Analysis of Consumer Preferences For Package Sizes for Beef and Pork Products As Related to their Demographic Characteristics*

by

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Abstract

Delaware consumers were surveyed to obtain information about package size preferences for fresh beef and pork products. A chi-square and gamma analysis was made and age was found to be significant and positively correlated to the size of package chosen for various roasts and flank steak. Age and preferred package size was negatively correlated for ground beef, sirloin steak, spareribs, and pork chops. The larger the family the greater the tendency to buy larger packages of ground beef and roasts, as well as spareribs and pork chops. Those with higher incomes tended to purchase larger steaks. Females showed preferences for smaller packages while males preferred larger packages.

Introduction

The beef and pork industries have recently mounted large campaigns aimed at influencing the taste and preferences of consumers. Their purpose is to improve the image of beef and pork in the eye of the public. The purpose of this study was to collect information concerning the taste and preferences of Delaware

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consumers with regard to fresh beef and pork package sizes.

Within a given population, there are a variety of age groups, family sizes, occupations, and incomes. Each of these population segments has its own set of tastes and preferences. By identifying these desired preferences retailers will have better information to meet the wants and needs of consumers.

The effects of gender on shopping patterns is investigated in the June 1986 issue of the *Progressive Grocer*. Donegan took a close look at the research that has been done in this area in the past several years. The figures vary--because the definition of a male shopper was not the same in each survey--but should not be ignored. Surprisingly, the survey data shows very little difference between the male and female shopper. A difference does develop when looking exclusively at single men. This group of people tends to buy impulsively. In addition, it is frozen and convenience foods that make it into the single male's shopping bag.

Another socioeconomic group that Donegan has been investigating is that of the shopper who is over 55 years of age. Donegan's objective was to determine the potential of this mature market. Information acquired from a Gallup Poll showed that 30 percent of all food purchased to be consumed at home is done so by this group of older Americans. This figure alone should be enough go get management and marketers to sit up and take notice. To add to the primacy of the situation, the U.S. Census Bureau reported that, in 1984, 50 million people or 21 percent of the American population was over 55. Because of improved health care and the baby boom, 98 million or 33 percent of the population is expected to be in this category by the year 2030.

The products the mature market is interested in are slightly different from those of other age groups. For instance, older consumers are more likely to buy top-of-the-line merchandise, and they need items in smaller package sizes. Krueckenberg also reported that one characteristic of the older consumer is that he/she generally purchases smaller package sizes.

Capps conducted a study on the effect of age and sex on consumer purchasing patterns in the southern region of the United States. The overall category of sex and age proved important to all the food groups tested, whereas sex alone made no significant difference in the consumption of basic and manufactured convenience items. The importance of gender was further broken down into adults and elderly. Once again, the sex of adults proved significant for all items except basic and manufactured convenience foods. The gender of the elderly did not prove to be significant for any of the convenience food groups.

Looking specifically at the analysis of age, the age of males was important to all food categories; however, the age of females was only important to total food and non-convenience items. The authors found that children were not different from the overall gender category. The boys' ages were important to all the categories, but the age of the girls only made a difference for total foods and non-convenience foods. On the other hand, elderly males and females did not fall into the same pattern as did the overall gender. Elderly males are important to the consumption of total food and complex convenience items. Elderly females made a difference for manufactured convenience foods and total foods.

Capps analyzed the effects of socioeconomic characteristics on vegetable purchases and the magnitude of those purchases. Young children and the elderly proved to have no significant effect on household vegetable expenditures. It was the adult male who had the largest effect. As the number of adult males increases in a household, the vegetable expenditures of that household increase. The adult female also proved to be significant, but economies of scale were reached in households with adult females. A rather odd finding was that an unemployed spouse or unemployment of both the male and female heads of household increased expenditures on vegetables. It was the opinion of Capps and Love that the additional personal time as a result of fewer hours working had something to do with this. The education of the head of the household did not seem to have a significant effect. Place of residence did make a difference, however. The more densely populated the area, the more money is spent on vegetables per capita.

Objectives

In this study, the taste and preferences of Delaware consumers for fresh beef and pork packaging were analyzed. Specifically, the objectives are:

1. To determine consumer expectations and needs in regard to fresh beef and pork package sizes.

2. To determine if any relationship exists between consumer demographic characteristics and fresh beef and pork meat package size preferences.

Procedure

Five thousand questionnaires designed to measure the attitudes and buying patterns of consumers were mailed to randomly selected Delaware residents during September and October 1985. The sample was drawn from all households having a telephone and weighted according to the population base of each county in Delaware. While the use of a mailed questionnaire is a common and accepted method of data collection, the reader should be cautioned about the bias introduced as a result of any form of voluntary response. Those consumers who have an interest in the questionnaire's subject area are more likely to resond than are the more apathetic consumers. This will compromise the randomness of the respondents (Bryson). However, the expense of removing the bias, for the purposes of this study, was greater than the benefit.

The questionnaire contained seven sections covering:

- consumer shopping patterns;
- package size preferences for fresh meat;
- package size preferences for fresh produce;
- preferences for bulk foods,
- generic goods and
- locally produced products; and
- consumer demographic characteristics.

This report will discuss the sections on respondent demographic and lifestyle characteristics and how they are related to package size preferences for fresh beef and pork products. Nine hundred sixty-eight surveys were returned--a 19.4 percent response rate.

Chi-square and Gamma significance tests were conducted to determine the strength and direction of the relationships between the demographic characteristics and the preferred package sizes. A 95 percent confidence level was used.

Selected Consumer Characteristics

Almost two-thirds of the respondents to this survey were female. The ages of the respondents are distributed over a wide range, 19 to 91. Over 20 percent are within the 55 to 64 age bracket. This age group is closely followed by the 45 to 54, 35 to 44, and 25 to 34 age groups, respectively (Table 1). According to the 1980 census of population, those consumers in the 34 and under age groups are underrepresented in the data by 13.7 percent. The 35 to 74 age groups are over-represented by 23 percent, and the 75 and older age group is properly represented in the data. However, the U.S. population has continued to shift toward the older age groups since 1980, a fact which this data set reflects.

Table 1

Characteristics of Consumers Surveyed, Delaware, 1985

Characteristics	Percent
Age	
34 and under	20.83
35 to 44	18.70
45 to 54	19.45
55 to 64	20.19
65 plus	20.83
Income	
Less than $10,000	6.60
$10,000 - $19,999	15.50
$20,000 - $29,999	21.80
$30,000 - $39,999	18.80
$40,000 - $49,999	13.80
$50,000 or more	23.50
Education	
1 through 11	7.30
High School Diploma	29.50
Some College	24.30
College Degree	22.50
Graduate School	16.40
Family Size	
1	13.60
2	42.60
3	17.40
4	17.20
5	6.70
Over 5	2.50

Source: Consumer Mail Survey and calculations

A majority of those responding had total household incomes within the middle to upper income brackets. Over 23 percent of the households had combined incomes of $50,000 or more, 32.6 percent were in the $30,000 to $49,000 income range, with 43.9 percent indicating their household earned a gross income of less than $30,000 a year (Table 1).

Those responding to the survey valued education. Over 16 percent indicated they had graduate school training. Almost 47 percent had completed or experienced some college while only slightly over 7 percent had not completed high school (Table 1).

Over 42 percent of those responding to the survey lived in a two-member household. This was followed by three-, four-, and one-member households with each size contributing 17.4, 17.2 and 13.6 percent respectively (Table 1).

Occupation was classified into five major categories: professional, retired, office and clerical workers, homemakers, and blue collar workers. Professionals and retired individuals were the two largest groups represented in the survey by 24.6 and 23.4 percent, respectively. These were followed by office and clerical workers, homemakers, and blue collar workers, representing 19.1, 18.1 and 11 percent of the respondents, respectively.

Results

Consumers were asked to indicate the size of package they preferred for the items of fresh beef and pork listed in Table 2. This section of the paper contains a series of tables presenting the preferred package sizes as related to the demographic characteristics of age, family size, gender, and income.

The Effects of Age

As the baby boomers get older, marketers are paying close attention to the way their tastes and preferences are maturing. Our population as a whole is getting older, and this survey takes a close look at how this affects food purchasing habits. The results show that the package sizes purchased for six types of beef and two cuts of pork are all significantly affected by the age of the consumer at the 90 percent confidence level or better.

Table 2

Fresh Beef and Pork Products Evaluated by Consumers

Beef	Pork
1. Ground beef	1. Spareribs
2. Boiling beef	2. Ham sliced
3. Round roast	3. Pork chops
4. Rump roast	4. Loin roast
5. Chuck roast	5. Sirloin roast
6. Standing rib roast	6. Ham roast
7. Flank steak	7. Fresh picnic
8. Round steak	8. Smoked picnic shoulder roast
9. Sirloin steak	
10. Club steak	
11. Rib steak	
12. T-bone steak	
13. Porterhouse steak	

Beef

A staple in many households is ground beef. There were several interesting points concerning this type of meat. For example: the fifty-five plus age group makes up the largest purchasing group for under one pound and the smallest purchasers of the five-pound-plus package sizes.

This is in agreement with the Gamma test which indicates that as the consumer gets older, the package size preferred decreases. This can be seen in Table 3.

The reasons older shoppers prefer the small ground beef package size are logical ones. By age 55, most children are away at school or out on their own and the family size is reduced to one or two members. Basically, this is what the marketer refers to as an empty nest. In addition, many live in retirement home environments which means limited storage space. It would also seem logical that at such an age, appetites may begin to diminish which would mean the purchase of small package sizes. Another interesting fact is that the one-pound-or-less hamburger packages were the most popular with all age groups except the 35-44 age group. Over 37 percent of the respondents said they prefer a one-pound package or less. In addition, neither group purchases any other package size in as high a percentage.

Probably an indication of decreasing average family size is the fact that the five-pound plus package sizes were the least popular.

Table 3

The Relationship Between Age Categories and Preferred Ground Beef Package Size Categories

Item	Age Category 18-34	35-44	45-54	55-64	65 plus	Total Responses
	percent					*number*
Ground Beef						
1 lb. or less	35.4	29.1	35.1	40.2	45.9	320
1.1-2.5 lbs.	32.6	37.0	32.2	32.8	33.5	289
2.6-4.9 lbs.	18.2	25.5	24.0	20.1	17.7	181
5 plus lbs.	13.8	8.4	8.7	6.9	2.9	71
Total	100.0	100.0	100.0	100.0	100.0	861

Chi-Square = 24.9 DF = 12 P = .015 Gamma = -.130

Table 4

The Relationship Between Age Categories and Preferred Beef Roasts Package Size Categories

Item	Age Category 18-34	35-44	45-54	55-64	65 plus	Total Responses
	percent					*number*
Round roast						
2 lbs. or less	25.2	14.7	9.4	5.1	5.8	67
2.1-3 lbs.	32.7	35.3	35.9	41.9	36.0	200
3.1-4 lbs.	18.7	27.9	24.8	24.8	34.9	142
4 plus lbs.	23.4	22.1	29.9	28.2	23.3	140
Total	100.0	100.0	100.0	100.0	100.0	549

Chi-Square = 32.6 DF = 12 P = .001 Gamma = .134

Rump roast						
2 lbs. or less	20.0	14.4	5.8	2.0	4.6	48
2.1-3 lbs.	32.0	32.4	32.0	37.0	32.2	166
3.1-4 lbs.	18.7	27.9	24.8	24.8	34.9	142
4 plus lbs.	23.4	22.1	29.9	28.2	23.3	140
Total	100.0	100.0	100.0	100.0	100.0	501

Chi-Square = 38.6 DF = 12 P = .000 Gamma = .092

Standing rib roast						
3 lbs. or less	45.3	31.8	19.2	6.9	17.0	72
3.1-4 lbs.	13.2	18.2	17.8	19.0	22.6	55
4.1-5 lbs.	17.0	27.3	26.0	29.3	26.4	77
5 plus lbs.	24.5	22.7	37.0	44.8	34.0	99
Total	100.0	100.0	100.0	100.0	100.0	303

Chi-Square = 30.2 DF = 12 P = .003 Gamma = .229

The large five-pound package has very little popularity with the youngest or the oldest age group. The 35-44 and 45-54 age groups each purchase over 24 percent of the 2.6-4.9 pound package sizes. This seems reasonable, as these groups would have the larger families and would have more of a need for such large amounts. A final note that reflects the popularity of ground beef is that 861 people said they purchased ground beef. This amounts to 89 percent of the people surveyed.

Round roast purchases also proved to be significantly affected by the age of the consumer. Unlike ground beef, the Gamma test reveals that as age decreases, the package size purchased tends to be smaller. Overall, the two pound or less round roast seems to be most popular with the 18-34 and 35-44 age groups (Table 4). The fact that a larger roast requires two to three hours of preparation time probably explains why it is not as popular with the younger age groups. With more women joining the work force, the shorter the preparation time, the better.

The 2.1-3 pound round roast package is the overall favorite (Table 4). Every age group prefers the 2.1-3 pound package over any other. The 3.1-4 pound and the four plus pound package are very close second and third choices with the size purchased most infrequently being the small roast of two pounds or less.

Without respect to age, the 2.1-3 pound rump roast was purchased most frequently. Upon comparing the rump roast with the round roast, very similar purchasing patterns are found. This becomes apparent when figures for these two roasts are compared (Table 4). Although it is not quite as strong, there is still a slight tendency for consumers to purchase larger package sizes of rump roast as they get older. Another similarity is that shoppers in the 18-34 and 35-44 age brackets were the dominant purchasers for the two-pound or less roast. This small package was most frequently consumed by the 18-34 age group. In short, there are not any significant differences in the purchasing patterns for these two roasts as a result of age. The only difference was that round roast was purchased 5 percent more frequently than was rump roast.

The standing rib roast is a luxury item normally priced higher than round or rump roasts. This explains why only 31 percent of the survey group ever purchased this particular cut. All the beef roasts significantly affected by age have shown a tendency for the package size purchased to increase with the age of the buyer. Note that this tendency is greatest with the standing rib roast. By looking at Table 4, it can be seen that the standing rib roast purchasing patterns closely resemble those of the other two roasts.

The older shoppers purchase all package sizes except the smallest one with regular frequency. Once again it is the 18-34 age group that purchases the small package size most frequently. The contrast is that shoppers from age 18 to 44 prefer the small pound or less package of standing rib roast, while those 45 and over choose the five-pound plus package (Table 4).

Only two of the seven steaks considered by consumers in this study had a significant relationship between age and preferred package size. The flank steak, the less expensive cut, experienced a weak positive relationship between age and preferred package size. However, the sirloin steak showed a negative relationship between age and preferred package size (Table 5).

Overall, the two-pound or less flank steak was the most popular package size among all age groups. Most responding consumers preferred a sirloin steak that was one inch thick or greater. This was more true for the age groups under 55 years of age (Table 5).

Pork

Pork chops were the only pork product that showed a significant relationship between age and preferred package size. As shown in Table 6, the Gamma test indicates a negative relationship between age and preferred package size, meaning the older the consumer the more he/she prefers the smaller size package of pork chops.

The 55-plus consumer seems to respond to pork chops packaging preferences in the same way he/she does to ground beef. The reasons for this are: the family unit is smaller for older citizens, and their appetites and storage space are smaller as well.

Overall, the four-chop and six-chop package sizes were the most popular with the five-chop and the larger nine-plus-chop packages being the least popular with consumers. As with ground beef, a large portion (70%) of the respondents indicated a preferred package size for pork chops which suggests that this product is a favorite among consumers.

Table 5

The Relationship Between Age Characteristics and Preferred Beef Steaks Package Size Categories

Item	Age Category 18-34	35-44	45-54	55-64	65 plus	Total Responses
	percent					*number*
Flank steak						
2 lbs. or less	78.3	52.7	73.2	65.4	74.2	174
2 plus lbs.	52.7	47.3	26.8	34.6	25.2	80
Total	100.0	100.0	100.0	100.0	100.0	254
Chi-Square = 10.3 DF = 4 P = .036 Gamma = .019						
Sirloin steak						
Less than 1"	16.7	20.8	11.7	25.2	36.1	126
1-1.4"	47.6	42.5	52.4	35.3	39.2	258
1.5 plus in.	35.7	36.7	35.9	39.5	24.7	206
Total	100.0	100.0	100.0	100.0	100.0	590
Chi-Square = 26.4 DF = 8 P = .001 Gamma = -.115						

Table 6

The Relationship Between Age Categories and Preferred Pork Chop Package Size Categories

Item	Age Category 18-34	35-44	45-54	55-64	65 plus	Total Responses
	percent					*number*
Pork chops						
1 - 3 chops	11.3	13.0	14.8	19.6	23.2	111
4 chops	22.5	19.1	19.0	29.0	32.8	167
5 chops	9.9	11.4	5.6	10.5	10.4	65
6 chops	23.2	24.4	26.8	25.2	21.6	166
7 - 8 chops	18.3	15.3	20.4	9.0	8.0	98
7 plus chops	14.8	16.8	13.4	6.3	4.0	76
Total	100.0	100.0	100.0	100.0	100.0	683
Chi-Square = 46.6 DF = 20 P = .001 Gamma = -.205						

Family Size

Family size is probably the strongest influence on package size purchased. For this reason, it is important that marketers are aware of the family size make-up of their clientele. Nationally, the trend has been a decline in the average family size.

The Delaware survey group seems to typify this trend. Over 90 percent of those surveyed had families with four members or less. The two-member family was most prevalent. Forty-two percent of the survey group fell into this category. The three- and four-member families make up 17.4 percent and 17.2 percent of the group respectively, while 13.6 percent of those surveyed live alone.

To analyze the effect of family size on purchases, cross tabulations were computed. Of the thirteen beef cuts evaluated, package sizes purchased for only hamburger and round roast were affected by the family size of the consumer. For the eight cuts of pork only the loin roast, spareribs, and pork chop purchases were influenced by the size of the family.

Five-member families make up a very small portion of the Delaware survey group, but their input is still valuable. When purchasing ground beef, more five-member-plus families buy the two- to three-pound package size. All package sizes under one pound were favored by all family sizes with most frequency. A closer look at the breakdown according to family sizes reveals that the one- and two-member family sizes choose the 2.5-pound package or less as their favorite. The three- to five-plus family units tend to go more for the larger package sizes (Table 7).

The two-member family was the dominant purchasing force for the round roasts affected by this demographic factor. This is not surprising considering that 42 percent of those surveyed are part of a two-member family. The second largest purchasing force is what is interesting, as the one-, three- and four-member families are fairly evenly represented. As a roast makes a large meal, it's no surprise that the three- and four-member families share second place.

For the round roast, the 2.1-3-pound package is the favored size. The only exception is that the five-member-plus family size prefers the larger package sizes. As can be seen in Table 7, it is the larger package sizes that are preferred by the larger family sizes.

Pork

The pork products that were significantly affected by the family size were pork chops, spareribs, and loin roast. The gamma statistic for each indicated a positive relationship between the desired package size and family size. Table 8 shows that the larger the family the greater tendency to prefer the larger package sizes. The significant pork products show the same consistent relationship as the significant beef products indicating the persistent effect of family size on package preferences.

The one- and two-member families showed a definite preference for the four-chop or less package size (Table 8). The popular six-chop package was an overwhelming favorite of the three-member family. The six-chop package allowed two chops per family member which made it a very desirable package size for the three-member family.

For loin roast, the smaller roasts of four pounds or less were the more popular choices among all family sizes. Over 40 percent (42.9%) of the single households preferred spareribs of two pounds or less while the five-member-or-more households showed a preference for the over-four-pound spareribs by almost 50 percent (48.8%).

Gender of Respondent

For generations the grocery store has been a female domain. However, for a variety of reasons this is no longer the case. In an effort to capitalize on the growing male market segment, retailers and marketers are monitoring the habits and needs of the male shopper. According to the *Progressive Grocer* article entitled "The Myth of the Male Shopper," the shopping habits of males often closely resemble those of their female counterparts.

The effect of gender on package size preferences for beef and pork was evaluated using cross tabulations. Six cuts of beef and one pork cut proved to be significantly affected by the respondent's gender.

Beef

Five of the six beef cuts were steaks. These include the sirloin steak, the T-bone steak, the club steak, the porterhouse steak, and the rib steak (Table 9). Both genders preferred

Table 7

The Relationship Between Family Size and
Preferred Package Sizes of Ground Beef and Round Roast

Item	Family Size: One Member	Two Members	Three Members	Four Members	Five+ Members	Total Responses
	percent					*number*
Ground Beef						
1 lb. or less	51.8	42.6	31.3	31.9	12.2	324
1.1-2.5 lbs.	36.4	33.3	35.0	29.4	36.6	295
2.6-4.9 lbs.	9.1	18.1	22.5	26.2	37.8	185
5 plus lbs.	2.7	6.0	11.2	12.5	13.4	74
Total	100.0	100.0	100.0	100.0	100.0	878
Chi-Square = 63.4 DF = 12 P = .000 Gamma = .289						
Round roast						
2 lbs. or less	22.0	12.8	9.8	11.1	9.2	68
2.1-3 lbs.	36.6	40.0	36.3	37.6	21.5	204
3.1-4 lbs.	26.8	26.4	18.6	25.6	35.4	145
Over 4 lbs.	14.6	20.8	35.3	25.7	33.9	143
Total	100.0	100.0	100.0	100.0	100.0	560
Chi-Square = 23.0 DF = 12 P = .027 Gamma = .155						

Table 8

The Relationship Between Family Size and
Preferred Package Sizes of Pork Chops, Spareribs, and Loin Roast

Item	Family Size: One Member	Two Members	Three Members	Four Members	Five+ Members	Total Responses
	percent					*number*
Pork chops						
1 - 3 chops	33.3	19.5	11.8	10.2	5.8	112
4 chops	33.3	36.6	14.2	14.6	1.5	169
5 chops	11.1	6.7	11.8	13.2	8.7	66
6 chops	15.9	21.1	42.5	17.5	26.1	169
7 - 8 chops	3.2	10.4	11.0	27.0	24.6	101
9 plus chops	3.2	5.7	8.7	17.5	33.3	77
Total	100.0	100.0	100.0	100.0	100.0	694
Chi-Square = 174.5 DF = 20 P = .000 Gamma = .422						
Loin roast						
3 lbs. or less	34.3	48.8	29.9	40.4	33.3	193
3.1-4 lbs.	31.4	26.8	39.1	37.1	27.5	148
4.1-5 lbs.	28.6	16.8	14.9	14.6	27.5	85
Over 5 lbs.	5.7	7.6	16.1	7.9	11.7	45
Total	100.0	100.0	100.0	100.0	100.0	471
Chi-Square = 23.0 DF = 12 P = .027 Gamma = .155						
Spareribs						
2 lbs. or less	42.9	30.6	15.1	19.1	2.4	81
2.1-3 lbs.	28.6	32.0	30.3	33.8	24.4	108
3.1-4 lbs.	7.1	18.4	27.3	19.2	24.4	70
Over 4 lbs.	21.4	19.0	27.3	27.9	48.8	91
Total	100.0	100.0	100.0	100.0	100.0	350
Chi-Square = 35.0 DF = 12 P = .000 Gamma = .297						

Table 9

The Relationship Between Gender and Preferred Size of Steak

Item	Gender of respondent: Female	Male	Total Responses
	percent		*number*
T-bone steak			
Under 1 inch	17.2	29.3	96
1 - 1.4 inch	48.2	50.0	217
1.5 plus inch	34.6	20.7	131
Total	100.0	100.0	444
Chi-square = 13.9 DF = 2 P = .001 Gamma = -.305			
Rib steak			
Under 1 inch	22.1	36.7	84
1 - 1.4 inch	50.8	46.8	152
1.5 plus inch	27.1	16.5	72
Total	100.0	100.0	308
Chi-square = 9.1 DF = 2 P = .010 Gamma = -.297			
Club steak			
Under 1 inch	30.6	39.6	84
1 - 1.4 inch	38.8	45.0	102
1.5 plus inch	30.6	15.4	62
Total	100.0	100.0	248
Chi-square = 7.2 DF = 2 P = .027 Gamma = -.255			
Sirloin steak			
Under 1 inch	18.0	26.0	124
1 - 1.4 inch	42.7	45.7	259
1.5 plus inch	39.3	27.9	209
Total	100.0	100.0	592
Chi-square = 9.9 DF = 2 P = .007 Gamma = -.224			
Porterhouse steak			
Under 1 inch	18.7	25.0	87
1 - 1.4 inch	44.7	50.0	194
1.5 plus inch	36.6	25.0	136
Total	100.0	100.0	417
Chi-square = 6.3 DF = 2 P = .043 Gamma = -.211			

the one-inch to 1.4-inch steak in all cases. However, differences developed between the sexes with the second steak size choice. The fact that each steak has a negative Gamma means that males prefer the smaller steaks. This is reinforced by analyzing the data in Table 9. Specifically, both genders purchase the medium package size with the greatest frequency. But males purchase the smallest package size with the second greatest frequency, while the females prefer the larger package size.

Round roast is the sixth beef cut with package size purchases affected by the gender of the consumer. The trend is reversed in this case. More in line with the stereotype of the large male appetite, males prefer larger roasts than do females (Table 10). The 2.1-three-pound round roast was the favorite with over 40 percent of the females whereas the males showed a more even distribution, but a preference for the over-four-pound roast.

The only cut of pork with purchases significantly affected by gender are spareribs (Table 11). In this instance, package size preferences were very similar. Females buy the 2.1-three-pound ribs 33.2 percent of the time. The males prefer the smaller two-pound-or-less ribs. They purchase these package sizes 31.9 percent of the time. As a second choice, both sexes prefer the larger four-pound-plus ribs. Overall, the male shopper tends to prefer the smaller ribs package size.

Income of the Respondent

The income category of the responding consumers was run against each of the beef and pork cuts evaluated. The income of the respondent did not have an effect on the package size purchased of any of the pork products. Of the beef cuts investigated, only two of the steaks were significantly affected by income at the 95 percent confidence level.

As shown in Table 12, the smaller sized flank steaks are preferred more by the higher income groups. The larger the flank steak the greater the tendency for the lower income groups to purchase it. In general, all income groups preferred the two-pound-or-less steak by over 2 to 1.

The T-bone steak is more expensive than the flank steak. Therefore, it is not surprising that the Gamma test shows there is a slight positive relationship between income category and the size of steak purchased. What is perhaps more interesting is that the consumers making less than $20,000 and those making $50,000 or more show a greater preference for the 1.5-plus-inch steak (Table 12).

Summary and Conclusions

The typical shopper who responded to this survey was a price-conscious female who preferred shopping at a supermarket on a weekly basis. If she worked outside the home, she more than likely was a professional. She was from an average family size of 2.75 members with an annual gross household income of around $30,000.

Consumers were asked to indicate their preferred package size for thirteen fresh beef cuts and eight fresh pork cuts. Their choices were then tested to determine if there existed any relationship between their desired package size and key demographic characteristics. This study found that demographic characteristics are related to some fresh beef and pork package sizes.

Age is important in determining preferred package size:

- The older (younger) the consumer the more s/he prefers the larger (smaller) packages of round, rump, and standing rib roasts and flank steak.
- The older (younger) the consumer the more s/he prefers the smaller (larger) package of ground beef, sirloin steak, spareribs, and pork chops.

Gender is important in determining preferred package size:

- Female (male) shoppers tend to prefer smaller (larger) steaks, and packages of spareribs and sliced ham.
- Male (female) shoppers tend to prefer the larger (smaller) sized round roast.

Family size is important in choosing package size. The larger (smaller) the family the greater the tendency to buy the larger (smaller) packages of ground beef, round, rump, standing rib, chuck, and loin roasts, as well as spareribs and pork chops.

Income is important in determining the size of steak purchased. The higher (lower) the income the larger (smaller) the steak purchased except for flank steak.

Table 10

The Relationship Between Gender and Preferred Package Size of Round Roast

Item	Gender of respondent: Female	Male	Total Responses
	percent		*number*
Round roast			
2 lbs. or less	11.2	14.0	67
2.1 - 3 lbs.	40.4	28.5	200
3.1 - 4 lbs.	25.6	26.9	143
Over 4 lbs.	22.8	30.6	140
Total	100.0	100.0	550

Chi-square = 8.6 DF = 3 P = .035 Gamma = .116

Table 11

The Relationship Between Gender and Preferred Package Size of Spareribs

Item	Gender of respondent: Female	Male	Total Responses
	percent		*number*
Spareribs			
2 lbs. or less	18.8	31.9	80
2.1 - 3 lbs.	33.2	25.9	106
3.1 - 4 lbs.	22.3	15.5	69
Over 4 lbs.	25.7	26.7	90
Total	100.0	100.0	345

Chi-square = 8.8 DF = 3 P = .031 Gamma = -.127

Table 12

The Relationship Between Income Categories and Preferred Size of Steak

Item	Less than $10,000	$10,000-$19,000	$20,000-$29,000	$30,000-$39,000	$40,000-$49,000	$50,000 Plus	Total Responses
	Income Category						
	percent						*number*
Flank steak							
2 lbs.	53.9	56.2	54.2	80.4	80.5	69.4	172
Over 2 lbs.	46.1	43.8	45.8	19.6	19.5	30.6	80
Total	100.0	100.0	100.0	100.0	100.0	100.0	252
Chi-square = 14.4	DF = 5	P = .013	Gamma = -.218				
T-bone steak							
> 1"	18.7	28.9	26.2	21.7	23.8	14.4	96
1 - 1.4"	37.5	34.6	55.3	52.2	52.4	46.9	214
1.5+ inch	43.8	36.5	18.5	26.1	23.8	38.7	127
Total	100.0	100.0	100.0	100.0	100.0	100.0	437
Chi-square = 19.6	DF = 10	P = .034	Gamma = .113				

There is a need to evaluate further consumer packaging preferences in terms of various demographic characteristics. This information can assist market managers in targeting and meeting the needs of different demographic groups.

Market research is an essential part of running a successful food retail business. Benefits are to be gained by keeping abreast of the shopping patterns and changes in consumer tastes and preferences. The food industry needs to update constantly its figures on the demographic characteristics and trends and consider their impact as related to store operation.

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