 shows median stores characteristics and performance measures for stores grouped into the six format categories defined in Table 2.1: conventional, superstores, food/drug combination, warehouse, super warehouse, and supercenter/hypermarket. In the top row of Table 2.4, numbers of stores represented are estimates for the entire population, while numbers in parentheses are actual numbers of stores in the 2003 Panel.

Before looking more closely at Table 2.4, readers should note that there are only 8 stores in the supercenter/hypermarket format category in the 2003 Panel. This is a small number of stores, and it almost certainly under-represents the total number of stores in this format. Given the industry-wide interest in supercenters and their rapid growth in number, and the fact that the eight Panel stores in this format come from several companies, we decided to retain supercenter/hypermarket stores as a distinct format category for comparison purposes. Based on the frequency weights used in this analysis, these stores represent a total of 1,036 stores nation-wide.

- ***Supercenter participation is small but represents several companies.***

Market Profiles

◊ The supercenter/hypermarket (SC/HY) stores are much larger and newer than stores in all other formats. Supercenter/hypermarket stores differ considerably from stores in the other formats with respect to their larger mean (average) number of stores in the ownership group size.

Table 2.4 Descriptive Profile of the Panel for Stores Grouped by Format

	CON	SS	FD COMBO	WH	SWH	SC/HY
NUMBER OF STORES REPRESENTED	16,242 (219)	1,998 (15)	10,789 (104)	1,584 (23)	1,105 (22)	987 (8)
STORE AND MARKET CHARACTERISTICS						
• Median Selling Area (sq. ft.)	15,555	47,000	42,000	38,597	57,000	150,000*
• Median Store Age (years)	29	20	14	17	12	11
• Mean Ownership Store Group Size (No. stores)	220	406	788	552	406	1,405
• Percent Wholesaler Supplied	70	29	20	45	25	12
• Percent Located in an SMSA	60	88	81	97	96	72
MEDIAN PERFORMANCE MEASURES						
• Weekly Sales	$127,000	$319,000	$320,000	$368,000	$740,000	$950,000
• Weekly Sales per Square Foot	$7.67	$7.00	$7.41	$12.10	$16.44	$6.50
• Sales per Labor Hour	$103.72	$138.06	$125.00	$194.00	$176.68	__[1]
• Sales per Transaction	$17.83	$24.15	$22.86	$26.67	$31.86	$50.00
• Annual Inventory Turns	15.0	20.0	15.0	20.0	26.0	9.0
• Percent Employee Turnover	30.5	19.5	33.8	36.5	38.6	21.9
• Gross Profit as a Percent of Sales	25.0	28.0	26.0	23.5	22.0	22.0
• Payroll as a Percent of Sales	10.3	9.0	10.1	7.3	7.8	8.9
• Annual Percentage Sales Growth	1.2	0.0	1.1	-2.3	-1.94	0.0
NUMBER OF STORES BY STORE GROUP SIZE						
• Single Store	7,253 (129)	0	524 (12)	49 (1)	0	0
• 2-10 Stores	2,802 (36)	364 (2)	856 (11)	147 (2)	0	0
• 11-50 Stores	1,413 (14)	213 (2)	798 (10)	166 (2)	98 (2)	0
• 51-750 Stores	2,920 (29)	966 (8)	3681 (36)	988 (16)	958 (19)	264 (4)
• > 750 Stores	1,854 (11)	455(3)	4930 (35)	234 (2)	49 (1)	723 (4)
NUMBER OF STORES BY REGION						
• Northeast	3,456 (36)	492 (3)	2,884 (18)	0	0	164 (1)
• South	5,362 (35)	951 (4)	3,603 (16)	0	0	442 (2)
• Midwest	4,296 (104)	321 (6)	1930 (44)	811 (16)	1,105 (22)	147 (3)
• West	3,128 (44)	234 (2)	2,372 (26)	773 (7)	0	234 (2)

CON = Conventional
SS = Superstore
FD COMBO = Food/Drug Combination
WH = Warehouse
SWH = Super Warehouse
SC/HY = Supercenter/ Hypermarket

*** Red numbers highlight the largest or best response in each row.**

1. Due to the small number of stores and a vast variety in reported labor hours per week, the data for this cell are unreliable. In 2002, this number was $138.69. If sales per labor hour increased 16% since 2002, as it did in superstores, estimated sales per labor hour for supercenters/hypermarkets would be $160.88.

- ◊ Conventional (Con) stores are smaller, older, more likely to be wholesaler supplied, and less likely to be located in a metropolitan area.
- ◊ Superstore (SS), food/drug combination (FdCombo), and warehouse stores (WH) are fairly similar in size.
- ◊ Super warehouse (SWH) and warehouse (W) stores are much more likely, than any of the other formats, to be located in a metropolitan area.

Performance

- ◊ Conventional stores have the lowest sales per labor hour and sales per transaction as well as the highest percent of employee turnover and payroll as a percent of sales. These relatively small stores continue to outperform larger stores in sales growth.
- ◊ Median sales per square foot is surprisingly low for supercenter/hypermarket stores. They also do not perform particularly well on annual inventory turns or annual sales growth. Supercenter/hypermarket stores have a notably high median value for sales per transaction and a low percent of employee turnover.
- ◊ Warehouse and super warehouse stores are noteworthy for their high levels of labor productivity—high sales per labor hour and low payroll as a percent of sales. Super warehouse stores also have the highest median weekly sales per square foot. Both warehouse formats have declining annual sales growth.

- ***Every state in the Union has at least one store in the Panel.***

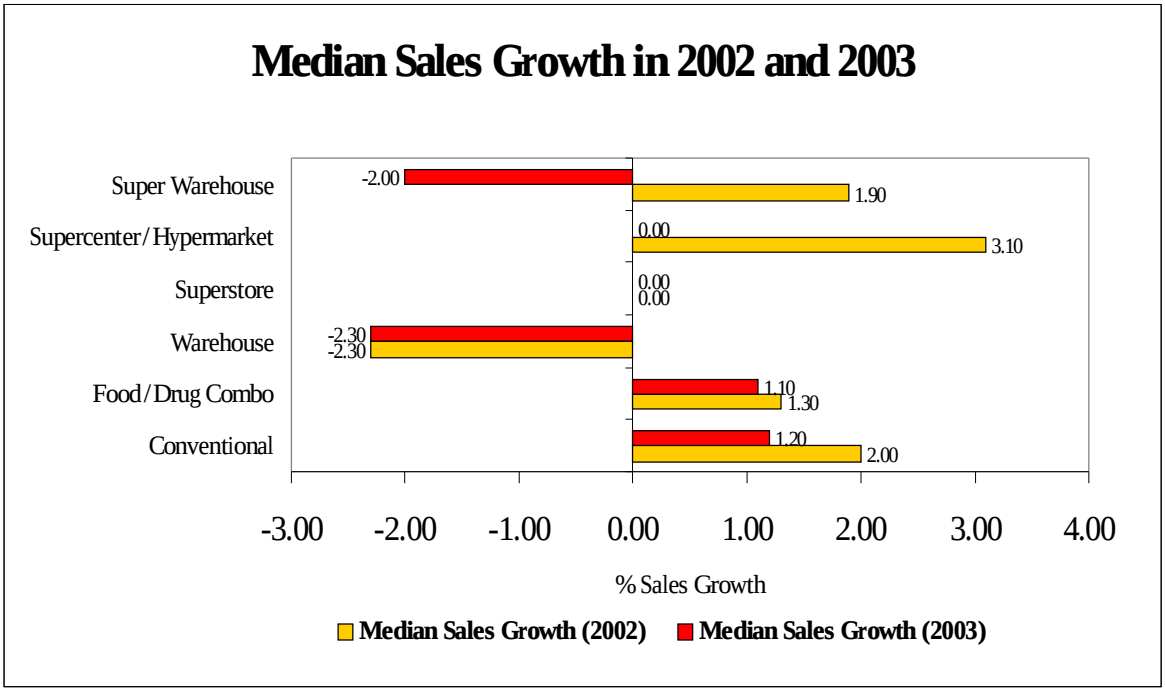

Figure 2.3 Median Sales Growth by Store Format

Group size and locations

The largest number of food/drug combo stores and supercenters are in group sizes of more that 750 stores. Warehouse and super warehouse stores tend to belong to group size 51-750 stores whereas conventional stores tend to be single stores. Conventional stores, superstores, food/drug combo stores, and supercenters are found with most frequency in the South while warehouse and super warehouse stores are concentrated in the Midwest.

Continuing and New Stores in the Supermarket Panel

- ***There are no striking or systematic differences between stores new to the panel and repeat participants.***

Of the 391 stores in the 2003 Panel, 123 participated in the Panel for the first time. Thirty-seven stores have been in the Panel for all four years, 57 have been in for three years, and 174 have been in the Panel for the last two years. Table 2.5 shows median store characteristics and performance measures for first time and continuing Panel stores.

◊ Overall, there are no striking, systematic differences between the continuing and the new stores.

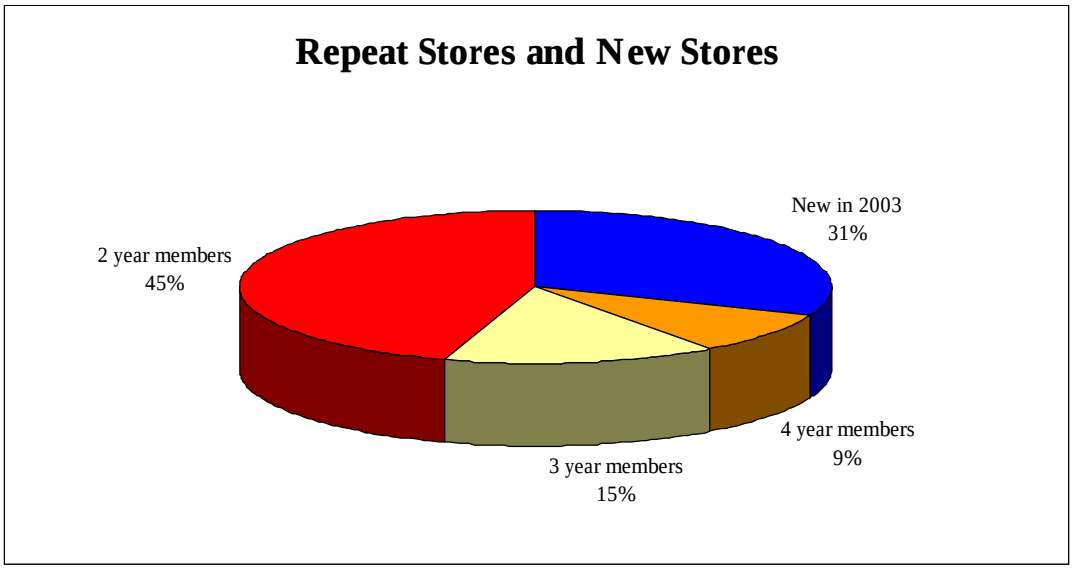

Figure 2.4 Percent of Stores Who are New and Continuing in the Panel

◊ Stores in the two groups are remarkably similar with regard to median selling area, store age, percent wholesaler supplied, annual inventory turns, gross profit as a percent of sales and payroll as a percent of sales.

◊ New stores are in larger ownership group sizes, the percent employee turnover is larger, and their annual percentage sales growth is higher.

◊ New stores are more likely to be located in a metropolitan area and weekly sales per square foot are slightly larger.

◊ Continuing stores have slightly higher sales per labor hour and sales per transaction.

Table 2.5 Descriptive Profile for Continuing and New Stores in the 2003 Supermarket Panel

	Median Store Characteristics	
	Stores that First Participated in the Panel *Prior to* 2003	Stores that First Participated in the Panel in 2003
NUMBER OF STORES REPRESENTED	17,887 (268)	14,818 (123)
STORE AND MARKET CHARACTERISTICS		
• Median Selling Area (sq. ft.)	30,000	29,000
• Median Store Age (years)	21	20
• Mean Ownership Group Size (Stores)	364	613
• Percent Wholesaler Supplied	48	44
• Percent Located in an SMSA	71	74
MEDIAN PERFORMANCE MEASURES		
• Weekly Sales	$240,000	$225,210
• Weekly Sales per Square Foot	$7.29	$7.86
• Sales per Labor Hour	$125.00	$120.28
• Sales per Transaction	$22.44	$21.93
• Annual Inventory Turns	16.0	14.0
• Percent Employee Turnover	27.6	34.9
• Gross Profit as a Percent of Sales	25.0	25.0
• Payroll as a Percent of Sales	10.0	10.0
• Annual Percentage Sales Growth	0.2	1.6
NUMBER OF STORES REPRESENTED BY STORE GROUP SIZE		
• Single Store	4,820	3,006
• 2-10 Stores	1,777	2,392
• 11-50 Stores	1,941	747
• 51-750 Stores	6,566	3,211
• > 750 Stores	2,783	5,462
NUMBER OF STORES REPRESENTED BY FORMAT		
• Conventional	8,642	7,600
• Superstore	985	1,013
• Food/Drug Combo	5,780	5,009
• Warehouse	1,105	479
• Super Warehouse	1,007	98
• Supercenter/Hypermarket	368	619

*** Red numbers highlight the largest or best response in each row.**

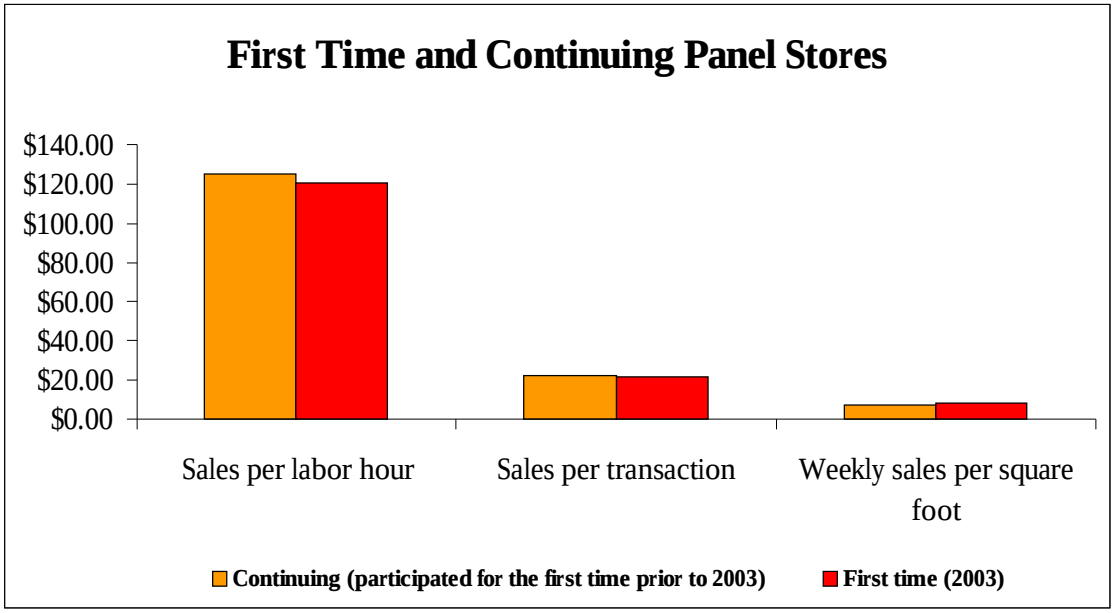

Figure 2.5 Performance by New and Continuing Stores

Chapter 3. Supply Chain Practices – Information Technology Adoption

Since the 1980s, supermarkets have been adopting information technology and supply chain management initiatives in order to lower costs and operate more efficiently. The Supermarket Panel has been tracking the adoption of information technology and the accompanying management practices since 2000. Now, with four years of data we can see some notable changes in stores' adoption of supply chain practices and the impact this has on food stores. New information and communication technologies along with accompanying business practices increase efficiencies through electronic transmission of orders, invoices, and sales data.

- ***Four years of data show trends in IT adoption***

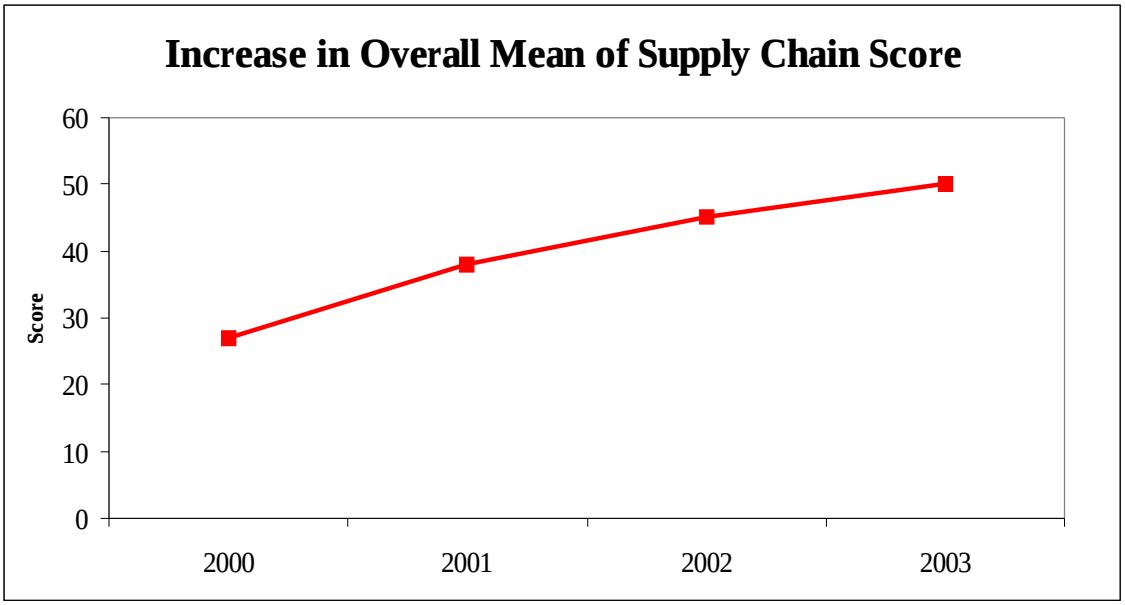

Figure 3.1 Adjusted Supply Chain Scores, 2000 - 2003

Supply Chain Score

The Supply Chain Score is designed to serve as an indicator of a store's ability to participate in and contribute to supply chain initiatives. This score has two equally weighted components: the technology component and the decision sharing component. **The technology component** measures a store's adoption of fifteen store-level technologies related to supply chain management.

Data Sharing Technologies

1. Internet/Intranet link to corporate headquarters and/or key suppliers

2. Electronic transmission of movement data to headquarters or key suppliers
3. Electronic invoices from primary warehouse
4. Electronic invoices from DSD vendors
5. Electronic transmission of orders to vendors/suppliers (e.g., Telxon, Web, EDI)

Data Sharing Practices

6. Vendor managed inventory (orders for non-DSD items generated by vendor based on store movement data)
7. Scan-based trading (payment to vendor triggered by sale to consumer)
8. Scanning data used for automatic inventory refill in general
9. Use of scanner data for automatic inventory refill for dry cereal
10. Use of scanner data for automatic inventory refill for case-ready fresh chicken
11. Use of scanner data for automatic inventory refill for yogurt

Merchandising Decisions

12. Product movement analysis/Category management
13. Electronic shelf tags
14. Shelf-space allocation plan-o-grams
15. Frequent shopper/Loyalty card program

- ***Fifteen data intensive technologies drive efficiency.***

The first five of these technologies facilitate the flow of data and information between a store and its suppliers. Increasingly, these business-to-business linkages are based on Internet protocols rather than proprietary electronic data interchange systems. The next six are technology-based business practices that facilitate decision sharing and inventory control with trading partners. Finally, the last four technologies all support product assortment, pricing, and merchandising decisions at the store level. These fifteen technologies are equally weighted, and the score for the technology component is simply the percent of technologies adopted.

- ***As information systems develop, more decisions are made outside the store.***

Decision Component

The decision sharing component of the Supply Chain Score measures the extent to which parties outside the store are involved in store-level decisions in five key activities:

1. Pricing
2. Advertising
3. Space allocation
4. Display merchandising
5. Promotions

Store managers were asked who has the primary responsibility for decisions in each of these areas for four products: apples, dry cereal, direct store delivery (DSD) snacks, and fluid milk. The score for this component is the percent of these twenty decisions (five for each of four products) for which someone outside the store has primary responsibility. Harnessing the power of information systems often moves more decisions to people outside the store, e.g. to vendors at centrally managed distribution centers.

- ***The adjusted Supply Chain Score has almost doubled in four years***

Table 3.1 Supply Chain Practices for Stores Grouped by Ownership Group Size: Technology Adoption

	Single Store	2-10 Stores	11-50 Stores	51-750 Stores	>750 Stores
	7819	3517	2688	9400	7683
NUMBER OF STORES REPRESENTED: SC Score	(141)	(48)	(30)	(109)	(53)
MEAN SUPPLY CHAIN SCORE	24	34	53	65	75*
Technology Component	29	30	38	51	61
Decision Sharing Component	20	37	69	79	89
USE OF TECHNOLOGY (Percentages)					
Data Sharing Technologies					
• Internet/Intranet link to corporate headquarters and/or key suppliers	75	67	79	91	90
• Electronic transmission of movement data to headquarters or key suppliers	31	43	71	94	87
• Electronic invoices from primary warehouse	35	32	56	70	95
• Electronic invoices from DSD vendors	14	35	37	72	86
• Electronic transmission of orders to vendors/suppliers	81	75	84	88	82
Decision Sharing Practices and Technologies					
• Vendor managed inventory	16	17	10	34	42
• Scan-based trading (payment to vendor triggered by sale to consumer)	21	28	34	49	72
• Scanning data used for automatic inventory refill	7	2	6	24	23
• Scanning data used for automatic inventory refill for Dry Cereal	2	0	6	4	19
• Scanning data used for automatic inventory refill for Case-Ready Fresh Chicken	0	0	0	4	16
• Scanning data used for automatic inventory refill for Yogurt	2	0	6	3	19
Technologies that Support Product Assortment, Pricing, and Merchandising Decisions					
• Product movement analysis/Category management	73	64	76	98	90
• Electronic shelf tags	23	30	15	25	22
• Shelf-space allocation plan-o-grams	47	59	69	94	88
• Frequent shopper/Loyalty card program	12	13	27	22	85

*** Red numbers highlight the largest or best response in each row**

The mean Supply Chain Score, the percent of technologies and practices adopted, rose when the score is adjusted for the number of technologies referenced in the survey and used in the calculation of the Supply Chain Index. The raw mean supply chain score in 2000 = 51.6, in 2001 = 58.4, in 2002 =56.6, and in 2003 = 50.2. However, since more technologies have been added every year of the Panel, the equivalent scores in each year, adjusted for the number of technologies rated, is 2000 = 27; 2001=38; 2002=45; and 2003=50. Clearly there has been an increase in adoption of information technology and services but there is still a long way to go for many of the smaller stores and those in smaller groups.

- ***Adoption of information technology for e-commerce applications and inventory control is steadily increasing across all size store groups and formats.***

Supply Chain Practices for Stores Grouped by Store Group Size

Table 3.1 shows mean Supply Chain Scores and Technology Adoption Rates for stores in the five ownership group size categories that range from single store independents to groups with more than 750 stores. In the top row of the table, numbers of stores represented are estimates for the entire population, while numbers in parentheses are actual non-weighted numbers of stores in the 2003 Panel.

- The mean Supply Chain Score increases steadily with ownership group size, as does the technology component and decision sharing component.

Data Sharing Technologies

Use rates for individual technologies are shown in the lower portion of the table (Table 3.1).

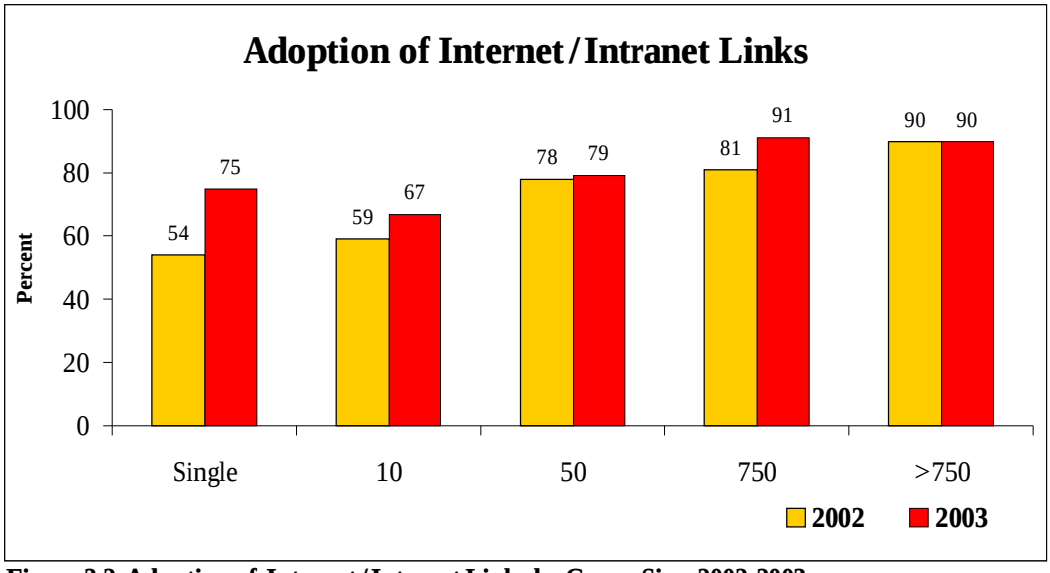

Figure 3.2 Adoption of Internet/Intranet Links by Group Size, 2002-2003

- More than 60% of the stores in each ownership group size category have Internet/Intranet links to headquarters or key suppliers and when compared to the percentages reported last year (72.4% on average compared to 80.4% in 2003), all ownership group size categories have increased or maintained their usage.

- ***Electronic Sharing of data increases with the size of the group to which the store belongs.***

Adoption rates are generally lower for the other four technologies that facilitate the flow of data and information between the store and its suppliers.

- Electronic transmission of orders to vendors/suppliers increased from an average of 80 to 82 percent between 2002 and 2003.
- Stores in ownership groups with more than 50 stores have very high rates of adoption for electronic transmission of movement data and stores in ownership groups with more than 750 stores have very high rates of adoption of electronic invoices from the primary warehouse.
- In contrast, stores in the two smallest ownership group size categories have relatively low adoption rates for these technologies. These important data sharing technologies—which may yield significant cost savings at the distribution center level—are being adopted more rapidly when the store and distribution center are under common ownership.

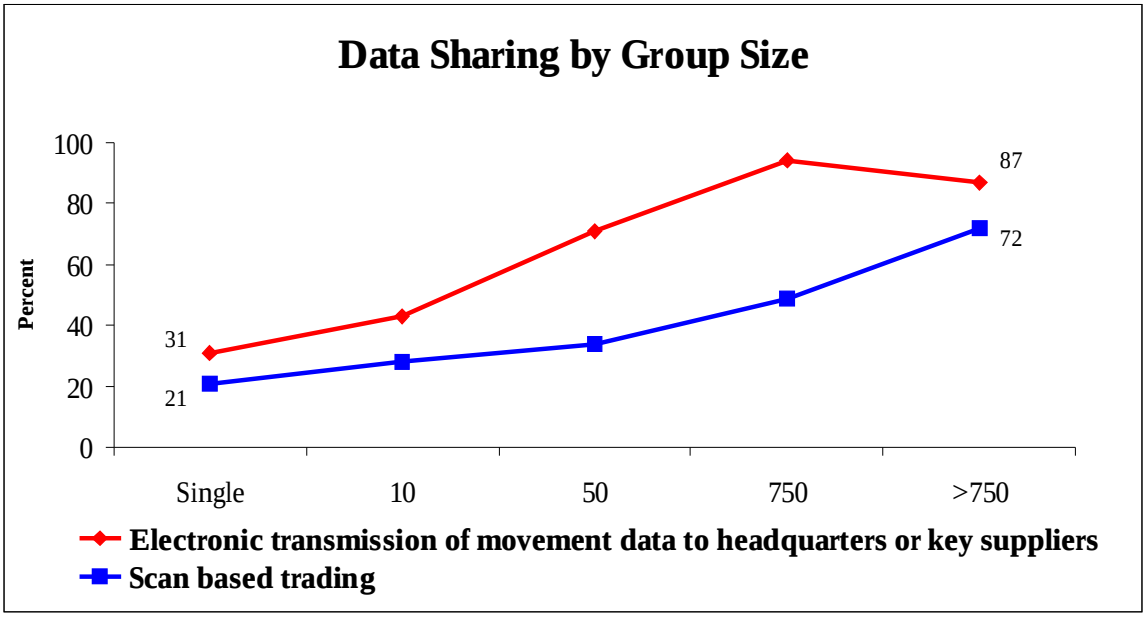

Figure 3.3 Data Sharing by Group Size of Store

Data Driven Inventory Management

There is an upward trend across group sizes for use rates in all these practices.

- In general, as group size increased, the adoption/use rate increased for vendor managed inventory, scan-based trading, and use of scanning data for automatic inventory refill. Stores in the two largest ownership categories have considerably higher adoption rates for vendor managed inventory and use of scanner data for automatic inventory refill than stores in smaller groups.
- Overall adoption rates for these decision sharing technologies are lower and lag the adoption of the five data sharing technologies.

These technologies are complex and have large fixed costs in systems and training that may pose a challenge for smaller companies. Also, some benefits from using these inventory methods may be realized at the distribution center rather than in the store. This makes them more attractive for self-distributing companies. It is noteworthy that the use rate across all ownership group size categories for scan-based trading has increased considerably since last year.

- ***Use of frequent shopper cards is declining.***

Product Assortment, Pricing and Merchandising Decisions

- ***Superstores in large groups are the biggest users of frequent shopper cards.***

Among the four uses of information technology at the bottom of Table 3.1, differences in use rates are small for product movement analysis and electronic shelf tags.

- A large percentage of stores in all group sizes have adopted Category Management (64%-90%) while only a few are using electronic shelf tags (15%-30%).

In contrast,

- Stores in groups with more than 50 stores are much more likely than stores in smaller groups to use plan-o-grams.
- Stores in groups with more than 750 are much more likely to offer a frequent shopper program. In fact, frequent shopper programs declined from 2002 in store groups with less than 750 stores. Superstores are the biggest users of frequent shopper cards (Figure 3.4).

- ***Sharing or passing decisions to parties outside the store is considered "advanced" supply chain management. More and more stores of all sizes are doing this with the exception of stores in groups with 11-50 stores.***

Decision sharing changes across ownership group sizes in the five decision areas for each of four products: Dry Cereal, Case-Ready Fresh Chicken, Yogurt, and Fluid Milk (Table 3.2).

- Rates of decision sharing are consistently higher for stores in ownership groups with more than 10 stores.
- Among the decision areas, it is not surprising that advertising and promotions have the highest rates of decision sharing within each ownership group size category while display merchandising has the lowest.
- It is striking that primary decision responsibility for all twenty decision area/product combinations rests outside the store for

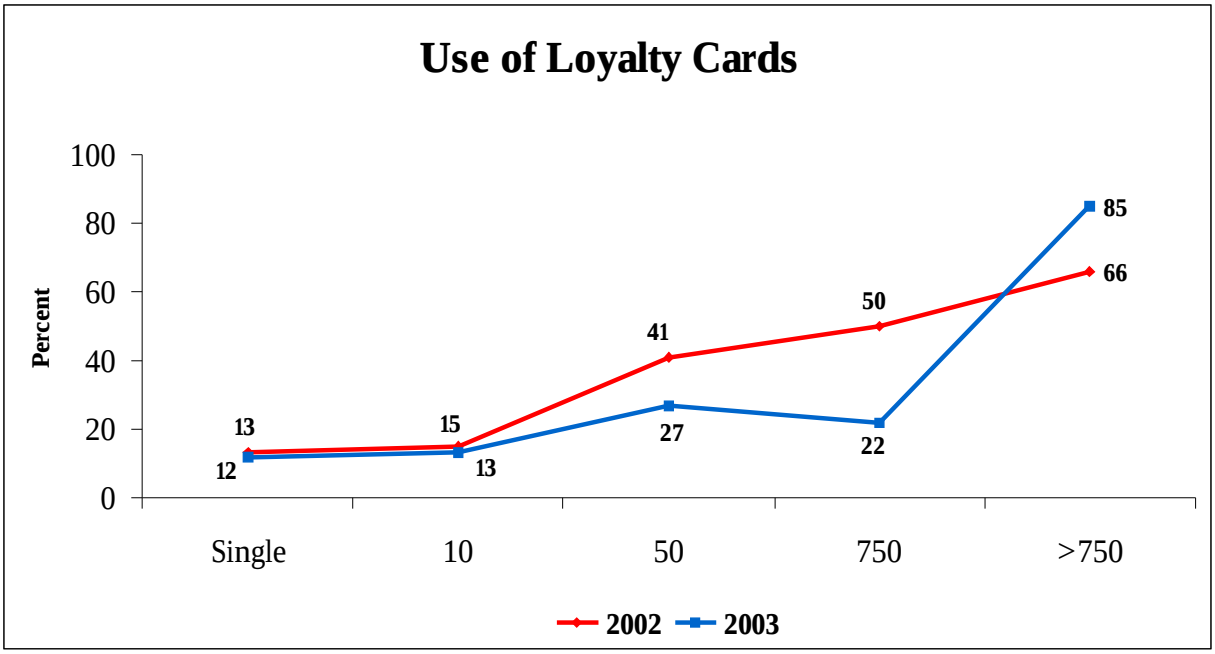

Figure 3.4 Use of Loyalty Cards by Group Size 2002 and 2003

more than seventy percent of stores in the largest ownership group size category. This is consistent with being in a self-distributing chain where many decisions are being made centrally.

- Compared to the results in 2002, all but 15 of the numbers in Table 3.2 are larger in 2003. Ten of the fifteen numbers that are smaller in 2003 are for stores in the 11-50 store group size and for the decisions about space allocation and display merchandising. These are two functions that stores in this group are "taking back."

Interestingly, the sharing of decisions does not vary much across the four types of food products for stores in a given group size. The variation is between group size, with independent stores being most likely to make decisions in the store.

- ***Supercenters are considerably ahead of other formats when it comes to using information technology to manage inventory refill and delegating decisions outside the store.***

Supply Chain Practices for Stores Grouped by Format

Tables 3.3 and 3.4 show detailed information on Supply Chain Score components for stores grouped by format. In the top row of Table 3.3, the number of stores represents estimates for the entire population, while numbers in parentheses are actual non-weighted numbers of stores in the Panel.

- Supercenter/hypermarket stores have the highest mean score for the technology component. Superstores have the highest mean score for the decision sharing component. Conventional stores have the lowest average scores for both components. These

Table 3.2 Supply Chain Practices for Stores Grouped by Ownership Group Size: Decision Sharing

DECISION SHARING WITH PARTIES OUTSIDE THE STORE (Percentages)	Single Store	2-10 Stores	11-50 Stores	51-750 Stores	>750 Stores
APPLES					
• Pricing	22	60	88	92	100
• Advertising	42	89	100	98	100
• Space Allocation	7	27	49*	76	90
• Display Merchandising	4	13	18	56	71
• Promotions	28	66	87	95	99
DRY CEREAL					
• Pricing	40	74	92	97	100
• Advertising	48	88	100	98	100
• Space Allocation	13	38	57	91	96
• Display Merchandising	7	16	18	60	75
• Promotions	36	64	86	96	99
DSD SNACKS					
• Pricing	41	52	91	94	100
• Advertising	41	79	100	98	100
• Space Allocation	21	35	67	89	96
• Display Merchandising	24	37	45	65	81
• Promotions	44	64	89	96	100
FLUID MILK					
• Pricing	16	58	85	96	100
• Advertising	33	74	97	98	100
• Space Allocation	8	35	57	84	99
• Display Merchandising	8	35	31	70	79
• Promotions	31	66	87	95	100

*** Red numbers are smaller than their counterparts in 2002.**

Table 3.3 Supply Chain Practices for Stores Grouped by Format: Technology Adoption

	CON	SS	FD COMBO	WH	SWH	SC/HY
	15,302	1,834	10,461	1,535	1,105	987
NUMBER OF STORES REPRESENTED: SC Score	(213)	(14)	(102)	(22)	(22)	(8)
MEAN SUPPLY CHAIN SCORE	38	66	67	59	63	80*
• Technology Component	34	47	56	40	48	81
• Decision Sharing Component	43	86	78	76	78	80
USE OF TECHNOLOGY (Percentages)						
• Data Sharing Technologies						
- Internet/Intranet link to corporate headquarters and/or key suppliers	77	72	92	92	91	85
- Electronic transmission of movement data to headquarters or key suppliers	50	76	87	90	96	100
- Electronic invoices from primary warehouse	50	49	80	48	65	100
- Electronic invoices from DSD vendors	34	62	76	61	71	100
- Electronic transmission of orders to vendors/suppliers	76	73	93	83	91	100
• Decision Sharing Practices and Technologies						
- Vendor managed inventory	13	39	46	3	22	95
- Scan-based trading (payment to vendor triggered by sale to consumer)	28	69	60	41	65	85
- Scanning data used for automatic inventory refill	7	8	24	3	9	95
- Scanning data used for automatic inventory refill for Dry Cereal	2	6	10	0	0	78
- Scanning data used for automatic inventory refill for Case-Ready Fresh Chicken	1	6	8	0	0	51
- Scanning data used for automatic inventory refill for Yogurt	2	6	9	0	0	78
• Technologies that Support Product Assortment, Pricing, and Merchandising Decisions						
- Product movement analysis/Category management	73	94	95	97	96	88
- Electronic shelf tags	26	25	18	14	14	54
- Shelf-space allocation plan-o-grams	59	75	97	58	96	100
- Frequent shopper/Loyalty card program	22	75	56	8	0	12

CON = Conventional
SS = Superstore
FD COMBO = Food/Drug Combination
WH = Warehouse
SWH = Super Warehouse
SC/HY = Supercenter/Hypermarket

*** Red numbers highlight the largest or best response in each row**

Table 3.4 Supply Chain Practices for Stores Grouped by Format: Decision Sharing

DECISION SHARING WITH PARTIES OUTSIDE THE STORE (Percentages)	CON	SS	FD COMBO	WH	SWH	SC/HY
APPLES						
• Pricing	53*	96	88	97	100	100
• Advertising	70	100	96	97	100	100
• Space Allocation	28	91	76	74	100	83
• Display Merchandising	18	91	56	50	58	44
• Promotions	60	96	87	97	96	100
DRY CEREAL						
• Pricing	64	96	96	92	100	100
• Advertising	73	100	96	92	100	100
• Space Allocation	42	96	81	82	96	100
• Display Merchandising	21	93	61	43	58	66
• Promotions	63	96	89	92	96	100
DSD SNACKS						
• Pricing	62	96	89	92	100	100
• Advertising	69	100	95	92	100	100
• Space Allocation	44	96	84	85	89	100
• Display Merchandising	37	96	69	57	67	66
• Promotions	68	96	90	92	96	100
FLUID MILK						
• Pricing	52	96	89	92	96	100
• Advertising	64	100	92	97	100	100
• Space Allocation	37	96	79	89	84	100
• Display Merchandising	28	96	65	72	75	71
• Promotions	61	96	89	97	96	100

CON = Conventional
SS = Superstore
FD COMBO = Food/Drug Combination
WH = Warehouse
SWH = Super Warehouse
SC/HY = Supercenter/Hypermarket

*** Red numbers are smaller than their counterparts in 2002**

patterns are not surprising, since supercenter/hypermarket and superstores are often part of larger, self-distributing groups.

- More than 70% of the stores in each format category have Internet/Intranet links to headquarters or key suppliers, indicating that adoption of this basic enabling technology for other e-commerce applications is progressing across formats as well as ownership group size categories.
- More than 70% of the stores in each format category electronically transmit orders to vendors/suppliers. It is noteworthy that for all the decision sharing practices and technologies, supercenter/hypermarket stores have the highest adoption levels. This may be due to the fact that these stores have a much broader, more complex product mix, which makes decision sharing more valuable for inventory management and ordering decisions. For vendor managed inventory and use of scanner data for automatic inventory refill, it is also possible that these stores have transferred expertise gained from experience with non-food items such as apparel and housewares.
- Supercenter/hypermarket stores are also leaders in adoption of electronic shelf tags—a labor saving technology that increases in value with the number of items stocked in the store.
- Superstores consistently have very high rates of reliance on parties outside the store for all decisions represented in Table 3.4. In general, stores in all formats other than conventional are more likely than not to shift responsibility for these decisions outside the store.

- ***Conventional stores use the least information technology in management methods and have actually decreased their use of decision sharing methods since 2002.***

Store Characteristics and Performance Measures for Stores Grouped by Supply Chain Score

Table 3.5 shows store characteristics and performance measures for stores grouped into quartiles based on the Supply Chain Score. Mean scores range from 18 for stores in the lowest quartile to 81 for those in the highest. The range of mean scores is especially dramatic for the decision sharing component.

- ***Lower Supply Chain Scores correlate with faster sales growth.***

There are interesting differences in both market and store characteristics across the quartiles. Compared to stores in the lowest quartile,

- Stores in the third highest quartile tend to be located in areas with higher median incomes, much higher population density and in a standard metropolitan statistical area (SMSA).
- Stores in the highest quartile are newer, members of much larger store groups, and much less likely to be wholesaler supplied.
- Stores in the highest quartile have larger selling area and weekly sales.

Table 3.5 Average Characteristics and Performance Measures for Stores Grouped by Supply Chain Score

	Lowest Quartile	Second Quartile	Third Quartile	Highest Quartile
MEAN SUPPLY CHAIN SCORE	18	46	67	81
• Technology Component	25	37	51	64
• Decision Sharing Component	10	55	83	97
MARKET CHARACTERISTICS				
• Median Population Density (per sq. mi.)	136	471	2,038	735
• Median Household Income ($/year)	$37,516	$39,146	$43,295	$41,947
• Percent located in an SMSA	57	65	86	75
STORE CHARACTERISTICS				
• Median Store Age (years)	32	20	23	9
• Mean Ownership Group Size (Stores)	13	238	750	919
• Median Weekly Sales	$115,000	$154,000	$250,000	$320,000
• Median Selling Area (sq. ft.)	13,500	25,834	35,000	45,000
• Median Weekly Labor Hours	800	1,123	2,100	2,300
STORE CHARACTERISTICS (Percentages)				
• Wholesaler Supplied	93	65	23	5
• Union Workforce	7	26	44	33
PERFORMANCE MEASURES (Median)				
• Weekly Sales per Square Foot of Selling Area	$8.00	$7.75	$7.77	$7.13
• Sales per Labor Hour	$100.00	$123.20	$160.00	$126.85
• Sales per Transaction	$16.86	$20.95	$22.92	$25.13
• Annual Inventory Turns	18.0	16.0	14.0	14.0
• Percentage Employee Turnover	33.3	30.0	38.2	29.2
• Gross Profit as a Percent of Sales	25.0	24.6	25.0	26.3
• Payroll as a Percent of Sales	10.3	10.9	9.5	9.8
• Annual Percentage Sales Growth	1.8	1.7	-1.1	1.4

*** Red numbers highlight the largest or best response in each row**

These patterns are similar to those observed in the 2000, 2001, and 2002 Supermarket Panels and are not surprising. Membership in a larger ownership group with common ownership of stores and their distribution center make it easier for store personnel to interact and coordinate with parties outside the store. Similarly, larger store size and selling volume makes it easier to justify investments in new information technologies, since hardware and software costs are often not sensitive to store size.

- ***Overall, there is a positive relationship between Supply Chain Scores and performance.***

Turning attention to the performance measure in the lower portion of Table 3.5, stores in the highest quartile are associated with:

- Stronger performance in sales per transaction, percentage employee turnover and gross profit as a percent of sales.
- Average percentage sales growth is slightly higher in stores that have adopted fewer supply chain technologies and practices. This could be attributed to a correlation between low adoption and smaller stores (chains) that have room to grow; a smaller increase in sales translates into a large percentage increase. Large stores with very large square footage will likely not have as large a dollar sales per square foot since much of their space is devoted to wider aisles and the display of large items.

Overall, there is a generally positive association between supply chain readiness and stronger store performance.

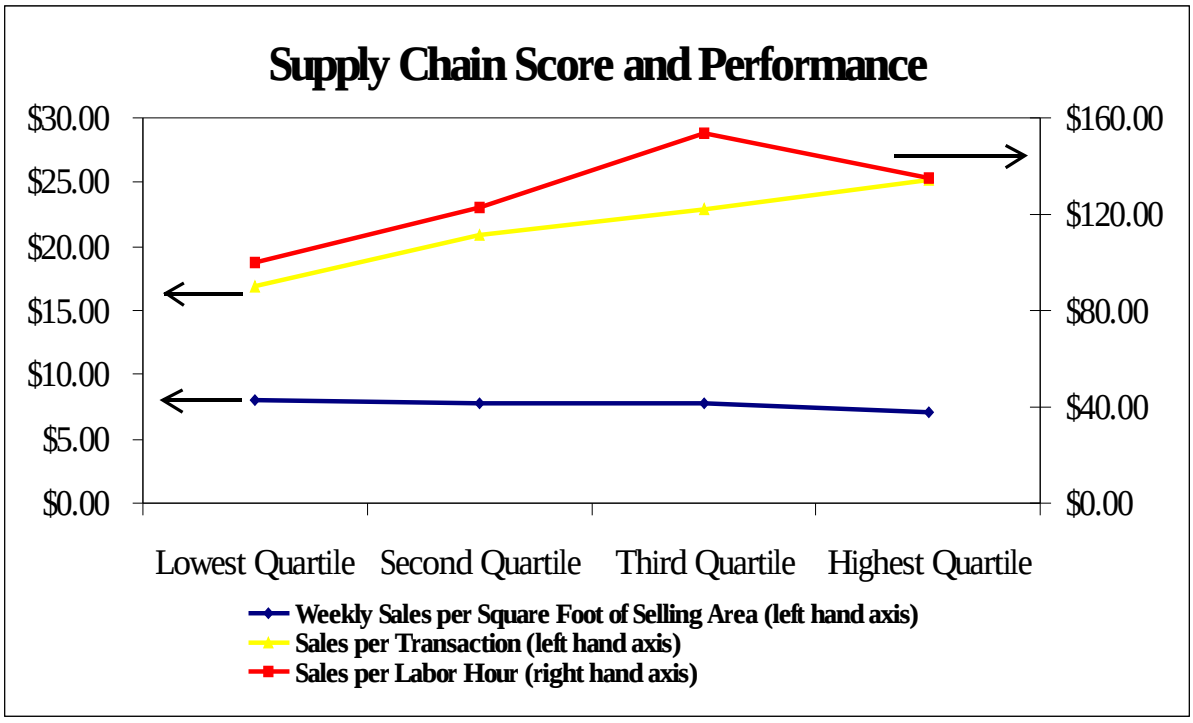

Figure 3.5 Quartiles of Supply Chain Score and Performance

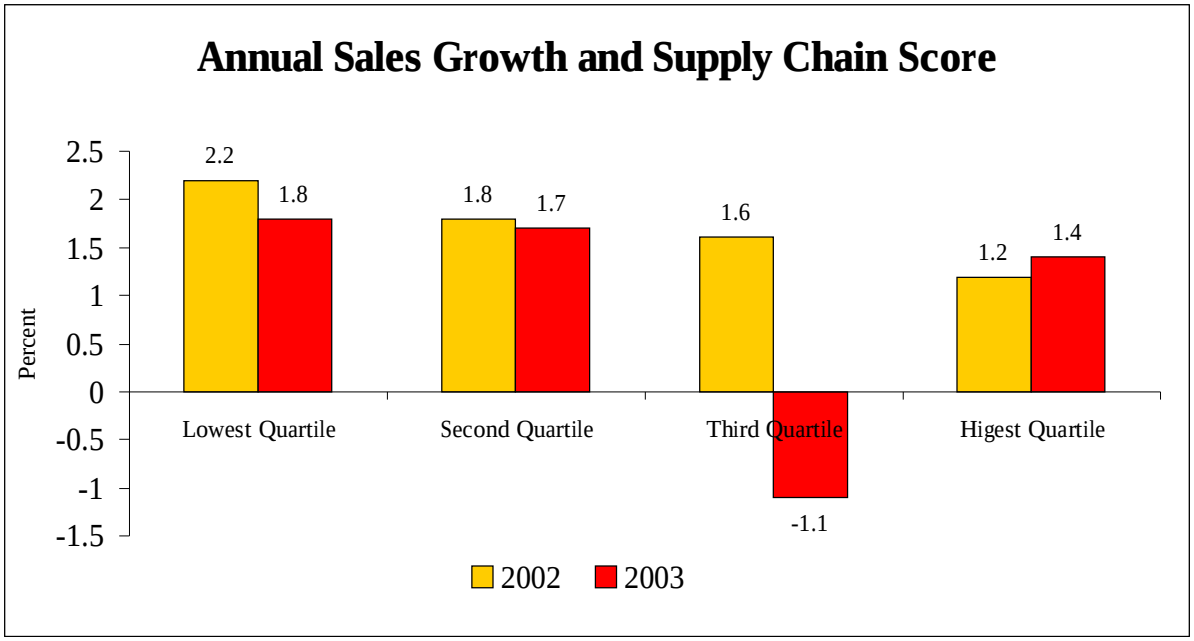

Figure 3.6 Annual Sales Growth by Supply Chain Score, 2002 and 2003

Chapter 4. A Closer Look at Supply Chain Practices Over Time

Since the early 1990s retail food stores and their leaders have been changing business practices to conform with the rigors of a new information age. Rapid installations and adoptions of computerized information systems for compiling, storing and analyzing data on sales, product movement, orders, invoices, customers, and prices have left some confused, some "in the dust," and some deciding it is just not right for their business. Data driven supply chain management kicked off by Wal-Mart in the 1980's, was picked up by trade associations in 1992 with the rallying cry called Efficient Consumer Response (ECR). ECR was a new business plan, the beginning of a cultural change, where retailers were called upon to not only collect, but share, electronic information with their suppliers in order to make the supply/demand chain more efficient and more responsive to consumer sales. In many ways it contributed to the revolutionizing of the food supply chain, transforming it from a supply push system to a demand pull food system. In more recent times these more efficient demand chain management practices have been called Cooperative Planning, Forecasting, and Replenishment. (CPFR).

- ***ECR was a new business plan, the beginning of a cultural change, effectively institutionalizing the "Demand Chain."***

- ***CPFR is the second generation of ECR; it is an information management protocol designed to utilize the power of information technology.***

This chapter illustrates the trends in adoption of information systems with a series of charts. Simultaneous with the trend in the adoption of information technology (IT) has been a trend in consolidation of supermarket chains, big and small. This has led to a larger portion of stores belonging to chains that do not use third-party wholesalers but have their own distribution centers. These types of businesses tend to be earlier adopters of IT systems and practices partly because there are large economies of scale in information technology investments. Self-distributing chains tend to have more stores under central management and greater opportunity to benefit from scale economies. More importantly, they have more central control which helps harmonize computer systems and communications protocols.

- ***The Supermarket Panel provides the only data available that tracks the adoption of information technologies and related changes in management practices in a Panel of individual supermarkets in the U.S. over time.***

The economies of scale in IT investment and usage are called a "network effect." Quite literally, the more people who are using the same network, the lower is its cost and the greater are the benefits to every participant. This is one of the important principles in driving down operating costs, increasing efficiency and being able to lower consumer prices. For example, electronic invoicing systems for DSD products become more valuable for stores as more vendors offer electronic invoices in compatible formats; they become more valuable for DSD vendors as more stores are prepared to accept them. Therefore, the rate of progress toward nearly universal adoption of key supply chain technologies is important to the industry.

- ***Self-distributing supermarket chains tend to be earlier adopters of IT systems and the new management styles they allow and demand.***

- ***The economies of scale in IT investment and usage are called "network effects." They make individual stores and the whole food demand chain more efficient.***

- ***The industry is rapidly approaching 100% adoption of Internet/Intranet links.***

- ***Internet/Intranet adoption has increased 125% since 2000 for wholesale-supplied stores and 45% for self-distributing stores. Wholesale-supplied stores are catching up!***

In responding to questions about the adoption of supply chain technologies and practices, managers of stores where a technology or practice had been adopted indicated whether it had been used more than two years, one to two years, or less than one year. Managers of stores not currently using a technology or practice indicated whether they planned to start using it in the next year, had no plans to use it, or did not know. In this section we use this more detailed response data to take a closer look at adoption patterns for key supply chain technologies and practices. The charts here simply indicate adoption, or not, without concern about how long adoption has been in place; they are cumulative, that is, they do not indicate that the adoption necessarily began in the year stipulated, but that they had adopted this method sometime and are still using it.

Five Supply Chain Practices by Wholesaler-Supplied and Self-Distributing Stores, 2001-2003

- Internet/Intranet links to headquarters and/or key suppliers
- Electronic receipt of invoices from primary warehouse
- Vendor managed inventory (orders for non-DSD items generated by vendor based on product movement data)
- Electronic receipt of invoices from DSD vendors
- Scan-based trading (payment to vendor triggered by sale to consumer)

Internet/Intranet

Widespread Internet/Intranet adoption is critical for the success of current e-commerce initiatives in the industry. Figure 4.1 shows the percentage adoption levels of Internet/Intranet links for wholesaler-supplied and self-distributing stores as well as for all stores. This graph shows that the industry is rapidly approaching 100% adoption of Internet/Intranet links, with the adoption rate for all stores increasing 71% in just three years. Noteworthy, is that adoption levels for wholesaler-supplied stores are quickly catching up to stores in self-distributing groups. Therefore, lack of access to the basic infrastructure for electronic communication and data sharing should not stand in the way of progress on other supply chain initiatives.

Progress permits the "Panel On-line": It can be noted that this progress was also evident in the way stores responded to the 2003 Supermarket Panel. During this first year that we offered the questionnaire on-line, 47% of the store managers responded on-line. There were very few statistical differences in the stores who responded on-line and on paper. However, 48.6% of those who filled it out on paper were wholesaler-supplied while 43.7% of those who filled it out

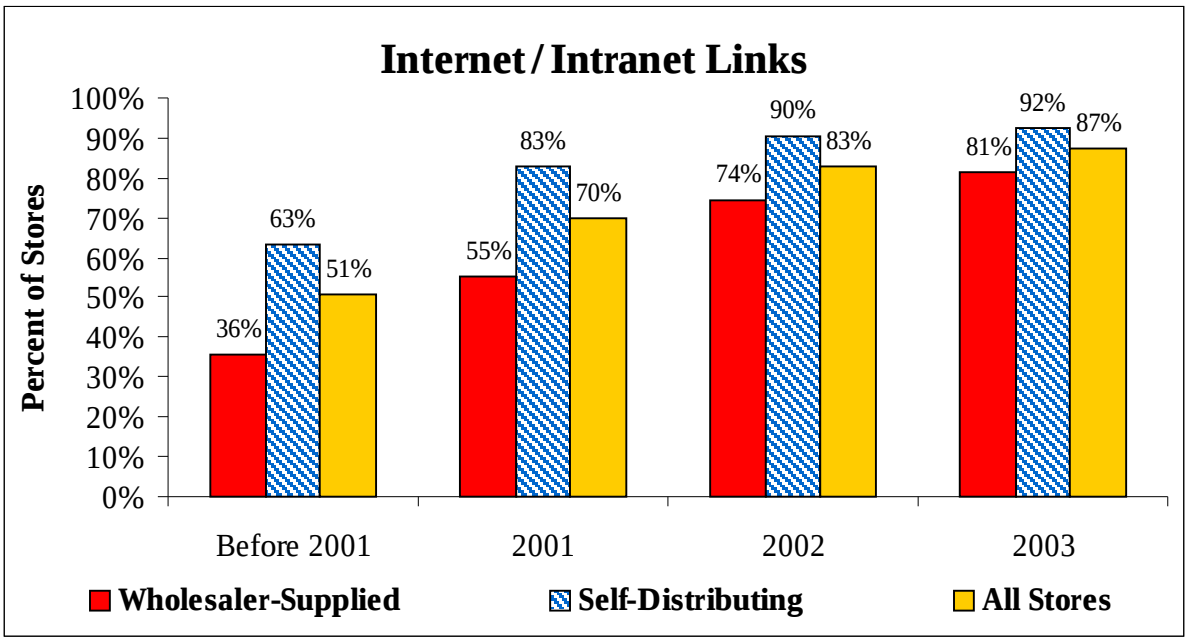

Figure 4.1 Adoption / Use of Internet / Intranet Links, 2000-2003

on-line were wholesaler-supplied. Self-distributing stores were only a little more likely to complete the questionnaire on-line.

- ***Using electronic invoices with their primary warehouse went from 40% to 71% for all stores since 2000. Stores who use third-party wholesalers are catching up.***

Electronic Invoices for Primary Warehouse

Figures 4.2 shows adoption levels for receiving electronic invoices from the store's primary warehouse. This is an important element of the evolving relationship between supermarkets and their distribution

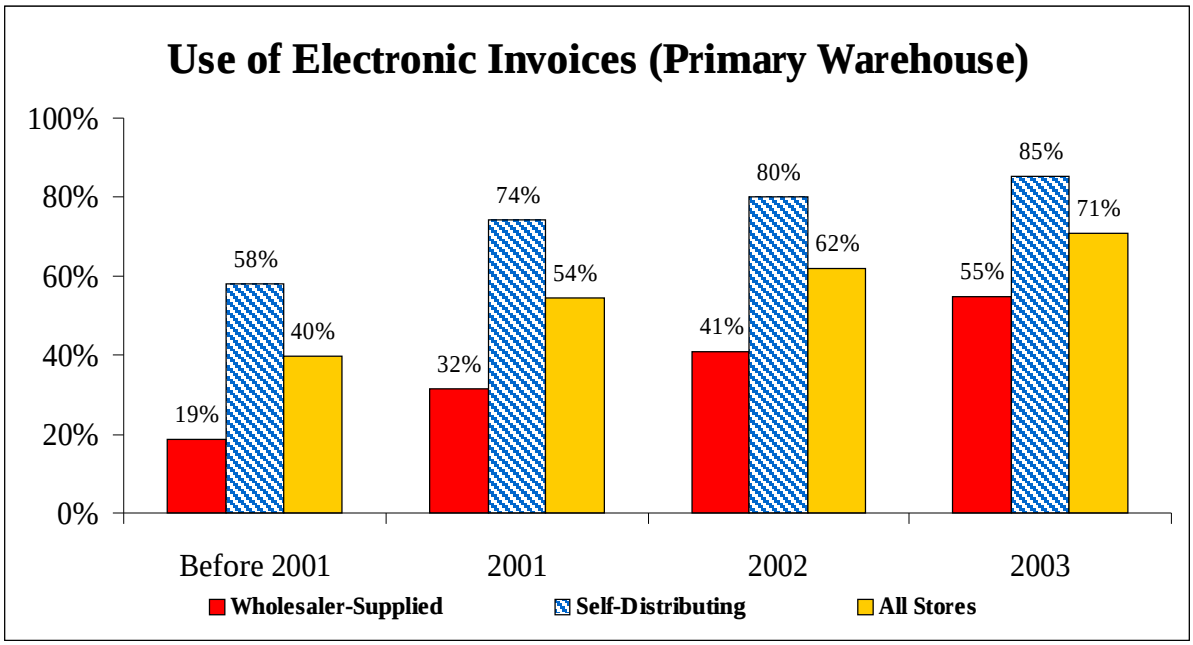

Figure 4.2 Adoption / Use of Electronic Invoices with Primary Warehouse, 2000-2003

- ***Vendor Managed Inventory is slowly being adopted with about twice as many stores participating in 2003 as in 2000. It is the full realization of CPFR and requires advanced information systems and coordination.***

centers. Electronic invoices save time and reduce errors for both the store and the distribution center. They are also the basis for electronic payment systems and other more advanced supply chain applications. Such systems require accurate, timely communication about product movement and store inventory levels.

Stores that belong to self-distributing groups are far ahead of wholesaler-supplied stores in adoption of electronic invoices from their primary warehouse (85% compared to 55% for wholesaler-supplied stores). However, both groups of stores are making rapid progress in adopting this technology, and wholesaler-supplied stores appear to be closing the adoption gap. Since 2000, their participation has grown 189% while the participation of self-distributing stores grew 46%, similar to the change in Internet/Intranet practices.

Electronic Invoices for Direct Store Delivery (DSD)

Figures 4.3 shows the adoption of the practice of receiving electronic invoices from vendors that practice Direct Store Deliver (DSD). This is important for the store's relationship with manufacturers that deliver their products directly to the store. Once again, electronic invoices save time and reduce errors for both the store and the vendor and serve as the foundation for electronic payment.

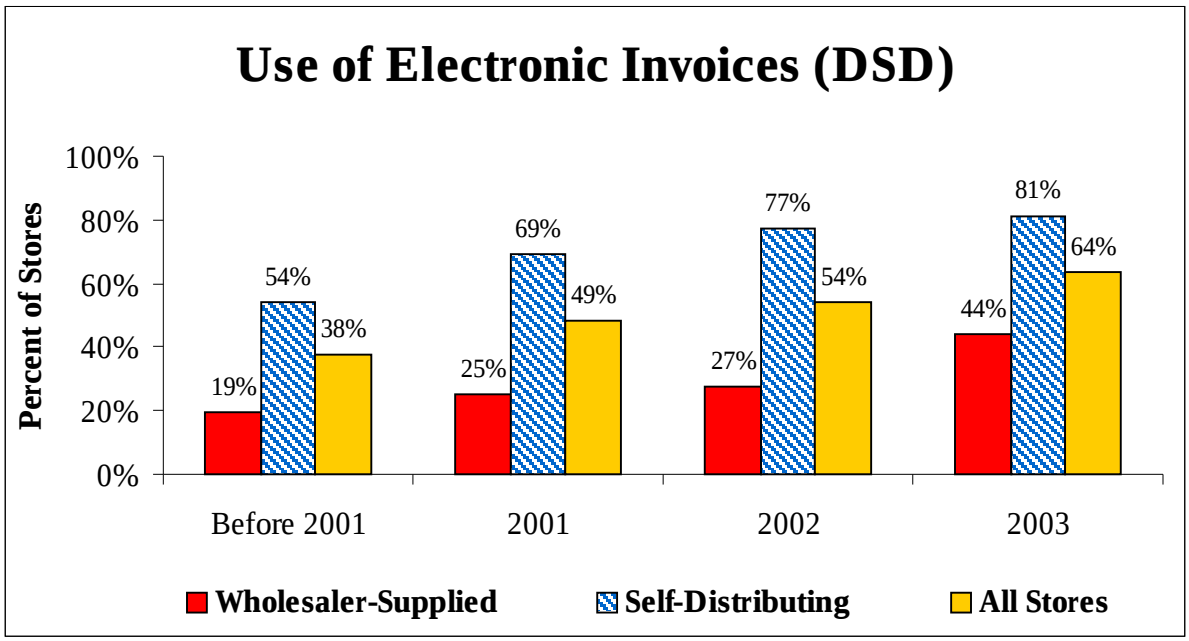

Figure 4.3 Adoption/Use of Electronic Invoices for DSD Vendors, 2000-2003

Stores that belong to self-distributing groups are far ahead of wholesaler-supplied stores in adoption of electronic invoices from DSD vendors. It is noteworthy that wholesaler-supplied stores level of adoption in 2003 (44%) is still well below the pre-2000 level of adoption for stores in self-distributing groups (54%). Similar to other comparisons, the wholesaler-supplied stores are catching up with a growth of 132% since 2000 compared to 50% increase for self-distributing stores.

Figure 4.4 illustrates the rate of adoption of vendor managed inventory (VMI). This practice transfers ordering decisions from the store to its key suppliers. It is one of the most advanced of supply chain management practices measured in the Panel. VMI makes it possible to adjust orders and provide continuous replenishment consistent with a distribution center's inventories and delivery logistics. Adoption rates for vendor managed inventory are much lower, and progress in adoption has been slower than other supply chain metrics in the Panel. The gap in adoption between the two store groups has changed little in the past four years; however, adoption has almost doubled for all groups.

- ***The stores in larger groups with information and communication technology capacity and human capital (knowledge) make the heaviest use of new supply chain management methods and can realize the greatest efficiencies.***

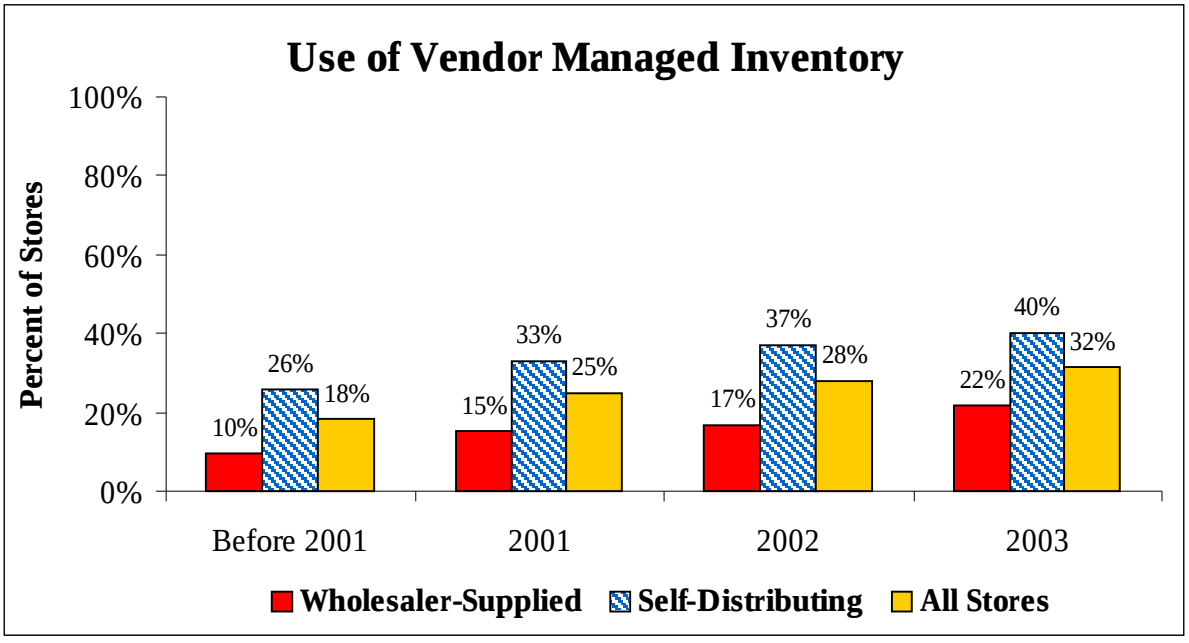

Figure 4.4 Adoption / Use of Vendor Managed Inventory, 2000-2003

Scan-Based Trading

Figure 4.5 shows the adoption of scan based trading. Scan-based trading is a form of vendor managed inventory; however, the adoption gap between wholesaler-supplied and self-distributing stores is wider than for VMR. Self-distributors are 2.4 times as likely to use scan based trading and only twice as likely to use vendor managed inventory.

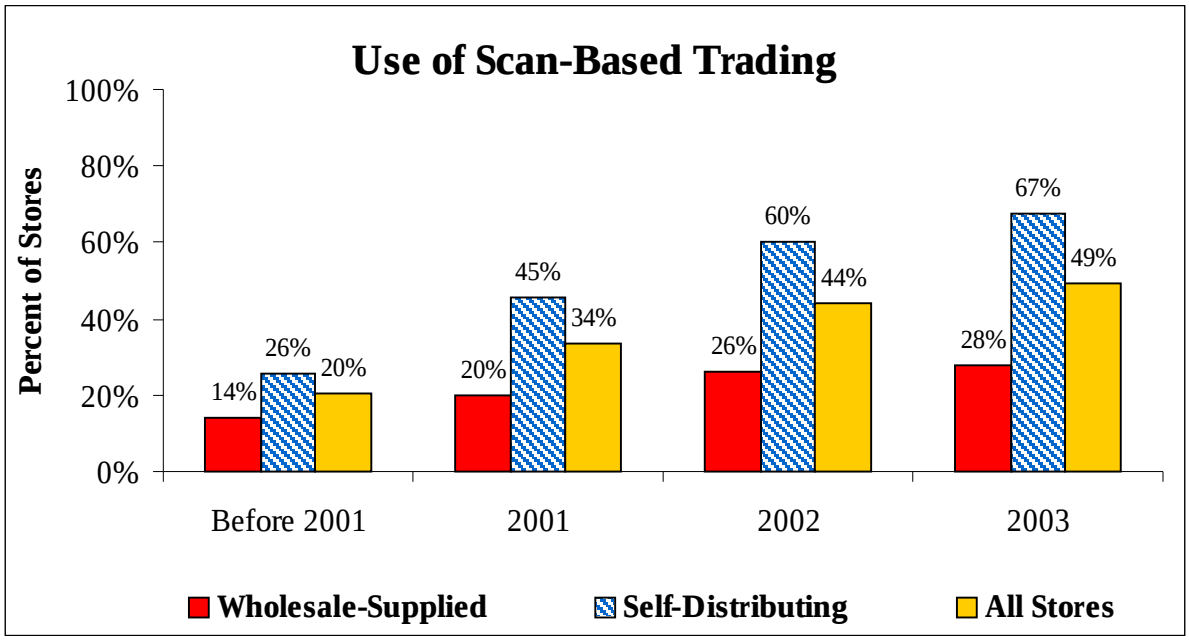

Figure 4.5 Adoption / Use of Scan Based Trading, 2000-2003

Scan-based trading and vendor managed inventory both transfer inventory management decisions and inventory holding costs from the store to the vendor. Although it can be financially beneficial to a store, it requires trust and very effective, timely electronic communication. Some store managers may view these practices as a loss of control and incompatible with maintaining local customer responsiveness.

- ***Looking at the adoption of supply chain management practices by size of store group, reveals that single stores have made remarkable progress sometimes leaving the medium sized groups behind.***

Supply Chain Practices by Size of Store Group

The adoption of Internet / Intranet by size of store group (Figure 4.6) reveals that stores belonging to a group (chain) with 50-750 stores were the earliest adopters of this technology, followed closely by stores in the largest group (>750). By 2003, over 80% of all stores had Internet / Intranet access except stores in groups of 2-10. These independents lagged behind. Interestingly, single stores leapt ahead of the multi-store independents in 2002 and have stayed ahead on this technology. Perhaps one reason why independent chains have failed to make this investment is due to the coordination costs for a small chain. In contrast, a single store does not have to train many people or invest in an inter-store network. Big groups (> 50) are likely to belong to a self-distributing chain where the Internet / Intranet system is assumed as a way of conducting business.

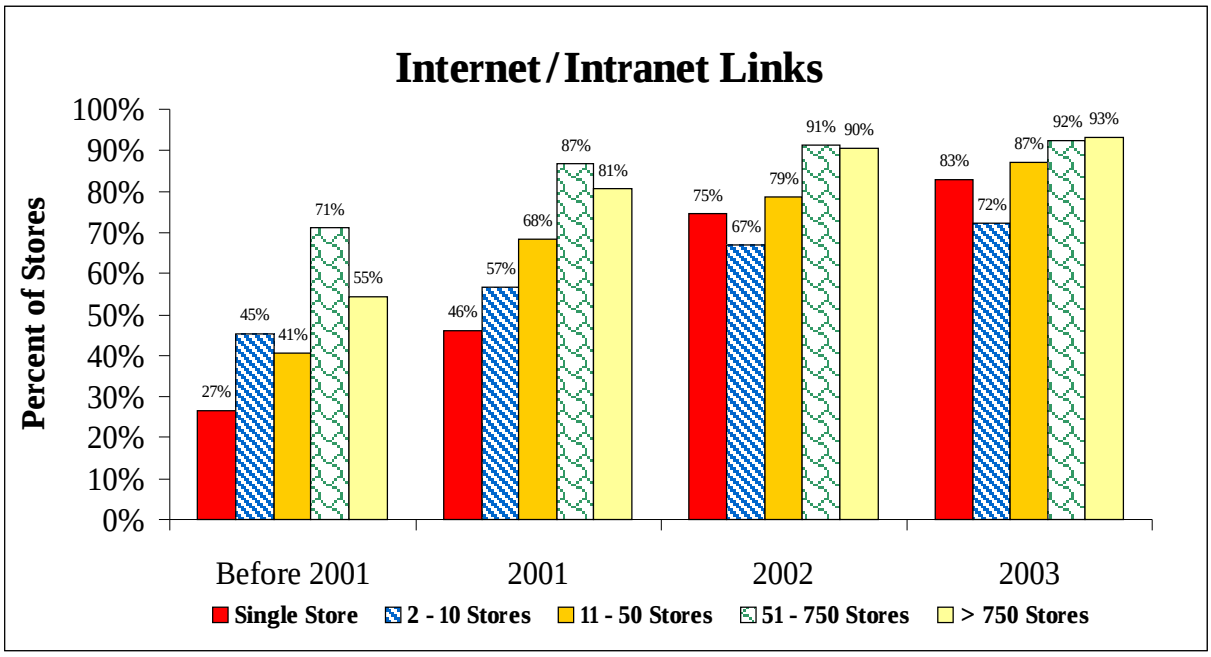

Figure 4.6 Adoption / Use of Internet / Intranet by Store Group Size, 2000-2003

Using electronic invoices with their warehouse (third-party wholesaler or self-distributor) was directly correlated with the size of the group to which the store belonged until 2002, when single stores jumped ahead of the 2-10 store group (Figure 4.7). This points out the importance of having the basic e-commerce technology and knowledge before a store can participate in other supply chain management practices.

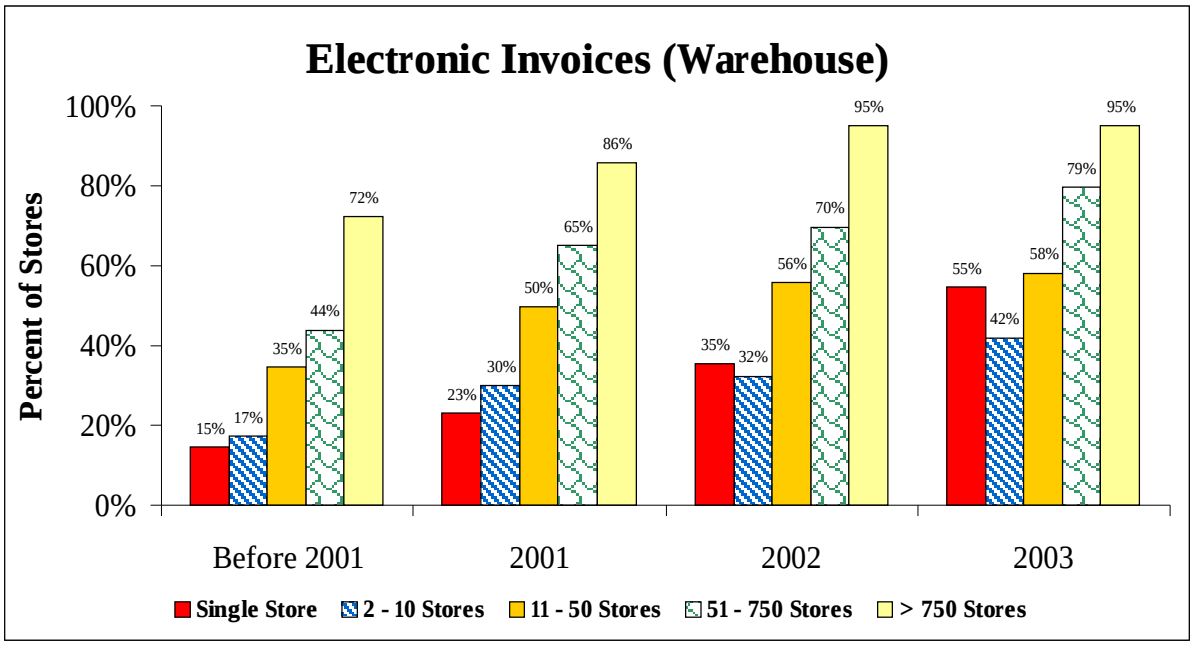

Figure 4.7 Adoption / Use of Electronic Invoices with Warehouses, 2000-2003

Looking at the adoption of electronic invoices with DSD vendors reveals a slightly different picture (Figure 4.8). Here there is low participation by single stores and the next highest is by stores in group size 11-50. Stores in the 2-10 group have a higher participation rate but not nearly as high as stores in the two largest groups. As we see in all of these time trends, the stores in larger groups with information and communication technology capacity and human capital (knowledge) make the heaviest use of new supply chain management methods and can realize the greatest efficiencies.

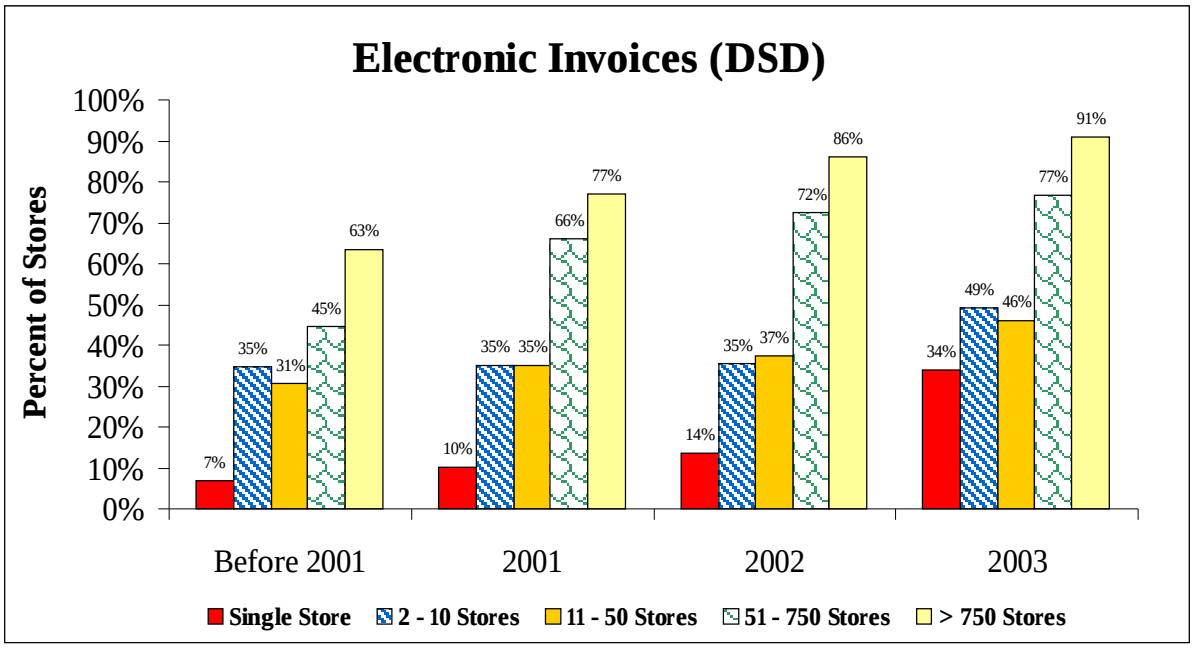

Figure 4.8 Adoption/Use of Electronic Invoices with DSD Vendors, 2000-2003

The adoption of scan-based trading follows closely the pattern of use of electronic invoices with DSD vendors, but at a lower level. Again, stores in larger groups are the early adopters (Figure 4.9).

Vendor managed inventory and scanning for automatic refill are some of the most advanced uses of information and communication technology in retail food stores. Figures 4.10 and 4.11 illustrate the adoption of these methods by store group size. Immediately, one can see that the adoption rates here are lower than for other practices tracked in this study. Stores in the 11-50 group size have the lowest use of vendor managed inventory since 2001, followed by independents (single stores and those in the 2-10 group) and led by stores in the largest group sizes.

- ***Rates of adoption for practices consistent with accomplishing CPFR are low but rising. Less than 50% of stores in any group size use vendor managed inventory or scanning for automatic refill.***

Scanning for automatic refill (part of the CPFR activity) has an even lower rate of adoption. Again stores in the largest groups are way ahead of the others; stores in the 2-10 group are the least likely to participate in this activity. This is, of course, consistent with their lower level of participation in electronic commerce across the board.

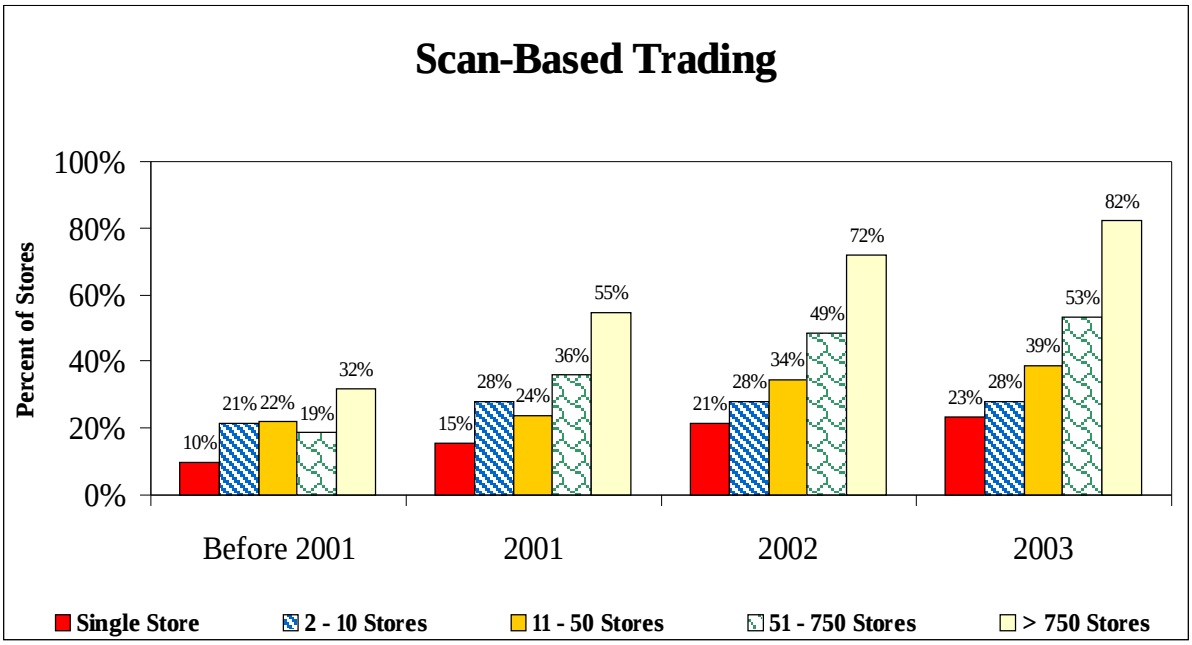

Figure 4.9 Adoption/Use of Scan-Based Trading, 2000-2003

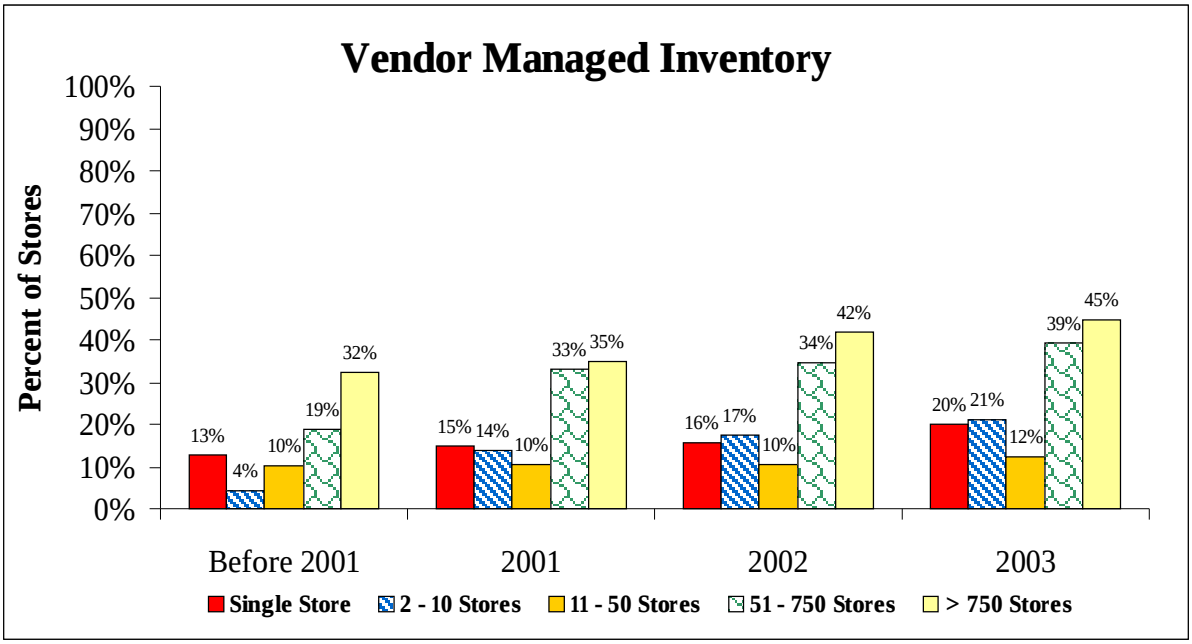

Figure 4.10 Adoption/Use of Vendor Managed Inventory, 2000-2003

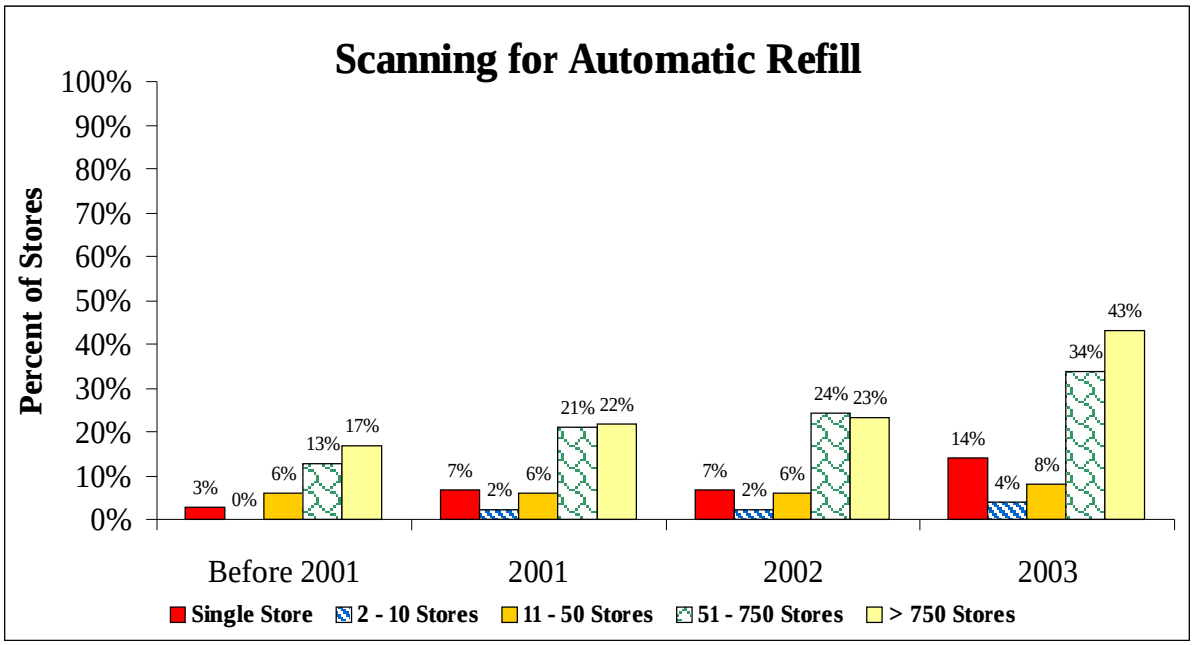

Figure 4.11 Adoption / Use of Scanning for Automatic Refill, 2000-2003

Summary

- ***Single stores have made remarkable progress in supply chain technology, sometimes leaving the medium sized groups behind.***

The results presented here confirm findings from earlier Panels that stores in larger groups are better positioned to take part in supply chain initiatives driven by electronic communications systems. Readiness in this area is generally associated with superior performance at the store level, at least in terms of efficiency. The relationship between supply chain readiness and performance are presented in Chapter 3 and are examined again in the more comprehensive analysis of performance drivers presented in Chapter 9. Finally, adoption rates for individual technologies and practices within the technology component of the Supply Chain Score continue to increase significantly for all stores, but there are large differences in adoption levels for wholesaler-supplied stores and self-distributing stores and between stores in the largest two groups (>50 stores) and independents and smaller chains. Looking at the adoption of supply chain management practices by size of store group reveals that single stores have made remarkable progress, sometimes leaving the medium sized groups behind.

Chapter 5: Service and Variety Offerings

Service offerings are often the way a store seeks to differentiate itself in a local market area. In assessing their range of service offerings, stores need to balance the benefits of becoming a one-stop shopping destination against the added costs and space requirements for new services.

The Service Offerings Score measures the adoption rate for seventeen services listed in Table 5.1. They range from self-scanning, bagging, and carryout, to teller banking, videos, and a customer web site. Measured on a 100 point scale, a store's score is the percentage of these services that it offers.

Service Offering Scores for Stores Grouped by Ownership Group Size

Table 5.1 presents Service Offerings Scores for stores grouped by store group size. In the top row of the table, the number of stores represents estimates for the entire population, while numbers in parentheses are actual non-weighted numbers of stores in the 2003 Panel. Stores in the largest three group sizes were almost tied (40, 41, 43) for *mean service offerings*. Independent stores were not far behind with scores of 32 and 33. Overall, no one group size dominates all types of services. There are a few dramatic differences in percentages of stores offering individual services. Stores that offer *customer self-scanning* tend to be in the largest two ownership group sizes but the adoption rate is still low (27% for the >750 group, up from 18% last year).

- ***Stores in the two largest groups (chains) offered the most variety and services.***

Stores that offer *gasoline* are concentrated in the largest ownership group and in the midsized group (11-50). Stores in the largest ownership group size are more likely to offer an in-store *bakery* (99%), a *pharmacy* with a full-time pharmacist (69%), and a *web site* for customers (96%). On the other hand, single stores are more likely than stores in larger groups to offer *home delivery* as a practice and as part of the store's marketing plan and a *dry cleaning* vendor. None of the stores in the largest group size offered dry cleaning. Since the 2002 Supermarket Panel, service offerings in single stores that increased notably are *web sites, in-store bakeries, and home delivery. Custom-meat cutting* decreased in single stores.

- ***Service offerings that increased in single stores are web sites, in-store bakeries, and home delivery.***

At least 78% of stores in all size categories offered *bagging services* but multi-store independents (2-10 stores) and the largest group size stores were most likely to offer this service (96% and 95% respectively). More than three-fourths of all stores offered *custom meat cutting* but 93% of multi-store independents were offering this service. Actually there is

- ***At least 78% of stores in all size categories offered bagging and/or carryout services.***

- ***Customer scanning is concentrated in stores in large groups (chains).***

little change in this service since 2002 except that ten percent more stores in the 2-10 group were offering it in 2003. For a service that threatens to disappear it shows remarkable stability and even some growth.

Customer rest areas or seating for eating is most common in stores in midsized groups between 11-750. So are *fax and/or Internet ordering*.

Table 5.1 Service Offerings for Stores Grouped by Ownership Group Size

	Single Store	2-10 Stores	11-50 Stores	51-750 Stores	> 750 Stores
	7819	4093	2688	9400	8245
NUMBER OF OBSERVATIONS: SO Score	(141)	(50)	(30)	(109)	(56)
MEAN SERVICE OFFERINGS SCORE	33	32	40*	41	43
PERCENTAGE THAT OFFER EACH SERVICE					
• Customer Self-Scanning	2	5	2	15	27
• Bagging Service	85	96	88	78	95
• Carryout Service	85	86	88	68	80
• Custom Meat Cutting/Service Meats	87	93	87	76	86
• Dry Cleaning	9	8	4	3	0
• Fax Ordering by Customer	25	14	26	27	15
• Gasoline	5	4	10	7	21
• Home Delivery	42	23	23	14	5
• In-Store Bakery	66	61	74	92	99
• Internet Ordering by Customer	5	2	27	31	16
• Pharmacy, Prescriptions	7	21	33	52	69
• Post Office, Mailing Services	19	21	8	27	10
• Seating for Eating/Customer Rest Areas	25	32	65	63	41
• Teller Banking/In-store Banking	13	30	22	43	33
• Video Department	22	21	23	19	34
• Web Site for Customers	33	20	76	85	96
• Home Delivery as Part of Marketing Plan	41	18	24	8	4

*** Red numbers highlight the largest or best response in each row**

Variety Offerings by Ownership Group Size

Some stores try to compete in their local market by offering more variety or more unusual products and services. Table 5.2 lists seven offerings that represent a variety of products and services that stores may offer. Three of the items are also listed in the service table (Table 5.1) but are considered important offerings in terms of variety as well. The mean variety score on row three of Table 5.2 indicates that stores in the largest two groups offer the greatest variety.

- ***Single stores are more likely to offer home delivery; Fax and Internet ordering are more likely to be offered by stores in groups of 51-750.***

Table 5.2 Variety Offerings for Stores Grouped by Ownership Group Size

	Single Store	2-10 Stores	11-50 Stores	51-750 Stores	> 750 Stores
	7819	4093	2688	9400	8245
NUMBER OF OBSERVATIONS: VO Score	(141)	(50)	(30)	(109)	(56)
MEAN VARIETY OFFERINGS SCORE	31	35	48	57*	59
PERCENTAGE ADOPTING THE VARIETY OFFERING					
• Custom Meat Cutting/Service Meats	87	93	87	76	86
• Franchise/License Depts	3	10	16	20	27
• In-store Bakery	66	61	74	92	99
• Labels Pertaining to Genetically Modified Foods	7	16	25	43	34
• Organic Produce	42	35	70	81	80
• Pharmacy, Full-time Licensed Pharmacist(s)	7	21	33	52	69
• Plans to Offer Fresh Irradiated Ground Beef	0	0	20	29	6

*** Red numbers highlight the largest or best response in each row**

It turns out that *custom-meat cutting* is hardly a unique offering, though the quality of the meat and the uniqueness of the cuts and preparation may differ substantially. Most stores in all group sizes increased their offerings of *pharmacy/prescription services* in 2003 except for those in groups of 51-750. They decreased pharmacy services slightly (54% to 52%). *In-store bakeries* increased in three of the ownership groups but decreased for groups 2-10 and 11-50.

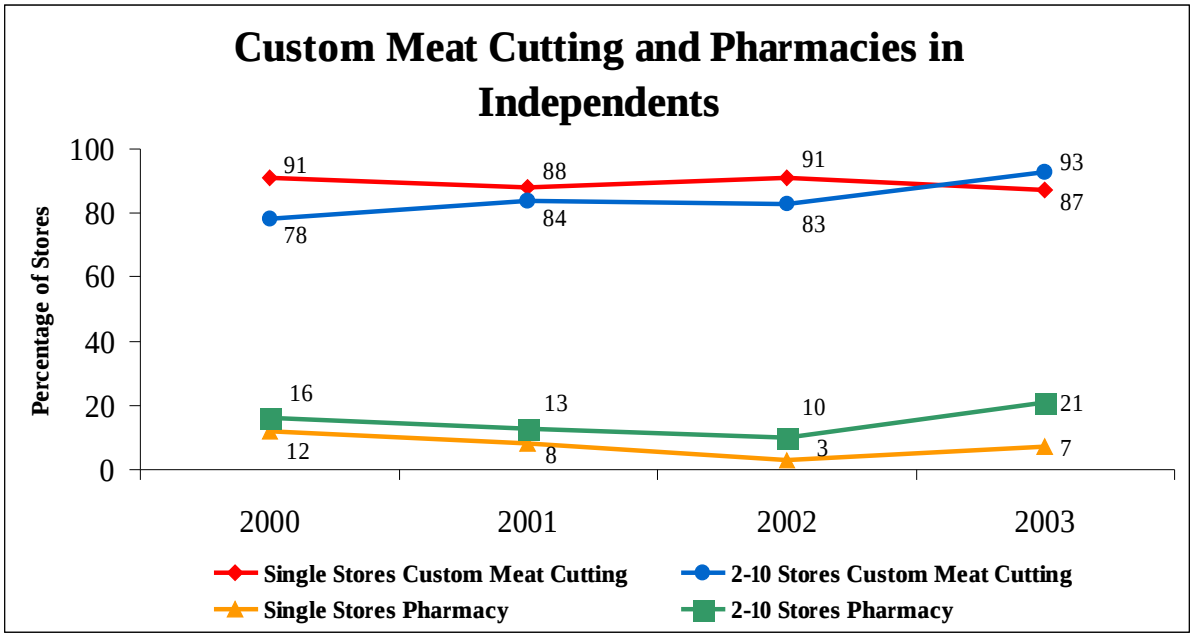

Figure 5.1 Two Service Offerings in Independent Stores, 2000-2003

The other four offerings on Table 5.2 are new to the Panel in 2003. *Leasing* out departments or taking in *franchise* companies is growing as a way to expand offerings and blend ready-to-eat food with more typical grocery store fare. Stores in the largest groups were more likely to engage in this activity (20% to 27%), but it is not as widespread as one might think.

Three questions that relate to particular food types or characteristics have been of particular interest to consumers in recent years. Although there is no mandate to label foods in the United States that have been *genetically modified (GM)* or made with ingredients that have been genetically modified, some store chains and some food manufacturers use a Non-GM label as a marketing strategy in order to appeal to those consumers who might be concerned. Forty-three percent of stores in the 51-750 group size say that they carry some foods with labels that mention GM in some way. This is much less likely to happen in independents of any size.

The sale of *organic produce* and other foods has been growing at about 20% per year for the last 4-5 years. Even so, it comprises less than 2% of total food expenditures in the U.S. However, over 80% of the stores in the largest groups offer organic produce; the lowest percent offering is in the 2-10 store group (35%).

Irradiated ground beef is a question new to the Panel; it is touted as one sure way to make hamburger safe to eat. Another group of researchers is investigating this issue in depth but we report the initial results here. Stores in group sizes of 11 – 750 were the most likely to

carry it (20 to 29%). None of the independents carried it and very few of the stores in the largest group size handled it either.

Service Offering Scores for Stores Grouped by Format

Service Offering scores are summarized for stores grouped by format in Table 5.3. Food/drug combination stores and supercenter/hypermarket stores have the highest mean scores, followed closely by supercenters. Because *bagging* and *pharmacy services* were used in defining formats, there are sharp differences across formats in percentages of stores offering these services. The food/drug combination stores are noteworthy because they consistently offer a wide range of services,

Table 5.3 Service Offerings for Stores Grouped by Format

	CON	SS	FD COMBO	WH	SWH	SC/HY
	15995	1834	10789	1535	1105	987
NUMBER OF OBSERVATIONS: SO Score	(216)	(14)	(104)	(22)	(22)	(8)
MEAN SERVICE OFFERINGS SCORE	33	42	49*	17	34	47
PERCENTAGE THAT OFFER EACH SERVICE						
• Customer Self-Scanning	7	36	17	0	20	12
• Bagging Service	92	100	100	0	0	68
• Carryout Service	86	84	90	10	4	24
• Custom Meat Cutting/Service Meats	88	89	94	39	47	22
• Dry Cleaning	6	3	3	3	4	0
• Fax Ordering by Customer	20	33	26	3	22	12
• Gasoline	5	0	16	0	4	68
• Home Delivery	26	6	21	0	4	0
• In-Store Bakery	69	100	95	92	100	88
• Internet Ordering by Customer	8	27	27	0	4	57
• Pharmacy, Full-time Licensed Pharmacist(s)	0	0	100	0	100	100
• Post Office, Mailing Services	13	31	24	3	35	17
• Seating for Eating/Customer Rest Areas	38	44	54	18	47	95
• Teller Banking/In-store Banking	12	52	46	29	65	66
• Video Department	21	25	22	26	40	78
• Web Site for Customers	51	82	83	69	75	100
• Home Delivery as Part of Marketing Plan	24	7	16	0	5	0

*** Red numbers highlight the largest or best response in each row**

with more than 80% of stores offering 6 key services. The supercenter/hypermarket stores stand out in offering services based on information technology—*Internet ordering,* and a customer *web site*. They are also much more likely to offer *gasoline, seating for customer rest or eating, and a video department*.

Conventional stores excel in *home delivery* services. *Custom meat cutting* is most likely found in conventional stores, superstores, and food/drug combination stores.

Looking at Variety Offerings across Store Formats (Table 5.4) we see that food/drug combination stores offer the greatest variety. They are the most likely to offer *custom-cut meats, labels relating to GM,* and *organic produce*.

Table 5.4 Variety Offerings for Stores Grouped by Format

	CON	SS	FD COMBO	WH	SWH	SC/HY
	15,995	1,834	10,789	1,535	1,105	987
NUMBER OF OBSERVATIONS: VO Score	(216)	(14)	(104)	(22)	(22)	(8)
MEAN VARIETY OFFERINGS SCORE	36	51	67*	27	50	45
PERCENTAGE ADOPTING THE VARIETY OFFERINGS						
• Custom Meat Cutting/Service Meats	88	89	94	39	47	22
• Franchise/License Depts	12	18	24	0	0	39
• In-store Bakery	69	100	95	92	100	88
• Labels Pertaining to Genetically Modified Foods	19	33	41	18	18	17
• Organic Produce	54	84	83	31	78	49
• Pharmacy, Full-time Licensed Pharmacist(s)	0	0	100	0	100	100
• Plans to Offer Fresh Irradiated Ground Beef	6	24	21	8	0	0

*** Red numbers highlight the largest or best response in each row**

Store Characteristics and Performance Measures for Stores Grouped by Service Offerings Score

If stores are offering a variety of services in order to attract customers, then the performance numbers will provide the "proof in the pudding." Table 5.5 presents **median** store characteristics and performance measures for stores grouped into quartiles based on the Service Offerings Score. Keep in mind that a variety of store formats and sizes of store groups are represented in each of the quartiles. What stores in each quartile have in common is that they had a similar level of service in their individual store as measured by questions on the 2003 Supermarket Panel.

- ***Stores that offer fewer services have higher sales per labor hour, higher sales per square foot, higher inventory turns, and high annual percentage sales growth.***

On average, stores in the **highest quartile** are more likely to be located in a *metropolitan area* with a considerably *more dense population.* (1146 persons per square mile is about equal to the density of Raleigh, NC or South Lebanon, OH.) The *median household income* in their areas is somewhat higher. They are also *newer, larger, more likely to be part of a self-distributing group,* and *are part of larger ownership size groups*. The highest quartile stores are still more likely to have a *unionized workforce.*

At the other extreme, stores in the **lowest quartile** tend to be *older, smaller, wholesaler supplied,* and *part of a relatively small ownership group.* However, they had the *highest sales per square foot, the highest sales per labor hour, the highest inventory turns* and *the highest annual percentage sale growth.* Also, they exhibit the lowest *payroll as a percent of sales.*

As for **performance**, *sales per labor hour and annual inventory turns* trend downward across the quartiles but overall there are no striking trends in median performance levels across the four quartiles. Those in the second quartile had the *highest sales per transaction.* Being in the highest quartile for service offerings does not bode particularly well for performance except for having the lowest *employee turnover* and the highest *gross profit as a percent of sales. Annual percentage sales growth* is very close to 1.6% per year, at the top.

Store Characteristics and Performance Measures by Variety Offering Quartiles

Adding variety to a set of service offerings does not change the picture in terms of the characteristics of the stores in the **highest quartile** of offerings (Table 5.6). In the top row of the table, the number of stores represents estimates for the entire population, while numbers in parentheses are actual non-weighted numbers of stores in the 2003 Panel. They still are more likely to be located in a *metropolitan area* with a considerably *more dense population.* The *median household income* is now

Table 5.5 Characteristics and Performance Measures for Stores Grouped by Service Offerings Score

	Lowest Quartile	Second Quartile	Third Quartile	Highest Quartile
NUMBER OF OBSERVATIONS	8,072 (100)	8,216 (102)	7,919 (95)	8,038 (89)
MEAN VARIETY OFFERINGS SCORE	21	33	43	57*
MARKET CHARACTERISTICS				
• Median Population Density (per sq. mi.)	549	794	359	1146
• Median Household Income ($/year)	$38,614	$38,338	$40,304	$42,816
• Percent located in an SMSA	63	70	73	81
STORE CHARACTERISTICS				
• Median Store Age (years)	28	21	19	16
• Mean Ownership Group Size (Stores)	223	439	562	705
• Median Weekly Sales	$134,500	$200,000	$250,000	$297,000
• Median Selling Area (sq. ft.)	19,000	29,000	35,000	42,000
• Median Weekly Labor Hours	1,000	1,300	2,200	2,100
STORE CHARACTERISTICS (Percentages)				
• Wholesaler Supplied	72	47	40	28
• Union Workforce	25	26	29	31
PERFORMANCE MEASURES (Median)				
• Weekly Sales per Square Foot of Selling Area	$8.33	$7.82	$7.75	$7.13
• Sales per Labor Hour	$138.45	$122.70	$106.52	$112.67
• Sales per Transaction	$19.05	$23.91	$22.27	$22.96
• Annual Inventory Turns	22.0	15.0	14.0	13.0
• Percentage Employee Turnover	31.3	32.9	33.0	30.0
• Gross Profit as a Percent of Sales	24.0	24.0	25.1	26.32
• Payroll as a Percent of Sales	9.3	10.2	10.0	10.3
• Annual Percentage Sales Growth	1.7	1.2	-0.3	1.6

*** Red numbers highlight the largest or best response in each row**

considerably higher. They are also *newer, larger, more likely to be part of a self-distributing group,* and *are part of larger ownership size groups.* They are more likely to have a *unionized workforce and employ more labor hours per week.*

The performance of the highest quartile changes noticably. Now the highest quartile has much *higher sales per square foot, sales per labor hour,*

Table 5.6.Characteristic and Performance Measures for Stores Grouped by Variety Offerings Score

	Lowest Quartile	Second Quartile	Third Quartile	Highest Quartile
NUMBER OF OBSERVATIONS	8,072 (135)	8,076 (103)	8,189 (89)	7,908 (59)
MEAN VARIETY OFFERINGS SCORE	20	39	54	79*
MARKET CHARACTERISTICS				
• Median Population Density (per sq. mi.)	183	290	1,139	1,938
• Median Household Income ($/year)	$37,516	$36,961	$43,295	$47,757
• Percent located in an SMSA	55	64	79	90
STORE CHARACTERISTICS				
• Median Store Age (years)	29	21	19	13
• Mean Ownership Group Size (Stores)	56	409	685	778
• Median Weekly Sales	$115,000	$200,000	$245,000	$400,000
• Median Selling Area (sq. ft.)	14,800	26,000	32,000	45,000
• Median Weekly Labor Hours	790	1,400	2,100	2,900
STORE CHARACTERISTICS (Percentages)				
• Wholesaler Supplied	83	55	37	11
• Union Workforce	16	26	32	37
PERFORMANCE MEASURES (Median)				
• Weekly Sales per Square Foot of Selling Area	$7.95	$6.79	$7.75	$9.02
• Sales per Labor Hour	$113.85	$138.89	$117.93	$126.85
• Sales per Transaction	$17.69	$20.00	$23.33	$25.13
• Annual Inventory Turns	20.0	14.0	13.0	16.0
• Percentage Employee Turnover	29.8	25.8	37.6	29.9
• Gross Profit as a Percent of Sales	24.0	25.0	26.0	27.0
• Payroll as a Percent of Sales	10.0	10.0	10.0	10.1
• Annual Percentage Sales Growth	0.6	1.4	-1.3	2.6

*** Red numbers highlight the largest or best response in each row**

sales per transaction, and *annual percentage sales growth*. They also have a slightly higher *gross profit as a percent of sales*.

Stores in other quartiles of variety offerings excel in only three instances on Table 5.6. The second quartile has the lowest *employee turnover* and the highest *sales per labor hour* while the lowest quartile has the highest *inventory turns*.

- ***Stores that offer the most variety have the best performance on four of eight performance measures including highest annual percentage sales growth.***

- ***Offering variety pays off in better performance.***

Adding a variety score to the service score identifies outstanding performers more readily. The best performers in terms of offering variety are in more densely populated areas with higher incomes, a geographic and demographic area that is likely to demand more variety. The higher population density also brings in higher sales per week and per square foot. Higher incomes bring in higher sales per labor hour and per transaction. It also allows slightly higher margins (at least on some items), which can lead to higher gross profits. It appears that variety pays off.

Chapter 6: Supercenters, Supermarkets and Competition

Supercenters are an important competitive force in the supermarket industry. In the 2000 Panel, stores facing competition from new supercenters experienced large drops in labor productivity and large increases in labor turnover in the first year. Stores in the 2001 Supermarket Panel that faced supercenter competition had significantly lower sales per labor hour and lower annual sales growth. In the 2002 Panel, supercenters had the highest score in supply chain management and service offerings. They also had the highest sales per labor hour and per transaction, as well as the highest percentage sales growth (3.1%). Here we explore the findings from the 2003 Panel to address the question of how supercenters differ from other supermarkets and how their competitive behavior impacts the performance of other stores.

- ***Median Weekly sales at supercenters in the Panel is $950,000.***

How Do Supercenter/Hypermarket Stores in the 2003 Panel Differ from Other Supermarkets?

- ***Supercenters have significantly higher sales per labor hour and sales per transaction than other types of stores.***

In general, supercenter/hypermarket stores are defined as stores with more than 100,000 square feet of selling area or stores with 75,000 to 100,000 square feet of selling area, a pharmacy, and no more than 30% of store sales from groceries. Based on sampling weights, the eight supercenter/hypermarket stores in the 2003 Panel represent a total of 987 stores nation-wide. Based on publicly available company information and news reports, this under-represents the number of supercenter/hypermarket stores. There were about 1,970 supercenters in the U.S. in 2003.

In the general market, supercenter/hypermarkets represent 5.5 percent of the 32,981 supermarkets in the U.S. They capture 11% of the sales (counting only sales of the grocery/supermarket items in a supercenter). Traditional supermarket/grocery items make up 30 to 40% of the total sales in a supercenter; general merchandise comprises the rest. Sixty-three percent of households shopped at a supercenter during the year compared to 100% who shopped at a grocery store. However, the trips per year to a grocery store fell by 12% to 73% (1.4 trips per week) between 1999 and 2002 while trips per year to a supercenter increased 40% to 21% (1.75 trips per month).[1]

- ***Number of shopping trips per year to supercenters increased 40% since 1999.***

A caveat: There are only eight supercenters in the 2003 Panel so the numbers generated from their characteristics and performance do not represent that of supercenters in general. However, since there is intense interest in following the development of supercenters and their impact on the market and since the supercenters in the 2003 Panel

[1] Data from The Food Institute's Food Industry Review – 2003, p. 85,86,88,157.

- ***The supercenters in the 2003 Panel do not statistically represent the population of supercenters, but they come from a variety of companies with a variety of characteristics and behaviors. Their weekly sales compare favorably with those of all supercenters in the country.***

came from a wide variety of companies, we decided to present the comparison with this acknowledgement. The reader should not try to generalize the profile of supercenters in this report to the whole industry, but one reference point is the median weekly sales. In the 2003 Panel, median weekly sales are $950,000 for supercenters; The Food Industry Review 2003 reports weekly sales for supercenters to be $987,000. These are quite comparable figures.

Table 6.1 shows store and market characteristics, management practices, and operating performance for stores in ownership groups with up to fifty stores, stores in ownership groups with more than fifty stores, and supercenter/hypermarket stores. Stars are used to indicate statistically different values for each measure at the 0.10 percent confidence level. For store types that are significantly different from supercenters/hypermarkets, or from other types of stores listed, there will be a superscript(*). If the values are significantly different from each of the other types of stores there will be one, two, and three stars in the superscript on each of the three numbers in a row (see Median Population Density). If two numbers in the row have the same number of stars, they are not different from each other but both are different from the third type of store, as in the row for Sales per Labor Hour. If there is no (*) in a row, there is no statistical difference in the types of stores on that variable.

- ***Stores in ownership groups of less than 50 stores and supercenters are both in areas with less population density and are more likely to be located outside a SMSA than stores in ownership groups of more than 50 stores.***

Differences in the population density of the zip codes in which stores are located are significantly different. Stores in smaller groups and supercenters are both in areas with less population density and are more likely to be located outside a SMSA, even though 72% of supercenters are inside a SMSA. There is virtually no difference in the median household income in the areas of the different types of stores. These results mirror those of the 2002 Panel.

Shifting attention to store characteristics, supercenter/hypermarket stores are, by definition, much larger than stores in either of the other groups. They are newer, self-distributing, and have about the same likelihood of a unionized workforce as stores in a smaller group. Supercenters have significantly larger weekly sales and more stores in their ownership group size (chains).

Differences for the three management practice scores across the three groups are relatively large and generally statistically significant. Stores in the smaller ownership groups consistently have the lowest scores and supercenter/hypermarket stores have the highest mean scores except for variety offerings. Stores in the group size of >50 stores offer more variety. Supercenters are more likely to identify themselves as price

Table 6.1 Store Characteristics and Performance for Supercenter/Hypermarket Stores and Other Supermarkets

	Ownership Group Size		
	Up to 50 Stores	More Than 50 Stores	Supercenter/ Hypermarket Stores
Weighted Number of Stores	14,683	17,035	987
Actual Number of Stores	223	160	8
MARKET CHARACTERISTICS			
• Median Population Density (per sq.mi.)	170 *	1492 **	467 ***
• Median Household income ($/year)	$39,847	$42,254	$39,428
• Percent Located in an SMSA	57 *	85 **	72 ***
STORE CHARACTERISTICS			
• Median Selling Area (sq. ft.)	15,000 *	40,000 **	150,000 ***
• Median Weekly Sales	$115,000 *	$320,000 **	$950,000 ***
• Median Store Age (years)	30 *	15 **	11 ***
• Mean Ownership Group Size	7 *	828 **	1,405 ***
• Percent Wholesaler Supplied	95 *	7 **	n/a[1]
• Percent With Union Workforce	13 *	41 **	n/a
MANAGEMENT SCORES (Mean)			
• Supply Chain	32 *	68 **	80 ***
• Service Offerings	34 *	42 **	47 ***
• Variety Offerings	35 *	58 **	45
COMPETITIVE POSITION (Percent)			
• Price Leader	15 *	35 **	66 ***
• Quality Leader	76 *	61 **	22 ***
• Service Leader	69 *	76 **	69 **
• Variety Leader	24 *	45 **	14 ***
PERFORMANCE MEASURES (Median)			
• Weekly Sales per Square Foot	$7	$9	$7
• Sales per Labor Hour	$94 *	$120 **	$192 **
• Sales per Transaction	$17 *	$24 **	$50 ***
• Annual Inventory Turns	16	15	9
• Percentage Employee Turnover	33	34	22
• Gross Profit as a Percent of Sales	25	26	22
• Payroll as a Percent of Sales	11	10	9
• Annual Percentage Sales Growth	0.8	0.5	0

The statistical differences between the various variables are checked at the 10% significance level. For the store types which are significantly different – the number of "*" are different. If two store types have the same number of "*", it implies that they are not significantly different. Absence of "*" indicates that the store type is not significantly different from either of the other two types.

[1] These numbers are withheld to preserve confidentiality.

*** Red numbers highlight the largest or best response in each row**

leaders. Stores in the group size >50 stand out as the self proclaimed variety and service leaders.

- ***Supercenters are more likely to identify themselves as price leaders.***

Finally, focusing on the operating performance measures, supercenter/hypermarket stores have significantly higher sales per labor hour and sales per transaction. In the 2003 Panel, there are no other statistically different performance measures regardless of the types of stores.

Labor

Supercenter/hypermarket stores have a higher percent of employees working full-time and higher labor productivity than other supermarkets. Table 6.2 presents more detailed information on human resource management for the three groups of stores. The same notation for significant differences is used here as on Table 6.1.

Table 6.2 Human Resources Practice Measures for Supercenter/Hypermarket Stores and Other Supermarkets

(*Mean Values*)	Ownership Group Size: Up to 50 Stores	More Than 50 Stores	Supercenter/ Hypermarket Stores
• Total Employees	66*	100 **	256 ***
• Percent Full-Time Employees	41	39	57
• Percent of Labor Hours by Full-Time Employees	53*	50 *	69 **
• Percentage Full-Time Employee Turnover	20	21	23
• Percentage Part-Time Employee Turnover	56	50	66
• Weekly Labor Hours per 1,000 Square Feet of Selling Area	85*	71**	31***

*** Red numbers highlight the largest or best response in each row**

- ***Supercenter/ hypermarket stores use less labor intensive operating practices.***

Supercenter/hypermarket stores do not differ significantly from other stores in the percentage of their employees who work full-time. However, they do rely on full-time employees for a much higher percentage of their total labor hours. Labor turnover is at least twice as great among part-time employees than full-time employees, but it does not differ much across types of store. Finally, it is noteworthy that supercenter/hypermarket stores use much less labor per 1,000 square feet in their stores. In part, this can be attributed to the fact that the percentage of selling area devoted to aisles usually increases with selling area, but it also suggests that supercenter/hypermarket stores use less labor intensive operating practices.

Table 6.3 Store Characteristics and Performance for Stores Grouped by Competition with Supercenters

	No Supercenter Competition	Supercenter Competition
Weighted Number of Stores	13,029	14,692
Actual Number of Stores	140	185
STORE CHARACTERISTICS		
• Median Selling Area (sq. ft.)	30,000	32,000
• Mean Ownership Group Size	502.5	482.77
• Median Household Income ($/year)	41,947	38,843
• Percent Located in an SMSA	76.51	66.39
PERFORMANCE MEASURES (Median)		
• Weekly Sales per Square Foot	$8.22	$7
• Sales per Labor Hour	$106.49	$109.86
• Percentage Employee Turnover	30.97	36.67
• Payroll as Percent of Sales	10	10
• Annual Percentage Sales Growth	0.49	0.58

Supercenter Competition

Stores that participated in the Panel were asked to identify their three most important competitors by store name. They also provided information on store characteristics, including whether each competitor was a supercenter. Store characteristics and performance levels for stores that did and did not identify a supercenter as one of their three most important competitors are presented in Table 6.3.

- ***Fifty-three percent of supermarkets have significant supercenter competition.***

Based on weighted responses, approximately 53% of the supermarket population recognizes significant competition from a supercenter, up from about one-third of stores in the 2001 Panel and half of stores in the 2002 Panel. Stores in the two groups are similar in terms of market and store characteristics, though stores reporting supercenter competition are, on average, slightly larger and are located in areas with lower median household income. Comparing performance levels, stores that report supercenter competition have somewhat lower sales per square foot of selling area and higher sales growth. Overall the characteristics of stores that do and do not face supercenter competition in 2003 are very similar.

- ***Stores that report supercenter competition have somewhat higher sales per square foot of selling area and higher sales growth.***

Results from an analysis of data for stores that participated in the 2001, 2002, and 2003 Panels are presented in Table 6.4. Of 196 stores

Table 6.4 Changes in Performance for Continuing Panel Stores Grouped by Supercenter Competition

	No Supercenter Competition	Supercenter Competition in 2001 but not in 2002	Supercenter Competition in 2001 and 2002	Supercenter Competition in 2002 but not in 2001
Weighted Number of Stores	5664	1325	4881	1685
Actual Number of Stores	67	17	81	31
MEDIAN CHANGE IN PERFORMANCE FROM 2001 to 2002				
Weekly Sales per Square Foot	-$0.19	-$0.13	$0.09	$0.25
Sales per Labor Hour	$2.55	-$0.24	$2.73	$7.01
Percentage Employee Turnover	-9.23%	-3.08%	-9.32%	-12.14%
Weekly Sales (% change)	0%	3.78%	0.54%	-1.13%
PERCENT OF STORES WITH A MAJOR REMODELING				
Remodel in 2003	5.19%	3.7%	2.48%	13.95%
Remodel in 2002	10.28%	0%	11.27%	0%
Remodel in 2001	4.93%	0%	5.53%	8.07%

that provided information on competitors in all three years, only 67 did not report supercenter competition in 2003, eighty-one stores reported it in both 2001 and 2002, seventeen stores reported it in 2001 but not 2002, and thirty-one stores reported new supercenter competition in 2002. Note that, because Panel data are collected early in the calendar year, stores in the 2002 Panel were reporting data for 2001, while those in the 2003 panel were reporting 2002 data.

- ***Stores facing new supercenter competition experienced higher sales per labor hour, but 1.13% lower weekly sales.***

Median changes in performance levels for these four groups show considerable differences in employee turnover. Unlike the results in 2002, stores that reported supercenter competition for the first time in 2003 (last column) experienced a larger decrease in employee turnover than stores that had no supercenter competition or who had faced competition at least 2 years ago. On the other hand, stores facing new supercenter competition experienced higher sales per square foot, considerable higher sales per labor hour, but 1.13% lower weekly sales.

- ***Remodeling may help a store overcome supercenter competition.***

Results summarized in the lower portion of Table 6.4 point to a possible strategic response by stores reporting supercenter competition - remodeling. Stores that reported supercenter competition in 2001 and 2002 remodeled at a much higher rate than other stores in 2002. Stores that reported new supercenter competition in 2002 remodeled at a much higher rate than other stores in 2003. This is similar to findings from the 2001 and 2002 Panel. It suggests that remodeling may help a store overcome supercenter competition and that it can be a preemptive or an initial response to new competition from a supercenter.

Table 6.5 Comparison of 2002 and 2003 Supercenter/Hypermarket Stores

	2002 Data	2003 Data
Weighted Number of Stores	943	987
Actual Number of Stores	15	8
MARKET CHARACTERISTICS		
• Median Population Density (per sq.mi.)	430	467.34
• Median Household income ($/year)	$42,282	$39,428
• Percent Located in an SMSA	70	71.53
STORE CHARACTERISTICS		
• Median Selling Area (sq. ft.)	139,000	150,000
• Median Weekly Sales	$900,000	$950,000
• Median Store Age (years)	7	11
• Mean Ownership Group Size	731	1,405.14
• Percent Wholesaler Supplied	n\a	n\a
• Percent With Union Workforce	n\a	n\a
MANAGEMENT SCORES (Mean)		
• Supply Chain	84.6	80.1
• Service Offerings	47.2	46.96
• Variety Offerings	n\a	44.56
COMPETITIVE POSITION (Percent)		
• Price Leader	60	66
• Quality Leader	61	22
• Service Leader	80	69
• Variety Leader	80	14
PERFORMANCE MEASURES (Median)		
• Weekly Sales per Square Foot	$8.06	$6.50
• Sales per Labor Hour	$138.69	$192.40
• Sales per Transaction	$35.71	$50.00
• Annual Inventory Turns	10	9
• Percentage Employee Turnover	48.2	21.93
• Gross Profit as a Percent of Sales	24.6	22
• Payroll as a Percent of Sales	8	8.9
• Annual Percentage Sales Growth	3.1	0

The above table entries have not been checked for significant differences. The small number of stores in the sample makes such comparisons meaningless.

- ***Supercenters in the 2003 Panel are in areas with more people and lower incomes compared to 2002. They are larger, less technologically advanced and growing slower.***

In order to look at differences in supercenters as they increasingly enter the supermarket business, Table 6.5 reports the characteristics and performance numbers reported by supercenters in 2002 and 2003. No attempt to test for significant differences is presented, but it appears that newer supercenters to the Panel have higher weekly sales, are in areas with lower household incomes and more people, are slightly larger in size, and not quite as sophisticated in supply chain management. They have larger sales per labor hour and per transaction, but smaller sales per square foot. This would be consistent with larger stores. Employee turnover is down in 2003, as is annual sales growth. Changes in supercenters as they increase their presence on the landscape will be important to watch.

7. Characteristics of Top Performers

Identifying the linkages between top performance, store characteristics and practices is an important long-term goal for the Supermarket Panel. Replicating the analysis from the 2001 and 2002 *Annual Report*, we have identified stores in the 2003 Panel that have above the median levels for each of three key performance measures: *weekly sales per square foot, sales per labor hour,* and *annual percentage sales growth.* Of the 391 stores in the 2003 Panel, 42 stores or 10.7% meet this criterion. This compares to 6.2% of the stores in the 2002 Panel.

- ***More than 10 percent of the stores in the 2003 Panel have above the median levels for each of three key performance measures: weekly sales per square foot, sales per labor hour, and annual percentage sales growth.***

These outstanding stores come from three ownership group size categories, all formats, and all four regions. Table 7.1 presents a descriptive profile for stores grouped by performance category and ownership group size. Only two ownership group size categories are used in this analysis – groups with fifty or fewer stores and groups with more than fifty stores.

Approximately thirty percent of the top stores are in ownership groups with fifty or fewer stores. Within this ownership group size category, top stores tend to have higher weekly sales, are more likely to operate in an SMSA, are more likely to be a price leader and less likely to be a leader in quality, service or variety. They are also *less likely to be wholesaler supplied*. Otherwise, there are few significant differences from other stores.

- ***Top stores in both group sizes are price leaders, have higher weekly sales and are more likely to be located in an SMSA.***

Two-thirds of top stores are in groups with more than 50 stores. These top stores operate in areas with lower population density, and are less likely to be in an SMSA. They belong to larger group sizes, have higher weekly sales, are more likely to have a union workforce and *more likely to be wholesaler supplied*. Top stores in the groups with more than 50 stores are much more likely to be price leaders and variety leaders.

- ***Top stores in larger group sizes are more likely to have a unionized workforce, be a variety leader, be wholesaler supplied, and be in an area with a lower population density.***

Remarkably, for both comparison groups on Table 7.1 there is no significant difference in the management scores between top performers and others within each group. Looking at management scores across the two group sizes, one can see that stores in groups of more than 50 stores had considerably higher scores on all three management practices. The supply chain score is more than twice as high for stores in larger groups.

Median performance measures are presented in the lower portion of Table 7.1. As expected, median levels for weekly sales per square foot, sales per labor hour, and annual percentage sales growth are dramatically higher for top stores in each group size category, since these are the performance measures used to identify the top stores.

Table 7.1 Descriptive Profiles for Stores Grouped by Performance *(Based on Median)*

	Groups with 50 or Fewer Stores		Groups With More Than 50 Stores	
	Regular Stores	Top Stores	Regular Stores	Top Stores
Weighted Number of Stores	9741	1,459	9,879	2638
Actual Number of Stores	156	16	92	26
MARKET CHARACTERISTICS				
Median Population Density (per sq.mi.)	105.58	349.27	1,850.6 *	1,284.37 **
Median Household income ($/year)	$38,330	$40,003	$42,263	$41947
Percent Located in an SMSA	52.33 *	63.74 **	85.84 *	78.09 **
STORE CHARACTERISTICS				
Median Store Age (years)	28	29	13	17
Mean Ownership Group Size	6.53	4.45	825.76 *	1,015.32 **
Median Weekly Sales	$100,000 *	$184,000 **	$306,000 *	$430,000 **
Median Selling Area (sq. ft.)	15,000	12,500	41,000	40,000
STORE CHARACTERISTICS (Percent)				
Percent Wholesaler Supplied	96.28 *	84.85 **	2.81 *	4.74 **
Percent With Union Workforce	14.14	12.89	35.31 *	45.41 **
MANAGEMENT SCORES (Mean)				
Supply Chain	32.76	33.01	68.81	68.04
Service Offerings	34.9	29.5	41.65	37.58
Variety Offerings	34.82	32.11	58.42	52.49
COMPETITIVE POSITION (Percent)				
Price Leader	11.04 *	28.17 **	29.62 *	57.85 **
Quality Leader	77.64 *	60.08 **	64.32 *	43.03 **
Service Leader	74.11 *	52.62 **	75.53	75.51
Variety Leader	28.83 *	10.08 **	41.36 *	52.96 **
PERFORMANCE MEASURES (Median)				
Weekly Sales per Square Foot	$6.73 *	$10.48 **	$7.13 *	$12.81 **
Sales per Labor Hour	$97.93*	$160.76 **	$125.00 *	$170.16 **
Sales per Transaction	$16.67 *	$23.81 **	$22.92 *	$27.86 **
Annual Inventory Turns	16 *	---[1]	14	17
Percentage Employee Turnover	33.64	34.92	33.42	30.97
Gross Profit as a Percent of Sales	25 *	22 **	26	25
Payroll as a Percent of Sales	11	9.3	10 *	8.45 **
Annual Percentage Sales Growth	0 *	5.75 **	-1.13 *	3.9 **

* or * * indicate a statistically different result within each group size (< 50 stores and > 50 stores)

1. The data reported for this variable were not consistent enough to calculate a reliable median for this group.

Red numbers highlight the largest or best response in each row

However, top stores outperform regular stores on sales per transaction and payroll as a percent of sales. Top stores in groups of less than 50 stores actually have smaller gross profit as a percent of sales than their comparison group.

- ***Top stores outperform regular stores on sales per transaction and payroll as a percent of sales.***

Top to Top Comparison

Comparing top stores in the two ownership group size categories (Table 7.2), stores in larger groups have slightly better performance for every measure except annual sales growth. However, differences in top store performance are relatively small, and it is not possible to conclude that top stores in one ownership group size outperform those in another.

Table 7.2 Performance Measures for Top Stores in Two Size Categories

PERFORMANCE MEASURES	Groups with 50 or Fewer Stores	Groups With More Than 50 Stores
Weekly Sales per Square Foot	$10.48	$12.81
Sales per Labor Hour	$160.76	170.16
Sales per Transaction	$23.81	$27.86
Annual Inventory Turns	*NA*	17
Percentage Employee Turnover	34.92	30.97
Gross Profit as a Percent of Sales	22	25
Payroll as a Percent of Sales	9.3	8.45
Annual Percentage Sales Growth	5.75	3.9

Top stores by one criterion: Annual Percentage Sales Growth

Defining top performing stores as having to have better than the median scores on three criteria sets a high standard. Forty-two of the 391 stores in the 2003 Panel made the grade. A second definition of top performers involves identifying top performers in each group size as those that had higher *Annual Percentage Sales Growth.* In this case, 143 stores are defined as top performers. This is 36% of all the stores in the 2003 Panel. The median Annual Percentage Growth in Sales for those in groups of less than 50 stores is 4.76% under this definition. The median Annual Percentage Growth in Sales for those in groups of more than 50 stores remains unchanged at 3.9%.

No One Formula for Success

Taken together, these results suggest that there is no simple or consistent formula for success. None of the management practice scores are a good predictor of superior performance, and even the linkages between market characteristics and performance are not as strong as expected. This reinforces the idea that top performing stores must tailor their business practices to the location and customers they serve.

- ***There is no one formula for success. Top performing stores must tailor their business practices to the location and customers they serve.***

Seven Top Stores for Two Years Running!

Finally, it is noteworthy that of the 26 top stores from the 2002 Panel that also participated in the 2003, only seven stores remained in the top store group. Some characteristics of these seven top stores are:

- One of these seven stores is a single store independent. Four are in a group size 51-750 and the other two are in ownership groups of more than 750 stores. All except the single store are self-distributing.
- One of the seven stores is located in an area with a median household income that exceeds $50,000. Four of the seven stores are in an area with income between $40,000 and $50,000. The other two top stores are in an area with household income between $34,000 and $35,000 per annum.
- Three stores are in areas with a population density below 1000 people per square mile, while two stores are in areas with a population density around 1350 people per square mile. Two others are in areas with a population density of more than 3800 people per square mile.
- Selling area for these seven stores ranges from 11,000 to 53,800 square feet. Formats include conventional, food/drug combination, and warehouse.
- Four of the seven stores were built less than ninteen years ago. The other three were built more than twenty-seven years ago.
- Two of the seven stores identify themselves as price leaders in their market area and three identified themselves as service leaders.

- ***The top seven stores for 2 years in the Panel are long-time survivors!***

Once again, there is no single characteristic or management practice that distinguishes these stores. The key to top performance may well rest with the store manager and the support s/he receives from the store's key supplier or corporate headquarters. This is an issue that deserves more attention in the future.

Chapter 8. Unionized Labor in the Supermarket

As health care costs continue to rise and large supercenters increasingly operate without unionized labor, there is increasing interest in the value of having unionized labor in the supermarket industry. This is not the place to debate all the issues around this topic, but since the Panel has collected data on whether stores have unionized labor or not for four consecutive years, the results should be of interest.

- ***Stores with unionized labor had higher sales per square foot in 2000 and 2001.***

Over the years the results of the regression analyses (Chapter 9 and Appendix B in this report) show that having unionized labor significantly increased *sales per square foot* (2000 and 2001), increased *sales per labor hour* (2000, 2001, 2002) and as suspected, increased *payroll as a percent of sales* (2002 and 2003). In regression analysis, the impact of having unionized labor is assessed after all other factors are held constant; it does not imply causation but it is a pure measure of strong correlation. (Table 8.1)

- ***Stores with unionized labor had higher sales per labor hour in 2000-2002.***

Table 8.1 Impact of Unionized Labor on Performance Measures

Performance Measure	2000	2001	2002	2003
Sales per Square Foot	++	++		
Sales per Labor Hour	++	++	++	
Payroll as a Percent of Sales			++	++

++ indicates that there was a statistically positive influence on the performance measure at the 95% confidence level

Sales per Labor Hour is a measure of particular interest. It signals a more efficient and effective use of unionized labor but the reason is unrevealed here. It may be due to better trained or more experienced labor; it may be that unionized labor has less turnover; it may simply be that these stores use less labor.

- ***One-third of 2003 Panel stores have union labor. They have slightly higher performance by every measure except annual percentage sales growth.***

Table 8.2 separates the 2003 store characteristics and median performance measures into those stores that are unionized and those that are not. Two-thirds of the stores in the 2003 Panel did not have unionized labor. The one-third that did have unionized labor had higher *selling area, median weekly sales, were in larger group sizes, were more likely to be self-distributing*, and *more likely to be in an SMSA*.

More interesting, unionized stores also had *higher Supply Chain Management Scores*, especially on the decision sharing component. This is a chicken and egg question, but it is possible that the higher labor costs in unionized stores led the stores to more readily invest in labor saving technologies and to utilize the power of those technologies to move some of the management tasks out, beyond the walls of the store.

- ***Stores with unionized labor have higher Supply Chain Management Scores.***

However, since these stores are also more likely to be self-distributing, more of the decisions are likely centralized at the chain's headquarters by the structure of the business.

In terms of performance measures, unionized stores had slightly better scores on five measures on Table 8.2. The differences are statistically significant. Higher sales per labor hour is consistent with utilizing less labor to accomplish the same level of sales or the same level of labor to drive up sales. Less labor turnover implies that there is more experienced labor in the store, which would cut training costs and be expected to increase productivity.

Sales per transaction is also higher in stores with unionized labor by about $5.00. This could be explained by several factors including larger stores with more total sales.

In addition, we looked at the percent of stores that had union labor by store format. We found that 14% of conventional formats, 27% of superstore formats, and 38% of food and drug combination formats had union labor. Sixty-six percent of warehouse and 77% of super warehouse stores had unionized labor.

Clearly these data need more intensive analysis than this report allows. A simple look at Table 8.2 gives a descriptive indication of the influence of unionized labor on store performance; it does not answer any questions about why.

Table 8.2 Descriptive Profile for Stores Grouped by Unionization

	Unionized	Non-Unionized
NUMBER OF STORES REPRESENTED	8,506 (102)	22,282 (269)
MARKET CHARACTERISTICS		
• Median Population Density (per sq.mi.)	2,320.29 *	349.27 **
• Median Household income ($/year)	42,478	40,304
• Percent Located in an SMSA	91.09 *	64.01 **
STORE CHARACTERISTICS		
• Median Store Age (years)	20	20
• Mean Ownership Group Size	842.88 *	352.4 **
• Median Weekly Sales	360,836 *	184,000 **
• Median Selling Area (sq. ft.)	39,000 *	27,000 **
• Percent Wholesaler Supplied	27.91 *	54.75 **
MANAGEMENT SCORES (Mean)		
• Supply Chain	63.99 *	47.83 **
• Service Offerings	39.29	37.76
• Variety Offerings	53.17 *	44.88 **
COMPETITIVE POSITION (Percent)		
• Price Leader	42.01 *	20.87 **
• Quality Leader	59.90 *	68.78 **
• Service Leader	66.55 *	75.08 **
• Variety Leader	38.90 *	33.98 **
WITHIN STORE TYPES (Percent)		
• Conventional	14.43	85.57
• Food/drug Combo	38.11	61.89
• Warehouse	65.6	34.4
• Superstore	27.04	72.96
• Supercenter/hypermarket	- [1]	- [1]
• Super warehouse	76.8	23.2
PERFORMANCE MEASURES (Median)		
• Weekly Sales per Square Foot	$9.02 *	$7.29 **
• Sales per Labor Hour	$154.69 *	$116.68 **
• Sales per Transaction	$25.29 *	$20.83 **
• Annual Inventory Turns	17 *	14 **
• Percentage Employee Turnover	25 *	37 **
• Gross Profit as a Percent of Sales	25	25
• Payroll as a Percent of Sales	10 *	10 **
• Annual Percentage Sales Growth	-0.36	1.35

* or ** Indicates differences are statistically significant.

[1] Withheld to preserve confidentiality.

Chapter 9. Statistical Analysis of Performance Drivers

The descriptive profile of the Panel and the analysis of store characteristics and performance for each of the key management areas provide useful insights on the structure of the supermarket industry and factors associated with strong performance. However, these all show simple correlations allowing everything else to vary at the same time. Store performance is actually the product of complex interactions among store characteristics, market characteristics, and management practices.

This section presents findings from a multivariate regression analysis of five key performance measures.

1. Weekly Sales per Square Foot
2. Sales per Labor Hour
3. Payroll as a Percent of Sales
4. Gross Profit as a Percent of Sales
5. Annual Percentage Sales Growth

Each of these measures was regressed on independent variables that are grouped into four broad sets of performance drivers. Table 9.1 identifies the variables used.

- ***Statistical regression analysis looks at the influence of each performance driver by itself - holding all else constant.***

1. **Market Characteristics** include population density and median household income in the zip code where the store is located and a binary (i.e., zero or one) variable that is set to one if the store is in a metropolitan area (SMSA) and zero otherwise. These are factors that cannot be changed once a store has been built, but it is important to control for them because they can have important influences on store performance.

2. **Store Characteristics** include store selling area, a set of binary variables for alternative formats (superstore, food/drug combination, warehouse, super warehouse, and supercenter/hypermarket, with conventional being considered as the base case), ownership group size, a binary variable that is set to one if the store is part of a self-distributing group and zero otherwise, and a binary variable set to one if the store has a union workforce and zero otherwise. Store size and format cannot be changed in the short run, but they can be altered through a major remodeling. To capture the effects of remodeling, store characteristics also include binary variables indicating a major remodeling in 2001, 2002 or 2003.

- ***Supercenter competition – by itself – did not change performance. But of course, the stores in the Panel have obviously survived!***

3. **Competitive Position** performance drivers include binary variables indicating whether the manager identifies the store as a price leader, quality leader, service leader, and/or variety leader. These market position indicators are not mutually exclusive, a store could be both a

Table 9.1 Summary Information for Explanatory Variables in Store Performance Analysis

Variable	Abbreviation	Comments
MARKET CHARACTERISTICS		
• Population Density (per sq. mi.)	PopDen	Based on Census Data
• Median Household Income ($/year)	HHinc	Based on Census Data
• Located in SMSA	SMSA	Based on Census Data
STORE CHARACTERISTICS		
• Selling Area (sq. ft.)	SellSize	
• Superstore	SS	1 if SS, 0 otherwise
• Food/Drug Combination	FD	1 if FD, 0 otherwise
• Warehouse	WH	1 if WH, 0 otherwise
• Super Warehouse	SWH	1 if SWH, 0 otherwise
• Supercenter/Hypermarket	SCHY	1 if SCHY, 0 otherwise
• Store Group Size	GSize	
• Self Distributing Group	SelfDist	1 if SelfDist, 0 otherwise
• Union Workforce	Union	1 if Union, 0 otherwise
• Major Remodeling in 01, 02, or 03	Rmaj	1 if Rmaj, 0 otherwise
COMPETITIVE POSITION		
• Price Leader	Pleader	1 if PLeader, 0 otherwise
• Quality Leader	QLeader	1 if QLeader, 0 otherwise
• Service Leader	SLeader	1 if SLeader, 0 otherwise
• Variety Leader	VLeader	1 if VLeader, 0 otherwise
MANAGEMENT PRACTICES		
• Supply Chain Score	SCScr	Scale from 0 to 100
• Service Offerings Score	SOScr	Scale from 0 to 100
• Variety Offerings Score	VOScr	Scale from 0 to 100

quality and service leader, for example. Also, they are not fully under the manager's control, since a new competitor could take away leadership in one or more areas. Nevertheless, it is useful to examine how a store's competitive position in each of these areas is associated with alternative performance dimensions. A binary variable indicating supercenter competition was also included in preliminary analyses of performance drivers, but this did not add significantly to the explanatory power of the models. One explanation for this is that the impacts of supercenter competition are reflected in the other competitive position variables.

- ***Competitors are self-identified. Competition may not be in the control of the store manager, but the response to it is.***

4. **Management Practices Index Scores** are summarized by the store's scores for the three key management areas: supply chain, service offerings, and variety offerings. These are performance drivers that can be affected by deliberate management decisions, either at the store level or in store group headquarters.

Table 9.1 presents summary information on all the variables in this analysis, along with variable name abbreviations used in subsequent tables. All twenty explanatory variables were included in the regression analysis for each of the five performance measures. With so many variables in the analysis, there were often missing values. Therefore, regressions used as many stores as possible for each performance regression. The results are reported in detail in Appendix B.

Table 9.2 summarizes qualitative results for the five regression models. Each performance measure is associated with a column in the table, while each explanatory variable is associated with a table row. When the regression coefficient for an explanatory variable is statistically significant at the 95% confidence level, two pluses (++) or minuses (- -) are placed in the appropriate performance variable column to indicate the sign of the coefficient. One plus (+) or minus (-) indicates statistical significance at the 90% confidence level. For example, the relationship between population density and gross profit as a percent of sales is positive and statistically significant at the 95% level, so there are two pluses in the cell at the intersection for the row and column for these variables. This means that an increase in population is statistically significant in explaining an increase in gross profit.

It is important to note that regression results measure statistical correlation between a performance variable and an explanatory variable, while controlling for all other factors. They do not indicate causation.

Table 9.2 Qualitative Results for Performance Driver Regressions - 2003[1]

Explanatory Variable[2]	Weekly Sales per Square Foot	Sales per Labor Hour	Payroll as a Percent of Sales	Gross Profit as a Percent of Sales	Annual Percentage Sales Growth
MARKET CHARACTERISTICS					
PopDen				++	- -
HHinc		++			
SMSA		--			
STORE CHARACTERISTICS					
SellSize	--			++	- -
SS	+				
FD				- -	++
WH	++	++			--
SWH	++	+	-		
SC/HY	++				
GSize					
SelfDist				- -	++
Union			++		
Rmaj					
COMPETITIVE POSITION					
PLeader					
QLeader					
SLeader				+	+
VLeader	+			-	+
MANAGEMENT PRACTICES					
SCScr		++			
SOScr	-	--			
VOScr	++				

[1] The symbol "++" indicates a positive relationship that is statistically significant at the 95% confidence level, while the symbol "- -" indicates a negative relationship that is statistically significant at the 95% confidence level. The symbols "+" and "-" indicate positive and negative relationships that are statistically significant at the 90% confidence level. Significance levels are based on a one-tailed test.
[2] See Table 9.1 for full variable names and variable definitions.

Weekly Sales per Square Foot

Store format has a strong association with this measure. Relative to conventional stores, which are treated as the base format in this analysis, stores in four of the other major format categories have significantly higher sales per square foot (*superstores, warehouse stores, super warehouse stores, and supercenters*). In general, stores in these four formats have a larger footprint than conventional stores yet they reach higher sales per square foot. After controlling for format, an *increase in selling area* has a significant negative effect on sales per square foot.

- ***Stores with large formats - superstores, warehouse, super warehouse and supercenters – have larger weekly sales per square foot.***

Unlike results from 2002, there is not a statistically significant, positive relationship between membership in a self-distributing group and sales per square foot. Table 9.3 illustrates differences in the results between 2002 and 2003 by putting the 2002 results in red. A store's competitive position is also closely linked with the performance measure. Self-identified *variety leadership* and *the variety offering score* both have a statistically significant, positive relationship with sales per square foot. On the other hand, there is a negative relationship between the *service offering score* and sales per square foot.

Sales per Labor Hour

This measure of labor efficiency is significantly higher in markets with *higher household income*. However, being in an *SMSA* decreases the sales per labor hour. This may seem to be contradictory except that we must remember that in this regression analysis, *the results for any one variable holds all other things constant*. So, all else being equal, stores in an SMSA have lower sales per labor hour. Two store formats had a positive and significant impact on this measure of performance (*warehouse and superwarehouse*). So does having a high *supply chain management score*, as we would have expected. In contrast having a *high service score* decreases the sales per labor hour. Since high service typically takes more labor, this result is also predictable and consistent with findings in 2002. None of the self-declared competitive position variables has a significant association with sales per labor hour, perhaps because store managers can adjust labor scheduling in response to market conditions.

- ***Stores in higher income areas have higher weekly sales per labor hour in 2003.***

- ***Higher supply chain scores are associated with higher sales per labor hour. This could be because stores are substituting capital for labor and/or that good use of technology makes labor more efficient.***

Payroll as a Percent of Sales

This second measure of labor productivity takes both labor time and the wage rate paid to workers into account. It is the only one of the five performance measures that stores try to minimize rather than maximize. So in *this case negative signs for explanatory variables indicate an association with better performance*. *Super warehouse* stores have lower payroll as a percent of sales. Stores with *a union workforce* tend to have higher

Table 9.3 Qualitative Results for Performance Driver Regressions – 2003 (2002 in red)

Explanatory Variable[2]	Weekly Sales per Square Foot	Sales per Labor Hour	Payroll as a Percent of Sales	Gross Profit as a Percent of Sales	Annual Percentage Sales Growth
MARKET CHARACTERISTICS					
PopDen	(++)	(++)		++	- -
HHinc	(++)	++	(++)		(++)
SMSA		- -		(++)	
STORE CHARACTERISTICS					
SellSize	(- -) - -	(+)	(- -)	++	- -
SS	+				
FD	(++)		(++)	(- -) - -	++
WH	(++) ++	(++) ++			(- -) - -
SWH	(++) ++	+	(++) -	(- -)	
SC/HY	(++) ++		(+)	(-)	
GSize					
SelfDist	(+)	(+)	(- -)	- -	++
Union		(++)	(++) ++		
Rmaj					
COMPETITIVE POSITION					
Pleader	(++)		(- -)		
QLeader	(++)			(++)	(+)
SLeader	(+)			+	+
VLeader	+			(+) -	+
MANAGEMENT PRACTICES					
SCScr		++	(- -)	(+)	
SOScr	-	(- -) - -	(+)	(++)	
VOScr	++				

[1] The symbol "++" indicates a positive relationship that is statistically significant at the 95% confidence level, while the symbol "- -" indicates a negative relationship that is statistically significant at the 95% confidence level. The symbols "+" and "-" indicate positive and negative relationships that are statistically significant at the 90% confidence level. Significance levels are based on a one-tailed test.
[2] See Table 9.1 for full variable names and variable definitions.

payroll as a percent of sales. This is consistent with expectations and findings in 2002. No other variables had a statistically significant impact on payroll as a percent of sales in 2003. Looking at Table 9.3, one can see that in 2002, store format had an influence and being a *price leader* and having a high Supply Chain Score decreased labor costs as a percent of sales. Price leadership had a statistically significant relationship with payroll as a percent of sales in the 2001 and 2002 Panels. (See Table 9.4 for a 4 year comparison of regression results.)

- ***Stores with union-ized labor have a higher payroll as a percent of sales.***

Gross Profit as a Percent of Sales

This productivity measure - the difference between sales and cost of goods sold divided by sales - can indicate success in being able to charge higher prices while maintaining sales levels and/or greater efficiency in procurement. Six variables have a statistically significant impact on this measure in 2003, including being located in an area with higher *population density*. Compared to a conventional store, being a *food/drug combination store and/or a self-distributing chain* decreased gross profit as a percent of sales. Since conventional stores are the baseline against which these influences are measured, *conventional stores* have a higher gross profit than stores with other formats. Having a *large selling area* increases gross profits.

- ***Gross profit is a function of margins. It is significantly lower for food/drug combination stores and self-distributing chains.***

In 2002, (Table 9.3) being in a *SMSA* had a statistically significant relationship with gross profit as a percent of sales, and it was positive. Turning to store characteristics, *food/drug combination, super warehouse, and supercenter/hypermarket stores* all led to significantly lower gross profit as a percent of sales, relative to conventional stores. The negative relationship for super warehouse and supercenter/hypermarket stores is expected, since these stores often base their competitive strategies on a combination of high sales volume and low margins. The negative relationship for the food/drug combination stores is unexpected, since these stores do not have unusually low gross profit as a percent of sales levels. It is likely that this effect is offset by the effects of other factors in the regression model. For example, food/drug combination stores are more likely than conventional stores to be quality and variety leaders in their market area, and both these competitive position variables have statistically significant, positive relationships with gross profit as a percent of sales in 2002.

- ***Unlike 2002 results, a high Supply Chain Score did not explain gross profit in 2003.***

Finally, in 2002, two management scores - *Supply Chain and Service Offerings* - had statistically significant, positive relationships with gross profit as a percent of sales. The positive relationship for Service Offerings is expected, since the cost of goods sold is generally low for services. One possible explanation for the positive relationship between gross profit as a percent of sales and the Supply Chain score is

Table 9.4 Qualitative Results for Performance Driver Regressions – 2003; (2002 in red); [2001 in blue]; {2000 in green}

	Weekly Sales per Square Foot	Sales per Labor Hour	Payroll as a Percent of Sales	Gross Profit as a Percent of Sales	Annual Percentage Sales Growth
MARKET CHARACTERISTICS					
PopDen	{++} [++] (++)	{++} [+] (++)	{- -}	[+] ++	{++} [+] - -
HHinc	(++)	[++] ++	{-} (++)		{++} [++] (++)
SMSA	{+}	- -	{+}	{- -} (++)	[+]
STORE CHARACTERISTICS					
SellSize	{- -} [- -] (- -) - -	(+)	(- -)	{++} [-] ++	{- -} - -
SS	+				
FD	{+} [++] (++)		{- -} (++)	(- -) - -	++
WH	{++} [++] (++) ++	{++} (++) ++	{- -} [- -]	{- -} [-]	{- -} (- -) - -
SWH	(++) ++	+	(++) - -	(- -)	
SC/HY	(++) ++	[++]	(+)	(-)	
GSize	[- -]	[- -]			{- -}
SelfDist	[+] (+)	[++] (+)	{++} (- -)	[+] - -	++
Union	{++} [++]	{++} [++] (++)	{++} (++) ++		[- -]
COMPETITIVE POSITION					
PLeader	{++} [++] (++)	{+}	[- -] (- -)	{- -} [- -]	{++} [++]
QLeader	(++)		{++}	(++)	{++} [- -] (+)
SLeader	{++} (+)			+	{-} [+] +
VLeader	+			[+] (+) -	-
MANAGEMENT PRACTICES					
SCScr	{++}	[++] ++	[- -] (- -)	{- -} (+)	
SOScr	-	(- -) - -	(+)	{+} (++)	[- -]
VOScr	++				

[1] The symbol "++" indicates a positive relationship that is statistically significant at the 95% confidence level, while the symbol "- -" indicates a negative relationship that is statistically significant at the 95% confidence level. The symbols "+" and "-" indicate positive and negative relationships that are statistically significant at the 90% confidence level. Significance levels are based on a one-tailed test.

[2] See Table 9.1 for full variable names and variable definitions.

that stores adopting the practices included in this score are receiving discounts from suppliers because they are less costly to serve. However, none of these factors were significant in 2003.

Annual Percentage Sales Growth

Like some of the other performance measures, sales growth is associated with store and market characteristics. The annual rate of sales growth is significantly lower in areas with *high population density* and in stores with *large selling areas*. Being a *food and drug combination* store increased growth rates while being a *warehouse store* decreased growth rates. However, being a *self-distributing group* significantly increases annual percentage sales growth. Sales growth is also significantly higher for stores that identify themselves as *service and variety leaders* in their market area.

None of the management practices affected annual sales growth. Earlier in this report it appeared that variety improved performance and it does significantly increase weekly sales per square foot, but it does not show up as having a positive influence on other performance criteria. However, taking a competitive position with service and variety both have a positive relationship to annual percentage growth in sales.

- ***Service and variety leadership have positive relationships to annual percentage growth in sales.***

A caveat on percentage sales growth: smaller stores with lower dollar sales will need a smaller increase in dollar sales to show a larger percentage increase. It will take a very large increase in sales in a large store to match the percentage growth in a smaller unit. This is a fact of arithmetic. Also, it is more likely that service is the competitive edge in smaller stores and they appear to be using it to drive sales growth. It is part of the differentiation for smaller stores and a big part of their business strategy.

Results Across Performance Measures

While the regression models used in this analysis are designed to measure the effects of performance drivers on one performance measure at a time, it is also useful to look at the qualitative results across performance measures. For example, market characteristics in 2002 clearly had important impacts on all dimensions of performance. In general, *stores in more densely populated, higher income areas* perform better. In 2003, market characteristics were less important but strongly influenced sales per labor hour, gross profit and annual percentage sales growth.

- ***In general, stores in more densely populated, higher income areas perform better.***

- ***Being a self-distributor in 2003 lowered gross profits as a percent of sales but increased sales growth.***

- ***There is no ONE secret of success in the retail food business. It is a local business. Success depends on customer's perceptions of the products and service, convenience and price, and what combination of store characteristics is most important to them.***

As for *store format*, food/drug combination, warehouse, super warehouse, and supercenter/hypermarket stores have performance levels that are significantly different from (but not always better than) performance for stores with conventional and superstore formats. Membership in a *self-distributing group* was associated with higher productivity for both selling area and labor in 2002, but played a role only in increasings percentage sales growth in 2003. Perhaps this is because so many of the stores are now in self-distributing groups that this variable is no longer a differentiating factor. Since a key factor in self-distributing stores is the collaborative relationship between the store and its primary supplier, stores in self- distributing groups have been shown to place greater emphasis on sharing information and decision authority with trading partners. These effects are also reflected in the relationship between higher levels of the *Supply Chain Score* and lower payroll as a percent of sales, higher sales per labor hour and higher gross profit as a percent of sales in the 2002 analysis. However, being a *self-distributor* in 2003 lowered gross profit and increased sales growth.

There were no statistically significant relationships between group size and any of the five performance measures in 2002 or 2003. Larger group size, by itself, does not effect performance of individual stores.

The importance of competitive position is also noteworthy. *Leadership* in each of the four areas - price quality, service, and variety - had a statistically significant relationship with improved performance for at least one measure in 2002. Consistent with findings from 2000 and 2001, *price and quality leadership* appear to be the most important competitive position variables associated with the performance measures considered in 2002. In 2003 being a *service leader* or a *variety leader* was significant for performance measures; it increased weekly sales per sq. ft., gross profit and sales growth.

Finally, the relative lack of statistically significant relationships between management practice scores and performance levels is surprising. The observed relationships for the Service Offerings score - higher labor costs and higher gross profit in 2002 exemplify the trade off between increased sales and increased profit. A *higher Service Offering Score* in 2003 has a negative effect on sales per square foot and labor hour. The *Variety Score* is new in 2003; it increased sales per square foot. On the other hand, the relationship between the *Supply Chain Score* and superior performance in terms of gross profit (2002) and sales per labor hour (2003) suggests that service and supply chain management can work together to improve performance.

Comparing the regression results for 2002 and 2003 (Table 9.3) reinforces the fact that there is no ONE secret to success in the retail food business. It is a local business. Sucess depends on customer's perception of the products and service, convenience and price, and what combination of store characteristics is most important to them. Retail food stores face a variety of types of shoppers. It is unlikely that any one store will please all of them. *Differentiation,* based on the characteristics of the local shoppers, is a key to retail success, *after* the fundamentals are met.

Four Years at a Glance

Table 9.4 details the significant explanatory variables over the last four years. These help explain the factors in this Panel study that consistently drive performance. A box is drawn around the intersection of performance measures and explanatory variables where there is a significant relationship in at least three of the last four years.

Market Characteristics:

A quick summary of the market characteristics shows that *higher population density* tends to increase supermarket performance of all types but is particularly useful to drive sales. *Higher income areas* also give supermarket performance a boost particularly annual sales growth. Being in an *SMSA* is a mixed blessing.

- ***Being in an area with* higher population density and higher income *tends to increase annual sales growth.***

Store Characteristics:

Having a bigger store (*more selling size*) tends to increase gross profit while decreasing sales per square foot. Sales per square foot is higher in *food/drug combination stores* and *warehouse stores*. Warehouse stores boost higher sales per labor hour, very likely because they use less labor; they suffer in sales growth.

Belonging to a *larger group size* or being in a *self-distributing chain* does NOT consistently improve performance over time.

- ***Union Labor increases sales per labor hour.***

Except for gross profits and annual percentage sales growth, *unionized labor* tends to increase sales performance. Chapter 8 discusses the impact of union labor and some implications for labor productivity and sales. We see that while unionized labor increases payroll costs, it also increases sales per labor hour. We are not sure why this is consistently positive, but it must be related to lower labor turnover and more productive labor behavior.

Competitive Position:

These positions are self-declared in the Panel survey. Being a *price leader* improved sales per square foot. Price leadership tends to drive sales and growth, but sacrifices gross profit.

Quality and *Service offering leaders* generally boost their annual percentage sales growth. V*ariety offering leaders* boost gross profits. All competitive positions increase sales per square foot, but none so much as being a price leader.

- ***The one performance measure that all competitive positions increase is sales per square foot.***

Management Practices:

All of the management indices have mixed results in terms of store performance. None are significant for any one performance measure in more than two years. *Supply chain management* increased sales per labor hour in two years while it decreased payroll as a percent of sales. Offering a number of *services* boosted gross profits in two years.

- ***Annual percentage sales growth usually benefits from most forms of competitive leadership.***

Overall, looking at the columns in Table 9.4 and searching for those cells with **at least three** significant coefficients over the past four year, we find that *Weekly Sales Per Square Foot* is increased consistently by dense populations, a food and drug combination format, a warehouse format, and being a price leader. Weekly sales per square foot is consistently decreased by having more selling space, which is a matter of arithmetic – the denominator is larger in the fraction (Total sales / square feet of selling area).

- ***Variety leadership drives up gross profits.***

Sales per labor hour is consistently increased by higher population density, having a warehouse format and union labor. However, union labor is the only consistently significant explanatory variable for *Payroll as a Percent of Sales*; it increases these labor costs.

Only two variables are significant in explaining *Gross Profit* and they give mixed results. Larger selling size increased gross profit in 2002 and 2003, and decreased it in 2001. Proclaiming to be a variety leader increased gross profit in 2001 and 2002, but decreased it in 2003.

Finally, *Annual Percentage Sales Growth* is significantly influenced by five explanatory variables with mixed signals. Population density and high income tend to increase sales growth. Being a quality leader and a service leader tends to also increase sales growth with one exception each. Warehouse stores are a detriment to sales growth. Table 9.5 summarizes the factors that have been found to significantly influence store performance as measured in this Panel study over the last four years.

Table 9.5 Significant Explanatory Factors for Store Performance, 2000 – 2003

Performance Measure	3 years of positive influence	3 years of negative influence	Mixed influence
Weekly Sales per square foot	More population density Warehouse format Food and Drug format Price Leader	Larger selling size	
Sales per labor hour	More population density Warehouse format Unionized Labor		
Payroll as a percent of sales	Unionized Labor		
Gross profit			Larger selling size Variety leader
Annual percentage sales growth	High household income	Warehouse format	More population density Quality leader Service leader

Appendix A
Data Collection Procedures

Sampling Procedures

Data collection for the 2003 Supermarket Panel began in the fall of 2002 with establishment of the sampling frame and drawing of a random sample of stores from that frame.

The process began with a computer file provided by the Food Stamp Program of USDA, which lists the 146,625 establishments in the United States that accept food stamps. The data fields for each store were:

- Name of Establishment
- Street Address
- City
- State
- Zip Code
- Area Code
- Phone Number
- Open 24 Hours
- Not Open 24 Hours
- Type of Establishment

Of the 146,625 establishments, 32,695 were classified as supermarkets. These became the relevant population for the 2003 Panel.

Based on experience in past years, we expected response rates to vary with store group size. Therefore, the population was grouped into 2 store group size strata, 1-10 and 11+, and those stores in the larger store groups were sampled at a higher rate. Weights based on sampling intensity and response rates were used to correct for response imbalances in the final data set. Procedures for determining appropriate weights are described in the final section of this appendix.

All 866 stores that were randomly selected and participated in the 2002 Panel were included in the sample for 2003. Of these, 267 stores had either ceased operations or declined to participate again, leaving 599 stores that had previously participated in the Panel. An additional 1,401 stores were drawn at random from the remaining 32,096 stores in the population, yielding a total sample of 2,000 stores.

Data Collection Procedures

This year, data collection, coding, and entry were administered and performed by The Food Industry Center. The data collection process began in December 2002, when each of the 2,000 stores in the sample was called. This task was contracted out to Professional Prospecting

Systems, a telemarketing firm. The calls verified the store name and address and asked for the store manager's name and title. This helped reduce mailing errors and made it possible to address Panel correspondence directly to the person in charge at the individual location. This could be the owner, manager, or store director, depending on the individual organization, but respondents will be referred to as store managers.

In an effort to decrease data entry errors and reduce the cost of conducting the Panel survey, an online version of the Panel survey was introduced this year. The data collection process was based on mail survey methods developed by Dillman.[1]

- In early March 2003, each store manager in the sample received a letter introducing the Panel and asking that the manager fill out the survey online. The letter indicated that each participating store would receive a confidential benchmark report. This was the only incentive offered for participation.
- In mid-March 2003, a second letter was mailed urging managers to complete the survey on the web.
- At the end of March, Panel data booklets were mailed to all the stores that had not yet completed the survey online. This mailing was followed by post card reminders and a second mailing of the data booklets to stores that had not responded. Data collection ended in mid May.
- Heidi van Schooten, Executive Administrator, and Elaine Jacaboson, Research Associate with The Food Industry Center, coordinated the mailing and data entry. Every effort was made to preserve the confidentiality of the respondents.

Coding/editing of surveys, data entry, and data file cleaning were completed by the end of May. In June 2003, Elaine Jacobson, The Food Industry Center Research Associate who manages the Supermarket Panel database, prepared the data for analysis and generated a confidential benchmark report for each store in the Panel. All the benchmark reports were mailed on or before July 3, 2003.

To ensure confidentiality, Elaine Jacobson was the only person who had access to the full data set while the benchmark reports were being prepared. All store names, addresses, and zip codes were then removed from the data set used by The Food Industry Center researchers for preparation of this report and for any future studies based on the Panel data.

[1] Dillman, Don A. Mail and Telephone Surveys: The Total Design Method. New York: Wiley, 1978.

During the preparation of this report, U.S. Census data based on zip code were acquired for all stores in the sample from the U.S. Census Bureau. These data were merged with the original data set by Elaine Jacobson, who subsequently removed all store identifiers from the data files used by other researchers. Since demographic data from the Census Bureau is continuously updated, there are some notable differences between the 2002 and 2003 demographic characteristics of the area around some types of stores.

Response Rates and the Construction of Weights for Statistical Analysis

Preliminary analysis of the data for the 2002 Panel indicated that, as expected, response rates differed by ownership group size, with single store independents and stores in smaller groups having a higher response rate. There were also regional differences in response rates. Stores in the Midwest were more likely to respond than stores in other regions. Finally, IGA stores were over-represented in the data set, since the entire population of those stores had been given an opportunity to participate in the 2002 Panel. The population, original sample, and respondents were grouped into strata and frequency weights were constructed to correct for these imbalances.

The first step in the stratification process was to sort the 32,695 supermarkets in the population by establishment name. In cases where several store names were known to be under common corporate ownership, the stores with these names were combined into a single group. Similarly, when stores with the same name were known to be independently owned and operated, those stores were classified as belonging to single store groups. Each store in the entire population was then placed in one of three ownership groups: (1) single store independents and stores in ownership groups with two to ten stores, (2) stores in ownership groups with more than ten stores, and (3) stores in the IGA network (IGA stores were oversampled in 2001 and 2002, so this distinction is maintained in 2003). Within each ownership group, stores were assigned to one of four regional strata: (1) Midwest, (2) Northeast, (3) South, and (4) West.[2] Overall, then, the population was divided into twenty strata.

[2] States in the Midwest region are: IA, IL, IN, KS, KY, MI, MN, MO, ND, NE, OH, SD, WI, and WV. States in the Northeast region are: CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VA, and VT. States in the South region are: AL, AR, FL, GA, LA, MS, NC, OK, SC, TN, and TX. States in the West region are: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, and WY

Strata definitions, strata sizes, and sample sizes for each stratum are reported in Table A.1. The overall sample size was 2,001 stores. One store had called in and asked to be part of the panel, which raised the sample from 2,000 to 2,001.

Table A.1. Population and Sample Size by Ownership Stratum and Region

	Midwest		Northeast		South		West		Total	
	Pop	Sam	Pop	Sam	Pop	Sam	Pop	Sam	Pop	Sam
1 to 10	3,425	205	2,608	63	2,593	87	1,843	125	10,469	480
11 and more	4,686	330	4,269	237	7,518	402	4,781	325	21,254	1,294
IGA	494	123	130	26	250	50	98	28	972	227
Total	8,605	658	7,007	326	10,361	539	67,22	478	32,695	2,001

Response rates are presented by stratum in Table A.2.

Table A.2. Number of Stores in the 2003 Panel and Response Rates by Ownership Stratum and Region

	Midwest		Northeast		South		West		Total	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
1 to 10	45	21.95%	20	31.75%	9	10.34%	26	20.80%	100	20.83%
11 and more	96	29.09%	26	10.97%	34	8.46%	41	12.62%	197	15.22%
IGA	54	43.90%	12	46.15%	14	28.00%	14	50.00%	94	41.41%
Total	141	21.43%	46	14.11%	43	7.98%	67	14.02%	391	19.54%

Weights were constructed to constructed to correct for (i) over-representation of IGA stores and (ii) differences in response rates by ownership group size and religion. The weight for each of the twenty strata was calculated by dividing the total population by the number of respondents. In effect, the weights indicate the number of stores in the population represented by each store in the sample.[3] Weights are reported by stratum in Table A.3. In the Midwest each of the 45 stores in the group size 1 - 10 that participated in the 2003 Panel represents 76 stores beside itself.

Table A.3. Statistical Analysis Weights by Ownership Stratum and Region

	Midwest	Northeast	South	West
1 to 10	76	130	288	71
11 and more	49	164	221	117
IGA	9	11	18	7

[3] Weights were rounded to the nearest integer, because integer weights are required for some of the statistical procedures used in the analysis for this report.

Appendix B
Performance Driver Regression Analysis Results

Multiple linear regression models for the analysis of drivers for key performance variables were estimated using *Stata*, Release 8.0.[1] For simplicity and ease of interpretation, the specification was limited to a simple linear model with no interactions among explanatory variables.

Two regression models were estimated for each performance measure. For the first, the sample was restricted to those stores with valid data for all five performance measures and all twenty explanatory variables. A total of 163 stores met this restriction. For the second model, the sample included all stores with valid data for the individual performance measure under consideration and for all twenty explanatory variables. With such a large number of explanatory variables, this is still quite restrictive, but sample sizes did increase significantly for all performance measures using the second model.

Results from the two sets of regressions were quite similar qualitatively, and parameter estimates differed little in size, sign, and statistical significance. Only results for the less restrictive model (model 2) are presented here.[2]

Finally, a word on interpretation of the estimated coefficients may be helpful. In general each coefficient indicates the change in the performance measure associated with a one unit increase in the associated explanatory variable, holding all other explanatory variables constant. For example, looking at the results for Weekly Sales per Square Foot reported in Table B.1, the coefficient for **SellSize** (store selling area) is **-0.00015**. This implies a very small reduction in Weekly Sales per Square Foot with a one square foot increase in selling area, or a $0.15 reduction with a 1,000 square foot increase in selling area. The coefficient for **FD** (binary variable for the warehouse format) is **0.482978**. This implies that, relative to a conventional format store with all other characteristics and practices identical, a warehouse store is expected to have a level of Weekly Sales per Square Foot that is $0.50 higher.

1 StataCorp. *Stata Statistical Software: Release 8.0.* College Station, TX: Stata Corporation, 2003.

2 Results for the restricted model are available on request from Jean Kinsey.

Table B.1 Weekly Sales per Square Foot

Number of obs.	269
F(20, 248)	5.01
Prob > F	0
R-squared	0.3324
Root MSE	3.7378

	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PopDen	7.35E-05	0.000092	0.8	0.425	-0.0001077	0.000255
HHinc	4.68E-05	3.22E-05	1.45	0.148	-0.0000167	0.00011
SMSA	1.279211	0.813824	1.57	0.117	-0.3236771	2.882099
SellSize	-0.00015	3.54E-05	-4.35	0	-0.0002236	-8.4E-05
SS	2.009256	1.198848	1.68	0.095	-0.3519656	4.370478
FD	0.482978	0.712272	0.68	0.498	-0.9198943	1.885851
WH	4.251658	1.320793	3.22	0.001	1.650256	6.85306
SWH	8.800912	2.66876	3.3	0.001	3.544587	14.05724
SCHY	16.26903	4.903882	3.32	0.001	6.610462	25.92759
GSize	0.000265	0.000614	0.43	0.667	-0.0009442	0.001474
SelfDist	0.905681	0.735036	1.23	0.219	-0.5420273	2.35339
Union	0.403797	0.778517	0.52	0.604	-1.129551	1.937144
Rmaj	1.116353	0.885614	1.26	0.209	-0.6279311	2.860638
PLeader	0.555799	0.63373	0.88	0.381	-0.6923801	1.803978
QLeader	0.784811	0.906958	0.87	0.388	-1.001511	2.571132
SLeader	-1.11656	1.15663	-0.97	0.335	-3.394629	1.16151
VLeader	1.20947	0.62209	1.94	0.053	-0.0157836	2.434724
SCScr	-0.67656	1.767539	-0.38	0.702	-4.157859	2.804745
SOScr	-5.03759	2.699648	-1.87	0.063	-10.35476	0.279568
VOScr	6.210852	2.033038	3.05	0.002	2.20663	10.21507
constant	7.536522	1.66564	4.52	0	4.255918	10.81713

Table B.2 Sales per Labor Hour

				Number of obs		255
				F(20, 234)		5.97
				Prob > F		0
				R-squared		0.3594
				Root MSE		40.273
SpHourd	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PopDen	0.000525	0.001248	0.42	0.675	-0.0019344	0.002984
HHinc	0.000754	0.000379	1.99	0.048	7.37E-06	0.0015
SMSA	-25.1985	10.69493	-2.36	0.019	-46.26916	-4.12786
SelISize	0.000111	0.000313	0.35	0.723	-0.0005052	0.000727
SS	-14.959	14.77648	-1.01	0.312	-44.07091	14.15296
FD	4.05806	8.238286	0.49	0.623	-12.17263	20.28875
WH	31.66798	15.02934	2.11	0.036	2.057874	61.27809
SWH	34.74503	18.954	1.83	0.068	-2.597256	72.08732
SCHY	45.25872	41.97446	1.08	0.282	-37.43742	127.9549
GSize	0.005825	0.006839	0.85	0.395	-0.0076495	0.019298
SelfDist	-6.54463	12.31419	-0.53	0.596	-30.80548	17.71622
Union	8.053687	8.310939	0.97	0.334	-8.32014	24.42751
Rmaj	5.942723	8.994898	0.66	0.509	-11.77861	23.66405
PLeader	4.164728	7.451558	0.56	0.577	-10.51599	18.84544
QLeader	-3.05174	7.474044	-0.41	0.683	-17.77675	11.67327
SLeader	-11.7466	7.514549	-1.56	0.119	-26.55144	3.058195
VLeader	9.462841	8.592336	1.1	0.272	-7.465381	26.39106
SCScr	71.09313	31.79088	2.24	0.026	8.460214	133.7261
SOScr	-77.3728	30.45685	-2.54	0.012	-137.3774	-17.3681
VOScr	1.006254	29.42124	0.03	0.973	-56.95811	58.97062
constant	91.79717	15.94819	5.76	0	60.3768	123.2175

Table B.3 Payroll as a Percent of Sales

					Number of obs	271
					F(20, 250)	3.39
					Prob > F	0
					R-squared	0.0952
					Root MSE	8.8526
	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PopDen	0.000112	0.000209	0.54	0.591	-0.000299	0.000524
HHinc	-6.2E-05	5.15E-05	-1.19	0.234	-0.0001629	3.99E-05
SMSA	1.049877	0.87381	1.2	0.231	-0.6710908	2.770844
SellSize	5.65E-05	9.15E-05	0.62	0.537	-0.0001237	0.000237
SS	-2.95433	1.973066	-1.5	0.136	-6.840277	0.931624
FD	-3.04236	1.935054	-1.57	0.117	-6.853441	0.768732
WH	4.024425	6.996079	0.58	0.566	-9.754342	17.80319
SWH	-4.77644	2.841696	-1.68	0.094	-10.37316	0.820275
SCHY	-7.03445	11.81843	-0.6	0.552	-30.31084	16.24193
GSize	1.46E-05	0.00087	0.02	0.987	-0.0016994	0.001729
SelfDist	-3.5755	3.276829	-1.09	0.276	-10.02921	2.87821
Union	1.927237	0.911958	2.11	0.036	0.1311373	3.723337
Rmaj	-0.98517	1.400268	-0.7	0.482	-3.742991	1.77266
PLeader	0.518277	1.962433	0.26	0.792	-3.346731	4.383286
QLeader	-1.32777	2.413783	-0.55	0.583	-6.081707	3.426176
SLeader	0.893648	2.391637	0.37	0.709	-3.816678	5.603974
VLeader	-1.40573	1.136531	-1.24	0.217	-3.644126	0.832666
SCScr	-3.09445	4.56325	-0.68	0.498	-12.08176	5.892866
SOScr	7.035022	5.148791	1.37	0.173	-3.105514	17.17556
VOScr	4.395617	3.205897	1.37	0.172	-1.918391	10.70963
constant	11.48226	3.772976	3.04	0.003	4.051391	18.91313

Table B.4 Gross Profit as a Percent of Sales

					Number of obs	236
					F(20, 215)	6.04
					Prob > F	0
					R-squared	0.1798
					Root MSE	7.2836
	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PopDen	0.00028	0.000255	1.1	0.273	-0.000222	0.000781
HHinc	2.39E-05	4.14E-05	0.58	0.564	-0.0000577	0.000106
SMSA	1.36259	1.21996	1.12	0.265	-1.042022	3.767203
SellSize	3.72E-05	8.18E-05	0.45	0.65	-0.0001241	0.000199
SS	-1.2001	2.292569	-0.52	0.601	-5.718883	3.318694
FD	-3.93667	1.979204	-1.99	0.048	-7.837796	-0.03554
WH	3.350171	6.043729	0.55	0.58	-8.562375	15.26272
SWH	-9.18811	2.893986	-3.17	0.002	-14.89232	-3.48389
SCHY	-12.7092	11.06748	-1.15	0.252	-34.52382	9.105488
GSize	-0.00041	0.001396	-0.29	0.771	-0.0031574	0.002346
SelfDist	-2.81667	3.720148	-0.76	0.45	-10.1493	4.515958
Union	1.179295	1.074313	1.1	0.274	-0.9382385	3.296829
Rmaj	-1.7604	1.506062	-1.17	0.244	-4.728938	1.208134
PLeader	1.485207	2.217947	0.67	0.504	-2.886497	5.856911
QLeader	0.378214	1.257044	0.3	0.764	-2.099493	2.855922
SLeader	1.378637	1.543204	0.89	0.373	-1.663109	4.420382
VLeader	-2.2028	1.187797	-1.85	0.065	-4.544017	0.13842
SCScr	4.43824	4.98146	0.89	0.374	-5.380512	14.25699
SOScr	8.412439	5.775558	1.46	0.147	-2.971527	19.79641
VOScr	4.770638	3.190255	1.5	0.136	-1.517544	11.05882
constant	18.04537	2.310671	7.81	0	13.4909	22.59984

Table B.5 Annual Percentage Sales Growth

					Number of obs	203
					F(20, 182)	9.85
					Prob > F	0
					R-squared	0.2765
					Root MSE	4.7995
	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
PopDen	-0.00055	0.000149	-3.7	0	-0.0008454	-0.00026
HHinc	1.98E-05	3.45E-05	0.58	0.566	-0.0000482	8.79E-05
SMSA	0.127188	0.919884	0.14	0.89	-1.687819	1.942196
SellSize	-8.9E-05	4.34E-05	-2.04	0.042	-0.0001743	-3.04E-06
SS	0.846387	2.215276	0.38	0.703	-3.524538	5.217312
FD	2.669449	0.956036	2.79	0.006	0.7831102	4.555787
WH	-3.76911	2.52604	-1.49	0.137	-8.753197	1.214983
SWH	-1.79511	2.334358	-0.77	0.443	-6.400993	2.810775
SCHY	7.936493	5.077249	1.56	0.12	-2.081346	17.95433
GSize	-0.00131	0.000899	-1.46	0.147	-0.0030836	0.000465
SelfDist	3.129556	1.470462	2.13	0.035	0.2282106	6.030901
Union	-0.73406	1.069664	-0.69	0.493	-2.844598	1.376477
Rmaj	1.458132	0.979416	1.49	0.138	-0.4743388	3.390603
PLeader	0.08303	1.282303	0.06	0.948	-2.447061	2.613122
QLeader	0.665881	0.960025	0.69	0.489	-1.228328	2.56009
SLeader	1.934383	1.10311	1.75	0.081	-0.2421469	4.110912
VLeader	1.778209	0.943042	1.89	0.061	-0.0824929	3.638911
SCScr	-2.65554	2.720799	-0.98	0.33	-8.023905	2.712825
SOScr	-4.03026	4.719069	-0.85	0.394	-13.34138	5.280858
VOScr	-0.8969	2.611966	-0.34	0.732	-6.050525	4.256732
constant	0.035055	1.839292	0.02	0.985	-3.594023	3.664132

B.6 Summary of Regression Results on Store Performance

	Weekly Sales per Square Foot		Sales per Labor Hour		Payroll as a Percent of Sales		Gross Profit as a Percent of Sales		Annual Percentage of Sales Growth	
	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|	Coef.	P>|t|
PopDen	7.35E-05	0.425	0.000525	0.675	0.000112	0.591	0.00028	0	-0.00055	0
HHinc	4.68E-05	0.148	0.000754	0.048	-6.2E-05	0.234	2.39E-05	0.566	1.98E-05	0.566
SMSA	1.279211	0.117	-25.1985	0.019	1.049877	0.231	1.36259	0.89	0.127188	0.89
SellSize	-0.00015	0	0.000111	0.723	5.65E-05	0.537	3.72E-05	0.042	-8.9E-05	0.042
SS	2.009256	0.095	-14.959	0.312	-2.95433	0.136	-1.2001	0.703	0.846387	0.703
FD	0.482978	0.498	4.05806	0.623	-3.04236	0.117	-3.93667	0.006	2.669449	0.006
WH	4.251658	0.001	31.66798	0.036	4.024425	0.566	3.350171	0.137	-3.76911	0.137
SWH	8.800912	0.001	34.74503	0.068	-4.77644	0.094	-9.18811	0.443	-1.79511	0.443
SCHY	16.26903	0.001	45.25872	0.282	-7.03445	0.552	-12.7092	0.12	7.936493	0.12
GSize	0.000265	0.667	0.005825	0.395	1.46E-05	0.987	-0.00041	0.147	-0.00131	0.147
SelfDist	0.905681	0.219	-6.54463	0.596	-3.5755	0.276	-2.81667	0.035	3.129556	0.035
Union	0.403797	0.604	8.053687	0.334	1.927237	0.036	1.179295	0.493	-0.73406	0.493
Rmaj	1.116353	0.209	5.942723	0.509	-0.98517	0.482	-1.7604	0.138	1.458132	0.138
Pleader	0.555799	0.381	4.164728	0.577	0.518277	0.792	1.485207	0.948	0.08303	0.948
QLeader	0.784811	0.388	-3.05174	0.683	-1.32777	0.583	0.378214	0.489	0.665881	0.489
SLeader	-1.11656	0.335	-11.7466	0.119	0.893648	0.709	1.378637	0.081	1.934383	0.081
VLeader	1.20947	0.053	9.462841	0.272	-1.40573	0.217	-2.2028	0.061	1.778209	0.061
SCScr	-0.67656	0.702	71.09313	0.026	-3.09445	0.498	4.43824	0.33	-2.65554	0.33
SOScr	-5.03759	0.063	-77.3728	0.012	7.035022	0.173	8.412439	0.394	-4.03026	0.394
VOScr	6.210852	0.002	1.006254	0.973	4.395617	0.172	4.770638	0.732	-0.8969	0.732
_cons	7.536522	0	91.79717	0	11.48226	0.003	18.04537	0.985	0.035055	0.985

Appendix C
Sample Benchmark Report

In July 2003 each store in the Panel received a confidential benchmark report comparing it to peer stores similar in marketing format and size. This was the primary reward for participation.

A sample benchmark report is reproduced on the pages that follow. This report was prepared for a store that was classified as Conventional. As explained in the cover letter, the peer group for this store was stores ranging in size from 28,000 to 32,000 square feet.

The first section of the report compares the store's scores for three management area indices to the median scores for the peer group. The three management area indices summarize supply chain practices, service offerings, and variety offerings of the store.

The remainder of the report presents question-by-question comparisons of the store's responses to those of its peers. The store's responses are noted by bold face type. For example, in question 1, the sample store selected "Don't Know" under customer self-scanning. Questions for which the store's responses are "unusual" relative to those of its peers are marked with a box. For example, in question 1, the sample store is one of only 14% of peer stores that don't know to what extent customer self-scanning is actively used in the store. Similarly, in question 3, the fact that this store has a total of 11 check-stands distinguishes it from its peer stores, which have a median of 8 check-stands.

The benchmark report provides detailed, highly personalized feedback to stores in the Panel.

University of Minnesota

Twin Cities Campus

The Food Industry Center

Department of Applied Economics
College of Agricultural, Food,
and Environmental Sciences

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2003 Supermarket Panel Benchmark Report

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Questions about your Benchmark Report?

Contact:
Jon Seltzer
Supermarket Panel Project Manager
Phone: 952-926-4602 Fax: 952-926-3933
e-mail: seltz004@tc.umn.edu

Jon Seltzer
Sample for Benchmark
1994 Buford Ave.
St. Paul, MN 55108

Store #50995

University of Minnesota

Twin Cities Campus

The Food Industry Center

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2003 Supermarket Panel Benchmark Report

February 25, 2004

Prepared for: Jon Seltzer
1994 Buford Ave.
St. Paul, MN 55108

Dear Jon:

Thank you for participating in the 2002 in the Supermarket Panel. Your support makes possible this unique, in-depth view of the supermarket industry at the store level. We are pleased to provide your benchmark report that compares your store with all others in your peer group.

Peer groups are stores of similar size and marketing formats (Conventional, Superstore, Food/Drug Combination, Warehouse, Super Warehouse, or Supercenter/Hypermarket). We assigned a marketing format to your store on the basis of your responses to questions about your store's selling area and about bagging and pharmacy services in your store. Your peer group for this report consists of "Conventional" stores, which range in selling size from 28,000 to 32,000 square feet. Stores with Conventional formats are less than 40,000 sq. ft. of selling area, offer bagging for their customers, and do not have a pharmacy, though there are some exceptions. If this peer group is not appropriate for your store or you would like to see another comparison, please let us know immediately. We will prepare a follow-up benchmark report with a revised peer group.

Your report begins with summary information for three areas of management interest:

- Supply Chain
- Service Offerings
- Variety Offerings

In the first section of the report, responses in each management area are combined into scores that can range from 0 to 100%. The higher

your score, the more of the “characteristics” you have adopted. A high score may not be the ideal target for your store. The score shown under “Peer Group Score” is the median value (half the responses larger, half smaller) for stores in your peer group. This may be your most meaningful basis for comparison.

The remainder of your benchmark report presents question-by-question comparisons between your responses and those of stores in your peer group.

Considering the entire questionnaire, your responses differ most from those of stores in your peer group in Store Operations (questions 1, 3, 13).

For more information on interpreting this portion of your report, see the one-page guide titled “How to Read the Benchmark Report” at the beginning of the second section.

In the fall we will have a full analysis of the results of this year’s Panel. The initial results indicate that we have good representation of large and small stores, chain and independents, and stores from all parts of the country, fully reflecting the breadth of the retail food industry.

Your participation in the Panel is important and we want it to be a valuable resource for you. Please contact Jon Seltzer if you have any questions about this report or if there are changes in the areas of interest and benchmark comparisons that would make it more useful for you.

Jon Seltzer
Supermarket Panel Project Manager

Telephone: 952-926-4602
FAX: 952-926-3933
Email: seltz004@tc.umn.edu

Once again, thank you for your participation.

Summary Information for Key Management Areas

Area		Peer Group Score	Your Score
Supply Chain	This index measures progress in implementing Supply Chain initiatives. It has two distinct dimensions which are combined to give a single score: • Use of technology (questions 1b – l, 2g, and 15). • The role of shared management decisions in managing the supply chain efficiently. (question 13). A higher value indicates that your store is further along in implementing Supply Chain initiatives.		
	Your score is typical of stores in your peer group.	52%	28%
Service Offerings	This index measures the breadth of customer service your store provides. It also indicates how convenient the store is for shoppers. It is based on your responses to questions 1a, 2a-e, 2h-k, 2o, 2p, 2t, 2v-x, and 33m. A higher value indicates that your store offers a wider range of services and conveniences.		
	Your score is typical of stores in your peer group.	35%	29%
Variety Offerings	This index measures the amount of variety in offerings your store provides. It is based on your responses to questions 2c, 2f, 2j, 2l, 2n, 2o, and 34a. A higher value indicates that your store offers a wider range of variety.		
	Your score is typical of stores in your peer group.	43%	57%

How to Read the Benchmark Report

1. There are 2 types of answers.
   a. Percentages: these numbers indicate the percentage of peer group stores that selected a specific response. The percentage is based on all peer group stores that answered this question.
   b. Averages: these are numbers without "%" signs and are based only on the peer group stores that answered the question. These numbers are not means but medians, so half of the peer group stores that answered this question gave answers that are larger and half gave answers that are smaller.

2. Numbers in **bold face** indicate the answer you selected.

3. Boxed answers indicate an unusual answer. For a percentage, if your answer is different from the answer or answers on which your peer stores are concentrated, then your answer is unusual. For a numerical answer, "unusual" means that it is far from the peer group average.

4. EXAMPLE 1: Consider the following sample response to question 1 by a hypothetical store.

   Q1. To what extent are the following practices actively used in your store?
   (Respondents circled ONE answer for each item)

		Used for More Than 2 Years	Used for 1-2 Years	Started in Past Year	Plan to Start Next Year	No Plans to Use	Don't Know
a.	Customer self-scanning		12%		12%	**45%**	31%
b.	Electronic invoices from DSD vendors	**42%**	25%	7%	7%	5%	14%
c.	Electronic invoices from primary warehouse	11%	7%	7%	7%	11%	**57%**
d.	Electronic transmission of movement data to headquarters or key suppliers	16%	[7%]		17%	10%	49%

Twelve percent of stores in the peer group have used customer self-scanning for between one and two years, 12% plan to start using it next year, and 31% of store managers in this peer group do not know what company plans are for using customer self-scanning. The bold face indicates that this store is among the 45% of stores in the peer group that have no plans to use customer self-scanning. In the last row, we see that this store is among the 7% of stores in the peer group that have used electronic transmission of movement data to headquarters or key suppliers for between one and two years. In this regard, it belongs to an unusually small group of stores. This is indicated by the box around the number.

5. EXAMPLE 2: Consider the following response to question 3 by a hypothetical store.

   Q3. How many check-stands are there (including express check-stands)? [4 : 6] check-stands

   Stores in this particular store's peer group have an average of 4 check-stands. The 6 in bold face indicates that this store has 6 check-stands. The box indicates that this is an unusually high number of check-stands for this peer group.

Q1. To what extent are the following practices actively used in your store?
(*Respondents circled ONE answer for each item*)

		Used for More Than 2 Years	Used for 1-2 Years	Started in Past Year	Plan to Start Next Year	No Plans to Use	Don't Know
a.	Customer self-scanning	18%			5%	64%	14%
b.	Electronic invoices from DSD vendors	32%	9%	9%	9%	27%	14%
c.	Electronic invoices from primary warehouse	38%	29%	19%	5%	10%	
d.	Electronic transmission of movement data to headquarters or key suppliers	36%	18%	18%	5%	9%	14%
e.	Electronic transmission of orders to vendors/suppliers (e.g., Telxon, Web, EDI)	45%	14%	5%	5%	18%	14%
f.	Electronic shelf tags	19%	5%			57%	19%
g.	Internet/Intranet link to corporate headquarters and/or key suppliers	59%	18%	5%	9%	9%	
h.	Product movement analysis/Category management	68%	14%	5%		5%	9%
i.	Scan-based trading (payment to vendor triggered by sale to consumer)	27%	14%		5%	41%	14%
j.	Scanning data used for automatic inventory refill	5%	9%		9%	59%	18%
k.	Shelf-space allocation plan-o-grams	52%	5%	10%		14%	19%
l.	Vendor managed inventory (orders for non-DSD items generated by vendor based on store movement data)	9%				64%	27%

Q2. How would you rate the use of the following service offerings in your store?
(*Respondents circled ONE answer for each item*)

		Key Competitive Advantage	Standard Offering	Plan to Discontinue	Considering Introduction	Not Used, No Plan to Offer
a.	Bagging service	50%	50%			
b.	Carryout service/parcel pickup	52%	33%		10%	5%
c.	Custom meat cutting/service meats	64%	32%			5%
d.	Dry cleaning		14%			86%
e.	FAX ordering by customer	9%	9%		5%	77%
f.	Franchise/license depts. (Starbucks, Subway)	5%	9%			86%
g.	Frequent shopper/Loyalty card program	41%	9%	5%		45%
h.	Gasoline		5%		9%	86%
i.	Home delivery	9%			18%	73%
j.	In-store bakery	55%	41%			5%
k.	Internet ordering by customer	5%	5%		5%	86%
l.	Labels pertaining to genetically modified foods (GMO-Free or Contains GMOs)	9%	14%		5%	73%
m.	Newspaper ads with coupons	32%	50%			18%
n.	Organic produce	23%	32%		23%	23%
o.	Pharmacy, full-time licensed pharmacist(s)				9%	91%
p.	Post office, mailing services	5%	14%			82%
q.	Private label program-own brand	59%	41%			
r.	Purchase triggered electronic coupons	41%	18%		5%	36%
s.	Radio ads	14%	64%			23%
t.	Seating for eating/customer rest areas	27%	27%		5%	41%
u.	Television ads	23%	27%			50%
v.	Teller banking/in-store banking	14%	14%		5%	68%
w.	Video department	5%	14%		5%	77%
x.	Web site for customers	27%	41%		5%	27%

Q3. How many check-stands are there (including express check-stands)? 8 : 11 check-stands

Q4. What is the approximate size of the SELLING AREA in your store? 30,000 : 30,000 sq. ft.

Q5. Approximately, what is the TOTAL size of your store (selling area and backroom)? 36,000 : 33,000 sq. ft.

Q6. In what year was the store originally constructed? (Approx) 1986 : 1975

Q7. In what year was the store 1st operated under its current name? (Approx) 1994 : 1990

Q8. Has your store ever had a major remodeling (significant new equipment or new departments, or store dimensions changed)?

1.	Yes	68%	→	If Yes: What was the year of the most recent
2.	No	32%		MAJOR remodeling? 1999 : 1999
3.	Not sure or don't know			

Q9. Has your store ever had a minor remodeling (some equipment change or replacement but no new departments or change in store dimensions)?

1.	Yes	59%	→	If Yes: What was the year of the most recent
2.	No	36%		MINOR remodeling? 2000 : 1995
3.	Not sure or don't know	5%		

Q10. Approximately how many stores are owned by the same company that owns your store?

21 : 1 stores

If 10 stores or less → Is the manager's equity ownership in THIS STORE at least 20%?

1.	Yes	30%
2.	No	60%
3.	Not sure or don't know	10%

Q11. What is the relationship between this store and its primary warehouse or major supplier?

1.	The warehouse is a wholesaler or cooperative	58%
2.	The store and the warehouse are part of the same company (including wholesaler owned store)	42%
3.	Not sure or don't know	

Q12. Does your store participate in a cooperative or wholesaler-sponsored ad group or franchise program?

1. Yes 50%
2. No 32%
3. Not sure or don't know 18%

Q13. For each of the products listed below, please indicate who has MAJOR responsibility for each of the functions listed. *(Respondents circled ALL that applied; row totals may exceed 100%)*

	In-Store Personnel	Wholesaler or Independent Ad Group	Chain Headquarters or Region	Vendor or Broker
Fresh Apples				
Pricing	36%	23%	55%	5%
Advertising	23%	36%	59%	
Space Allocation	55%		50%	
Display Merchandising	77%		32%	
Promotions	45%	14%	59%	9%
Dry Cereal				
Pricing	23%	36%	55%	5%
Advertising	23%	32%	59%	5%
Space Allocation	50%	14%	50%	
Display Merchandising	77%		32%	
Promotions	36%	27%	59%	9%
DSD Snacks				
Pricing	36%	18%	50%	9%
Advertising	32%	27%	59%	5%
Space Allocation	50%	5%	50%	9%
Display Merchandising	68%		36%	14%
Promotions	36%	23%	59%	14%
Fresh Fluid Milk				
Pricing	36%	23%	55%	5%
Advertising	27%	27%	55%	5%
Space Allocation	55%	5%	50%	5%
Display Merchandising	64%		41%	5%
Promotions	41%	27%	55%	9%

Q14. How much of a problem are "stock-outs" in your store for:
(Respondents circled ONE answer for each item):

		Large Problem	Small Problem	Not a Problem	Don't Know
a.	Dry Cereal?		50%	50%	
b.	Case-Ready Fresh Chicken?		23%	77%	
c.	Yogurt?	5%	68%	27%	

Q15. Are you using or would you consider using scanner data for automatic inventory refill for:
(Respondents circled ONE answer for each item)

		Currently Using	Would Consider	Would not Consider	Don't Know
a.	Dry Cereal?	9%	50%	23%	18%
b.	Case-Ready Fresh Chicken?		41%	41%	18%
c.	Yogurt?	9%	50%	23%	18%

Q16. How many deliveries per week do you receive for:

a. Dry Cereal? 3 : 3

b. Case-Ready Fresh Chicken? 3 : 3

c. Yogurt? 3 : 3

Q17. If your store has a problem with overstock/excess inventory in certain categories, please list up to five of those categories and circle the month(s) when these overstocks occur.

Three hundred stores did not report any overstock/excess inventory information. The mean number of overstocks/excess inventory occurrences reported by the other stores for the year over all categories was 9. You responded that you had 4 overstock/excess inventory occurrences.

		Full Time	Part Time
Q18.	In an average week, how many employee hours do you schedule Full Time and Part Time?	650 : 650	600 : 650
Q19.	CURRENTLY, how many employees are working in the store?	23 : 16	40 : 40
Q20.	12 MONTHS AGO, what was the number of employees working in the store?	24 : 15	40 : 38

Q21. Approximately how many Full Time and Part Time employees started working at this location in the last 12 months (whether or not they are still with your store or company)?

		Full Time	Part Time
a.	Number of new hires in the last 12 months	2 : 1	20 : 15
b.	Number of transfers from other locations in your company in the last 12 months.	0 : 0	0 : 0

Q22. Are 25% or more of your employees covered by a collective bargaining agreement?

1.	Yes	24%
2.	No	67%
3.	Not sure or don't know	10%

Q23. Is a food safety training course required, either by company policy or regulation, for:

		Does not apply	Yes	No	Don't know
a.	Deli Manager?		77%	23%	
b.	Deli Employees?		45%	55%	
c.	Meat Department Employees?		45%	55%	
d.	Store Manager or Assistant Store Manager?		73%	27%	

The next set of questions concerns the three stores that compete most strongly with your store for customers, whether or not they belong to your company or ad group.

		Your Store	Competitor 1	Competitor 2	Competitor 3
Q24.	Name (not included to maintain confidentiality)	XXXX	XXXX	XXXX	XXXX
Q25.	Distance from your store in miles	XXXX	2.0 : 2.0	2.0 : 3.0	6.0 : 3.0
Q26.	Approximate size of SELLING AREA (sq. ft.)	XXXX	55,000 : 65,000	40,000 : 45,000	45,000 : 15,000
Q27.	What is the competitive sales rank of each of these stores CURRENTLY? (1 - 4: Leader = 1)	3 : 2	1 : 1	3 : 3	3 : 4
Q28.	What was the competitive sales rank of each of these stores LAST YEAR? (1 - 4: Leader = 1)	2 : 2	1 : 1	3 : 3	3 : 4

(*Respondents circled ONE answer for each of the following items*)

		Your Store	Competitor 1	Competitor 2	Competitor 3
Q29.	Which ONE of these 4 stores is the PRICE LEADER?	18%	41%	14%	27%
Q30.	Which ONE of these 4 stores is the SERVICE LEADER?	77%	14%	5%	5%
Q31.	Which ONE of these 4 stores is the QUALITY LEADER?	77%	14%	5%	5%
Q32.	Which ONE of these 4 stores is the VARIETY LEADER?	36%	27%	23%	14%

Q33. Please indicate each store's MARKETING PROGRAMS below.

		Your Store		Competitor 1		Competitor 2		Competitor 3	
		Yes	No	Yes	No	Yes	No	Yes	No
a.	Bagging	100%		68%	32%	53%	42%	44%	38%
b.	Carryout service/Parcel pickup	89%	11%	50%	44%	22%	67%	27%	47%
c.	Pharmacy, full-time licensed pharmacist(s)		100%	55%	40%	60%	30%	53%	41%
d.	Gasoline	5%	90%	20%	70%	5%	85%	24%	65%
e.	Frequent shopper program	55%	45%	50%	40%	50%	40%	18%	65%
f.	Heavy private label program	84%	16%	80%	15%	55%	30%	53%	29%
g.	Open 24 hours	10%	85%	50%	50%	30%	70%	41%	47%
h.	Supercenter (e.g., Fred Meyer, Kmart, Meijer, Target, WalMart)	10%	90%	30%	70%	25%	75%	29%	65%
i.	Store coupons	90%	10%	80%	15%	60%	35%	53%	41%
j.	Low prices	75%	20%	60%	35%	50%	35%	71%	18%
k.	Every Day Low Prices (EDLP)	75%	25%	70%	15%	45%	30%	59%	18%
l.	High/Low advertising	80%	15%	53%	32%	50%	30%	47%	29%
m.	Home delivery	10%	90%	5%	80%	5%	84%	6%	71%
n.	Other	5%			5%		5%		5%

Q34. Do you or any of the three stores that compete most directly with your store (*those 3 competitors you listed previously in question 24)* have any plans to offer FRESH irradiated ground beef?

		Offered for more than 6 months	Offered within the past 6 months	Plan to offer within the next 3 months	Plans for future use under discussion	No plans for use	Don't Know
a.	Your Store	16%	11%	5%	11%	37%	21%
b.	Competitor 1				5%	11%	84%
c.	Competitor 2	5%		5%		11%	79%
d.	Competitor 3	13%			6%	6%	75%

The next set of questions asks for information about three individual departments and for the store as a whole.

		Produce	Meat	Grocery	Total Store
Q35	Approximately, how much are PRIVATE LABEL SALES as a percentage of total sales in Grocery and Total Store? (Please include STORE BRAND BREAD in the TOTAL STORE but not in GROCERY)	XXXX	XXXX	12 : 8	10 : 12
Q36	In each department, how much are average weekly sales as a percentage of total store sales?	8 : 10	16 : 12	47 : 51	100%
Q37	What is the AVERAGE NUMBER of DSD DELIVERIES per week in each department and for the TOTAL STORE?	4 : 5	4 : 5	40 : 38	47 : 45
Q38	What is the AVERAGE NUMBER of non-DSD DELIVERIES per week in each department and for the TOTAL STORE?	3 : 3	3 : 3	3 : 3	9 : 14
Q39	What is the number of ANNUAL INVENTORY TURNS for each department and for the TOTAL STORE? (annual sales ÷ average inventory value)	45 : 47	32 : 40	14 : 15	12 : 15
Q40	What is the number of SKUs for each department and for the TOTAL STORE?	300 : 450	600 : 475	20,000 : 19,000	32,500 : 30,000

		Most Recent Complete Fiscal Year	Previous Fiscal Year
Q41.	Ending date of Fiscal Year		XXXX
Q42.	What were AVERAGE WEEKLY STORE SALES?	200,000 : 200,000	200,000 : 200,000
Q43.	What was the AVERAGE NUMBER OF CUSTOMER TRANSACTIONS PER WEEK?	8,011 : 750	7,644 : 745
Q44.	What was the AVERAGE GROSS PROFIT as a PERCENTAGE of SALES?	24 : 23	24 : 22
Q45.	What was the AVERAGE PAYROLL as a PERCENTAGE of SALES?	10 : 10	10 : 10

Q46. What is the most important issue facing your store?

You did not respond to this question.

Out of the entire Panel, 252 managers responded to this question. The top 5 concerns reported by those 252 managers are:

Issue	Response Percentage
New Competition, especially from large stores	23%
Wal*Mart	20%
Costs, especially health insurance/insurance/taxes	16%
Sales retention and growth	9%
Work force availability/retention/quality	9%