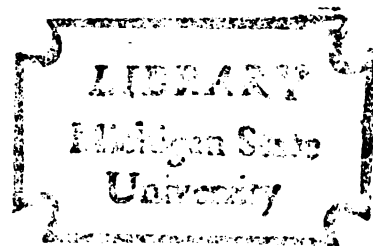




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FOOD SHOPPING PRACTICES OF TWENTY-FIVE FULL-
TIME HOMEMAKERS AND TWENTY-FIVE EMPLOYED
HOMEMAKERS

by
CHARLOTTE R. HOLM

A PROBLEM

Submitted to the College of Home Economics
Michigan State University of Agriculture and
Applied Science in partial fulfillment of
the requirements for the degree of

MASTER OF ARTS

Department of Home Management
and Child Development

1958

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THESIS

WILLIAM E. SHAW

1971

Submitted to the College of Arts and Sciences
in partial fulfillment of the requirements
for the degree of Master of Arts
in the Department of Economics

1971

Department of Economics
University of Michigan

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ABSTRACT OF PROBLEM

Over a period of years the employment of women in the labor force has become increasingly respected. Added expenses which might arise as a result of the employment is one of the considerations to be taken into account for a homemaker who is contemplating joining the labor force. One facet of the added expenses which has received little attention is an increase in the costs of feeding the employed homemaker's family. In this study the researcher has attempted to collect data and analyze some of the aspects of the problem of feeding the family in relation to these hypotheses:

1. Employed homemakers buy more mixes and prepared foods than do full-time homemakers, who tend to buy more of the basic ingredients from which foods are made.
2. Employed homemakers in general spend more per person for food than do full-time homemakers.
3. Employed homemakers plan and make shopping lists more completely than do full-time homemakers.

The data for this problem were obtained by interviews and check lists filled out in the supermarkets. The sample consisted of 25 employed and 25 full-time homemakers and was drawn from that of a larger study on "The Use of the Managerial Process in Food Buying" under the direction of Mrs. Carol O'Brien. The sample for the larger study was obtained by the random sample method.

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There were twice as many children in the families of full-time homemakers as there were in the families of employed homemakers, but the number of adults in the families of the two groups of homemakers was approximately equal.

Generally speaking there were few noticeable differences between the two groups of homemakers in the kinds of food purchased. This is in line with the study done at Cornell which was reported by Rollins (2). The widest difference between the two groups of homemakers appeared in the category of unprepared cereals. Eleven of the 25 full-time homemakers made purchases in this category, while three out of 25 employed homemakers made such purchases. Another difference occurred in the category of slow-cooking meats, in which eight full-time homemakers made purchases in contrast to 14 employed homemakers who made such purchases. In the category of fast-cooking meats there was a differential of four cases (20 full-time homemakers contrasted against 16 employed homemakers).

The employed homemakers spent 42 cents more per person than did the full-time homemakers for the shopping trip under consideration. However, entire food costs were not studied.

There was no notable difference between the two groups of homemakers in the amount of planning that was given to the shopping trip.

ACKNOWLEDGMENTS

The writer of this problem wishes to express her deep appreciation to her advisor for this problem, Dr. Beatrice Paolucci, and to Dr. Irma Gross, and to the director of the larger study, Mrs. Carol O'Brien for their patience, encouragement, and interest in this problem, as well as for their very helpful and concrete suggestions. The writer is also very grateful to the women who cooperated in this study by allowing us to interview them. Their cooperation made this study possible.

THE PROBLEM

The problem is to find a function $f(x)$ which satisfies the following conditions:

- (1) $f(x)$ is continuous on the interval $[a, b]$.
- (2) $f(x)$ is differentiable on the interval (a, b) .
- (3) $f(a) = 0$ and $f(b) = 1$.
- (4) $f'(x) \geq 0$ for all x in (a, b) .
- (5) $f''(x) \leq 0$ for all x in (a, b) .

The function $f(x)$ is called a *concave down* function on the interval $[a, b]$ if it satisfies conditions (1), (2), (3), and (5). The function $f(x)$ is called a *convex up* function on the interval $[a, b]$ if it satisfies conditions (1), (2), (3), and (4).

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1. The first part of the document is a list of names and their corresponding dates. The names are: "John Doe", "Jane Smith", "Bob Johnson", "Alice Brown", "Charlie White", "David Green", "Eve Black", "Frank Gray", "Grace Pink", "Henry Blue", "Ivy Yellow", "Jack Purple", "Karen Red", "Leo Orange", "Mia Silver", "Noah Gold", "Olivia Bronze", "Pete Copper", "Quinn Iron", "Rory Steel", "Sam Tin", "Tina Lead", "Uma Zinc", "Victor Nickel", "Wendy Platinum", "Xavier Silver", "Yara Gold", "Zoe Bronze". The dates are: "1990-01-01", "1990-02-01", "1990-03-01", "1990-04-01", "1990-05-01", "1990-06-01", "1990-07-01", "1990-08-01", "1990-09-01", "1990-10-01", "1990-11-01", "1990-12-01", "1991-01-01", "1991-02-01", "1991-03-01", "1991-04-01", "1991-05-01", "1991-06-01", "1991-07-01", "1991-08-01", "1991-09-01", "1991-10-01", "1991-11-01", "1991-12-01", "1992-01-01", "1992-02-01", "1992-03-01", "1992-04-01", "1992-05-01", "1992-06-01", "1992-07-01", "1992-08-01", "1992-09-01", "1992-10-01", "1992-11-01", "1992-12-01".

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INTRODUCTION

During World War I the appearance of women in the labor force became increasingly accepted. This gave impetus to a trend which has not yet subsided. Newsweek (1) recognized this in saying,

Working mothers are nothing new: Nine out of ten U.S. women are likely to hold a job at some time. Increasingly, the suburban housewife with above-average income goes to work as this becomes more respectable and offices and factories move nearer her home. "The implication used to be that the husband couldn't feed her," says a Labor Department expert in Washington. "Now it's that she's too bright to confine herself to diaper-washing."

This change in society's attitude has raised questions for many wives. Should she go to work or continue to stay at home? Do her activities in the home contribute as much to the family's goals as would her income if she were employed? As with many other questions, there are various factors to be considered before arriving at a decision. One factor, often given as a reason for working is that of increasing the family's income. In considering the economic aspects of working women, one is often confronted with answering the question, "Is it really profitable for women to work?" One factor to be considered in answering this question is that of the added expense, if any, which results from the employment of the wife. Additional costs for transportation, clothing, professional expenses, and child care can be calculated with some degree of accuracy and ease.

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Additional costs for food are more difficult to compute and compare. Increases in the costs of feeding the employed homemaker's family is one area in which, to date, little conclusive evidence has been collected.

It seems that a need must be widely felt and recognized before studies are undertaken to discover the factors which determine or influence a problem. While the problems concerned with feeding the family of the employed homemaker are not recent, there is a dearth of studies and information dealing with this topic. More specifically, there are to date very few studies indicating 1) whether the employment of the homemaker increases or decreases food costs, or whether it leaves food costs unaffected; 2) whether employed homemakers buy different types of food than do full-time homemakers; and 3) whether employed homemakers plan more completely for food expenditures and make lists more extensively than do full-time homemakers.

The researcher was primarily concerned with these questions. In this study she proposed to collect data and analyze the problem of feeding the family in relation to these hypotheses:

1. Employed homemakers buy more mixes and prepared foods than do full-time homemakers, who tend to buy more of the basic ingredients from which foods are made.
2. Employed homemakers in general spend more per person for food than do full-time homemakers.
3. Employed homemakers plan and make shopping lists more completely than do full-time homemakers.

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Background Information:

In response to a letter of inquiry to Dr. Mabel A. Rollins, (2) Head of the Department of Economics of the Household and Household Management at New York State College of Home Economics at Cornell regarding a study underway at Cornell on "Practices of Employed Married Women in the Labor Force With Children in the Purchase of Food and in the Use of Equipment for Its Preparation", Dr. Rollins reported the following findings:

1. Women employed in the labor force did not buy as much of the prepared foods or the semi-prepared foods as did the women who were full-time homemakers.
2. Women in the labor force did somewhat more preparation of food ahead of time than did the women working full-time at home; and that counting in lunches that were packed at home, employed women had almost as much responsibility for meal preparation as did the full-time homemakers.
3. Women in the labor force did not purchase as many fruits and vegetables as did the women at home full-time.
4. A number of homemakers kept a list only of staples needed. They might or might not take this to the store with them when they went -- the mere writing down of these items put them in their memory.
5. There was no apparent tendency for homemakers not in the labor force, and presumably able to shop at any time of day, to avoid the congested hours.

1. *Chlorophyll a* (Chl *a*) and *Chlorophyll b* (Chl *b*) were determined by the method of Lichtenthal and Whistler (1973). The total chlorophyll content was determined by the method of Arar and Cook (1977). The carotenoid content was determined by the method of Lichtenthal and Whistler (1973). The total carotenoid content was determined by the method of Arar and Cook (1977). The total protein content was determined by the method of Lowry (1956). The total lipid content was determined by the method of Bligh and Dyer (1959). The total carbohydrate content was determined by the method of Dubois and Gilles (1950). The total nucleic acid content was determined by the method of Burton (1956). The total ash content was determined by the method of AOAC (1970). The total water-soluble carbohydrate content was determined by the method of Dubois and Gilles (1950). The total water-soluble protein content was determined by the method of Lowry (1956). The total water-soluble lipid content was determined by the method of Bligh and Dyer (1959). The total water-soluble nucleic acid content was determined by the method of Burton (1956). The total water-soluble ash content was determined by the method of AOAC (1970).

• *Chlorophyll a* and *Chlorophyll b* were measured using a spectrophotometer (Shimadzu UV-1601U) at 663 nm and 646 nm, respectively. The concentrations of chlorophylls were calculated using the following equations: Chlorophyll *a* (mg/L) = 12.7 (OD₆₆₃ - 1.82 OD₆₄₆) and Chlorophyll *b* (mg/L) = 22.9 (OD₆₄₆ - 0.21 OD₆₆₃).

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler and Whistler (1973).

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E. coli O157:H7 was isolated from ground beef samples collected at retail outlets in the United States during the outbreak.

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6. The households of women employed in the labor force were not any smaller than those of the women not in the labor force, but they contained many more adults and many fewer small children.

Mississippi State College (3) is currently in the process of analyzing a study of "Changes in Family Food Purchase and the Use Practices Following the Gainful Employment of the Wife", in which differences in types of foods used are emphasized. Unfortunately, their analysis is not yet far enough along for them to report any findings.

Calla Van Syckle (4), professor in the Division of Home Economics at State College of Washington, found in a study on "Food Management Practices in an Industrial City" that:

1. Four out of ten homemakers (46%) budgeted for food supplies, and that nine out of ten (90%) who did budget found that the budget worked all or most of the time.
2. The weekly food budget ranged from \$7.50 in a family of two to \$50.00 in a family of eight. The lowest rate per person per day was 32¢ in a family of eight, and the highest rate was \$1.78 per person per day in a family of two.

In a study done by Eleanor Anne Ward Broman (5), "A Time and Cost Study of Shopping Practices and Meals on Three Levels of Preparation", it was found for a family of three that the average daily cost per person was \$1.30 for commercially prepared food, \$1.26 for partially prepared food, and \$1.02 for home prepared food.

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Dr. Irma H. Gross (6), head of the Department of Home Management and Child Development at Michigan State University found in a study on "Home Management of Working and Non-Working Homemakers With Young Children" in relation to the use of commercial products that:

1. "There was only slight indication of greater use of home-made products by the non-working homemakers, but the working mothers made more occasional use of mixes and completely prepared products...
2. "Sixty-seven percent (67%) of commercially frozen and canned fruits and vegetables were never used by the non-working wives. In comparison, only 39% were never used by working wives.
3. "Seven reports of use of fully prepared frozen foods were given by the twenty-two working wives, compared with two out of the twenty-two by non-working wives."

Florence S. Walker (7) indicated in a study done at Ohio State University, on "Some Management Practices in Homes of Thirty-Five Employed Homemakers, Columbus, Ohio, 1952" that the most commonly mentioned changes in food patterns among the employed homemakers was toward the use of quicker-to-prepare foods, such as fried foods rather than stews or roasts, and the use of the already prepared foods.

The findings of the studies reported by Gross (6) and Walker (7) tend to support Hypothesis One, while the findings reported by Rollins (1) tend to refute this hypothesis.

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Definition of Terms:

In this study the following words and terms will be interpreted to mean:

Prepared foods refers to those foods which are purchased fully prepared and ready to eat without any further attention. Examples of foods which would be included in this category are bread, crackers, cakes and cookies which are already fully baked, potato salad, jello salads of various types, canned meats and fish and cold cuts.

Mixes refers to those products in which some but not all of the ingredients have been mixed before purchase. This includes cake mixes, cookie mixes, ice cream mixes, pudding mixes, pie mixes, and gelatin mixes.

Partially prepared foods refers to those products which have been partly prepared before purchase, but which require further preparation before they are ready to eat. Examples of this category are canned and dried soups, frozen foods which need to be heated or cooked before being eaten, evaporated milk (which is usually used in baby formulas or in cooking, rather than used as milk for drinking after being diluted), and dry milk solids.

Homemaker refers to any woman who keeps house and maintains a home, whether for herself alone or for a larger family.

Full-time homemaker refers to a woman who is not gainfully employed in the labor force and who maintains a home.

Employed homemaker in the context of this paper refers to a woman who is gainfully employed in the labor force and who also maintains a home.

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Planning refers to whether or not the women had shopping lists with them when they came into the supermarket, regardless of the completeness or specificity of the list.

PROCEDURE

The data for this problem were obtained by interviews and check lists filled out in the supermarkets. This method was chosen because an earlier study of research methods in home management conducted at Michigan State University by Gross and others (8) indicated that more satisfactory results were possible through the interview rather than the questionnaire or the diary technique. The interviewing was done as part of the larger study on "The Use of the Managerial Process in Food Buying" under the direction of Mrs. Carol O'Brien of the Department of Home Management and Child Development at Michigan State University during 1957.

Description of Sample:

The sample for this study was drawn from that of the larger study mentioned above and consisted of the chronologically first 25 employed homemakers and the first 25 full-time homemakers interviewed for the larger study. The sample for the larger study was obtained by the random sample method.

The initial interview in the supermarket was done in pairs. While one interviewer was talking with the respondent, the second interviewer used the Grocery Check List, Form C, (See Appendix) to check the amounts and the kinds of food which the respondent had in her grocery basket. The Grocery Check List, Form C, was

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developed specifically for this problem by the writer and included the total amount of money spent, categorized lists of common foods, and a blank space at the bottom in which could be written the foods that were not included on the lists.

The Grocery Check List, Form C, (See Appendix) was developed from the Michigan State University Weekly Consumer Food Purchase Diary which is currently being used in a study directed by Gerald G. Quackenbush, Department of Agricultural Economics. Since Dr. Quackenbush's list was much more detailed than was feasible or necessary for this study, some of his items were omitted and other items were regrouped under more inclusive categories. For example cooking aids such as salt, baking powder, and the like were all grouped under the heading "staples". In the second rough draft the items were listed in vertical columns rather than in horizontal groups of food categories to facilitate locating them quickly. After a pilot test with this form in a supermarket, the following changes were made: (1) juices were omitted as a separate category and were placed with the fruits and vegetables, using the code "J", rather than a check mark, to designate them; (2) the Soaps and Detergents category was combined with the category of Other Cleaning Supplies, forming the category of Cleaning Supplies; (3) Beverages were included under the Miscellaneous category; (4) crackers, bread, spaghetti products, and staples were added to the list, while gelatin, pizza, chocolate syrup, dried milk and its products, avocados, celery cabbage, dates, eggplant, figs, limes, mushrooms, okra, olives, parsley, and pimientos were omitted from the list. After a second pilot run the further changes

The first thing I noticed when I stepped out of the car was the cold, crisp air. It felt like a fresh blanket after a long, hot summer. I took a deep breath, savoring the scent of pine and the distant sound of water. The landscape was breathtaking, a vast expanse of green fields stretching towards a range of jagged mountains under a clear blue sky. A small stream flowed gently through the center of the valley, its surface reflecting the sunlight in shimmering patterns. I walked along the path, feeling the soft grass beneath my feet and the gentle breeze on my face. The world seemed so peaceful, so far from the hustle and bustle of city life. I had found a quiet corner of the world, a place where time seemed to stand still. The sun was beginning to set, painting the sky in vibrant shades of orange and pink. The mountains were silhouetted against the colorful backdrop, their peaks softened by a light mist. I sat on a large rock by the stream, watching the water flow and the leaves rustle. The sound of the water was soothing, a gentle lullaby that lulled my mind into a state of calm. I had found what I needed, a moment of peace and tranquility in a beautiful, natural setting. The world was perfect just the way it was.

were made: (1) Mixes were combined with Bakery Products, using the code "M" rather than a check mark to designate them, (2) Puddings were omitted, (3) Fats and Oils were omitted as a category, with butter and margarine being listed under the category Dairy Products and Related Items, and shortening listed under Miscellaneous. A third trial was made and the following changes were made on Rough Draft # 5: (1) Vegetables were separated from Fruits, with fruits continuing to be listed alphabetically, but vegetables were listed under the sub-categories salad-leafy (e.g., lettuce, cabbage, spinach, celery, cucumbers, radishes, carrots, etc.), green (e.g., asparagus, beans, peas, broccoli, Brussel Sprouts, etc.), and other vegetables (e.g., beets, corn, cauliflower, onions, turnips, etc.), (2) Sour milk and sour cream were omitted (3) Cake and pie were omitted under the Frozen Food category, since they could be coded "F" under the Bakery Products category. After a fourth "dry run" Rough Draft # 6 was decided upon as the final form. In checking off the food items on the list the following code was used:

B. & S. represented Brown and Serve items

C	"	canned goods
CF	"	canned frozen goods
D	"	dried goods
F	"	frozen goods
J	"	juice
M	"	mixes
/	"	the usual form. For fruits and vegetables, this was fresh; for

baked goods, the fully prepared product, etc.

The questions from the home interview, Interview Form B which were used in this study included the following: Questions four through nine, concerning the family composition, Questions 11 and 12, regarding the gainful employment of the homemaker and the number of hours worked, Question 15 which is concerned with the number of shopping trips made in the past week, and Question 22, concerning the use of a shopping list.

The data were tabulated primarily by hand; however, a calculator was used to get the total number of homemakers in each group who purchased food in the various categories, the total and average number in the family for the two groups of homemakers, and the total and average amount spent. The number of food shopping trips made per week, and the usage of a list by the two groups of homemakers were also determined by use of the calculator. In tabulating the data from the interview forms, red pencil was used in the column representing the full-time homemakers and black lead pencil was used in the column representing the employed homemakers. Each subdivision of each category had a separate column for the employed and for the full-time homemaker on the tabulation sheet. The dot-tally technique was used; a dot was used to represent one purchase. The dots were arranged to form a box, e.g., (.), (:), (::), and (x) represented five purchases in that subcategory.

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ANALYSIS OF FINDINGS

The data for this study were analyzed in relation to the three original hypotheses; namely,

- Hypothesis 1. Employed homemakers buy more mixes and prepared foods than do full-time homemakers, who tend to buy more of the basic ingredients from which foods are made.
- Hypothesis 2. Employed homemakers in general spend more per person for food than do full-time homemakers.
- Hypothesis 3. Employed homemakers plan and make shopping lists more completely than do full-time homemakers.

Families:

The sizes of the family groups of the women interviewed for this study were compared. The average number of persons per family in each of the two groups is shown in Table 1.

TABLE 1. The Average Number of Persons per Family of Full-time and Employed Homemakers

Type of homemaker	Average number per family
Full-time homemaker	4.5
Employed homemaker	3.3

Three of the 25 women who were employed homemakers were the sole members in their family unit.

The ages of family members in the families of employed and full-time homemakers were compared. This comparison can be found in Table 2.

TABLE 2. - The Ages of Family Members of Full-time Homemakers and of Employed Homemakers

Type of homemaker	Number of children			Total number of children	Total number of adults
	0-4 yrs.	5-11 yrs	12-18 yrs.		
Full-time homemaker	31	22	4	57	56
Employed homemaker	5	9	14	28	54

Of the 25 employed homemakers six had families composed of two adults only. One-fifth of the families of the 25 full-time homemakers were composed of two adults only. Employed homemakers tended to have fewer children. There was a total of 57 children in the 25 families of full-time homemakers, or an average of 2.3 children per family. In contrast, there was a total of only 28 children in the 25 families in which the homemaker was employed, or an average of 1.1 children per family.

There was little difference in the number of adults represented in the two groups. An average of nearly 2.2 adults per family appeared in the families of both the full-time homemakers and the employed homemakers.

The majority of homemakers were employed outside the home,

but in a few cases they worked at home baby sitting, laundering, and the like. Two of the 25 employed homemakers were employed in their own homes.

The number of hours spent in work by the 25 employed homemakers is summarized in Table 3.

TABLE 3. - The Number of Hours Worked by the Twenty-five Employed Homemakers

Number of homemakers	Hours worked per week				
	10-19 hours	20-29 hours	30-39 hours	40 hours	over 40 hours
	1	2	3	18	1

The hours worked by the 25 employed women varied from 10 hours per week to 66 hours, with the majority (84%) working a 40-hour week.

Kinds of Food Homemakers Purchased:

Meats were a commonly purchased food for all homemakers. There seemed however to be some differences as to the kinds of meat purchased by the homemakers, particularly in relation to the length of time typically required for preparation by the various cuts and kinds of meat. Some meats, such as roasts and stews, generally require a relatively longer cooking period than do other cuts of meat. The number and percentage of homemakers who purchased meats which require a relatively long cooking time is shown in Table 4.

TABLE 4. - The Number and Percent of Full-time and of Employed Homemakers Purchasing Slow-cooking Meats

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	8	32
Employed homemaker	14	56

Thirty-two percent of the 25 full-time homemakers bought meats which take a long, slow cooking period, while 56 percent of the 25 employed homemakers bought these cuts of meat. This indicates that about one-fourth more employed homemakers than full-time homemakers tended to purchase meats which require longer cooking periods.

Meats such as steaks, chops, and ground meat typically require appreciably less cooking time than do roasts. The number and percent of homemakers who purchased meats which require a relatively shorter cooking period is shown in Table 5.

TABLE 5. - The Number and Percent of Full-time and of Employed Homemakers Purchasing Fast-cooking Meats

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	20	80
Employed homemakers	16	64

About one-sixth more full-time homemakers purchased fast-cooking cuts of meat than did employed homemakers. Four-fifths of the

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full-time homemakers purchased relatively fast-cooking cuts of meat in contrast to slightly more than one-half of the employed homemakers. This is contrary to the notion which is popular in some circles that women who work outside the home serve mainly meats that require only a short cooking time, while women who are full-time homemakers can and do spend some of their time at home cooking meats that require a longer cooking time. This finding supports that reported by Rollins (2) who indicated that women employed in the labor force did not buy as much of the prepared foods or the semi-prepared foods as did the women who were full-time homemakers. One possible explanation is that employed homemakers prepared roasts and stews and the like on their days at home and then serve left-overs and cold roast sandwiches, etc., during their working week.

Luncheon meats, canned meats, and cold cuts are examples of meats which are fully prepared when purchased. The number and percent of homemakers who purchased meats which require no preparation before eating is shown in Table 6.

TABLE 6. - The Number and Percent of Full-time and of Employed Homemakers Purchasing Fully Prepared Meats

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	14	56
Employed homemaker	15	60

No appreciable difference is shown in Table 6 between full-time

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homemakers and employed homemakers in the purchase of prepared meats.

Another food group in which purchases were frequent was fruits and vegetables. When length of time required for preparation was considered, there were no great differences as to the kinds of fruit and/or vegetables purchased by the homemakers. It was felt that canned fruits and vegetables required the least amount of time to prepare, since preparation of this kind of food is usually limited to warming or cooling the contents of the can. The number and percent of homemakers who purchased canned fruits and vegetables is shown in Table 7.

TABLE 7. - The Number and Percent of Homemakers Purchasing Canned Fruits and Vegetables

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	20	80
Employed homemaker	19	76

No appreciable difference between the full-time homemakers and the employed homemakers in the purchase of canned fruits and vegetables was found.

Frozen fruits and vegetables are felt to require more preparation time than do canned goods, in that frozen vegetables are not fully cooked and some thought must be given frozen fruits far enough in advance to allow them to thaw. The number and percent of homemakers who purchased frozen fruits and vegetables

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is shown in Table 8.

TABLE 8. - The Number and Percent of Homemakers Purchasing Frozen Fruits and Vegetables

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	19	76
Employed homemaker	19	76

There was no difference in this sample between full-time homemakers and employed homemakers in the purchase of frozen fruits and vegetables. Homemakers whether employed or not seemed to have similar practices regarding the purchasing of frozen fruits and vegetables.

Dried and fresh fruits and vegetables were grouped together since both forms typically require more preparation time than do either canned or frozen fruits and vegetables. Dried foods may require a soaking period in addition to the cooking time, and fresh produce may need to be washed, peeled, and trimmed before being used. Moreover, the cooking time for fresh produce is often greater than for the frozen or canned form of the same product. Table 9 indicates the number and percent of homemakers who purchased fresh and/or dried fruits and vegetables.

1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Arar and Collins (1987). The concentration of chlorophylls was expressed as $\mu\text{g mL}^{-1}$ of the sample.

TABLE 9. - The Number and Percent of Homemakers Purchasing Fresh and/or Dried Fruits and Vegetables

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	24	96
Employed homemaker	22	88

While the full-time homemaker tended to purchase fresh and/or dried fruits and vegetables slightly more than did her employed counterpart, a high percent of both groups of homemakers purchased fruits and vegetables in this form.

The data do not show any wide differences between full-time homemakers and employed homemakers in the purchase of fruits and vegetables, regardless of the form in which the food is purchased.

Baked products form another food group in which purchases were frequently made. There seemed to be some slight differences regarding the form in which these foods were purchased between the two groups of homemakers, especially in the length of time required for preparation. The fully prepared baked products obviously require the least amount of time for preparation. Table 10 shows the number and percent of homemakers who purchased fully prepared baked products.

TABLE 10. - The Number and Percent of Homemakers who Purchased Fully Prepared Baked Products

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	21	84
Employed homemaker	18	72

One eighth more full-time homemakers than employed homemakers purchased fully prepared baked products. Over seven eighths of the full-time homemakers bought fully prepared baked goods in contrast to three fourths of the employed homemakers who purchased food in this form.

Mixes represent the prime example of foods in the partially prepared group for baked products. They require more preparation time than do the fully prepared products, but typically require less time than do the completely unprepared baked products. The number and percent of homemakers who purchased partially prepared baked products is shown in Table 11.

TABLE 11. - The Number and Percent of Homemakers who Purchased Partially Prepared Baked Products

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	12	48
Employed homemaker	13	52

There was no appreciable difference between full-time homemakers

The first part of the report deals with the general situation of the country and the progress of the work during the year. It is followed by a detailed account of the various projects and the results achieved.

The second part of the report deals with the financial statement of the year. It shows the income and expenditure of the organization and the balance sheet at the end of the year.

The third part of the report deals with the personnel of the organization. It gives a list of the staff and their duties and a summary of their work during the year. It also mentions the names of the volunteers who have helped in the work.

The fourth part of the report deals with the future plans of the organization. It mentions the projects that are being planned for the next year and the steps that are being taken to carry them out. It also mentions the need for more funds and more volunteers.

The fifth part of the report deals with the conclusion of the year. It mentions the achievements of the organization and the progress made towards the goals set at the beginning of the year.

The sixth part of the report deals with the appendix. It contains a list of the names of the staff and volunteers and a list of the names of the donors.

The seventh part of the report deals with the index. It contains a list of the names of the pages and a list of the names of the chapters.

The eighth part of the report deals with the bibliography. It contains a list of the books and articles that have been consulted during the year.

The ninth part of the report deals with the list of the names of the donors. It contains a list of the names of the donors and the amount of the donation.

and employed homemakers in the purchase of partially prepared baked products.

Cereal products which require that the full amount of preparation be done by the homemaker are macaroni-spaghetti products and cooked cereals. The number and percent of homemakers who purchased cereals which require that the full amount of preparation be done by the homemakers is shown in Table 12.

TABLE 12. - The Number and Percent of Homemakers Purchasing Unprepared Cereals

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	11	44
Employed homemaker	3	12

Slightly more than three and one-half times as many full-time homemakers bought cereals that require a relatively long preparation time as did the employed homemakers. This could however be explained by the fact that in this sample the full-time homemakers had many more small children than did the employed homemakers, and small children eat more cereal than do adults.

"Dry" cereals require no preparation on the part of the homemaker. The number and percent of homemakers who purchased fully prepared cereals is shown in Table 13.

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1. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthaler and Whistler (1973).

TABLE 13. - The Number and Percent of Homemakers Purchasing Fully Prepared Cereals

Type of homemaker	Number of cases purchasing item	Percent (N = 25)
Full-time homemaker	14	56
Employed homemaker	9	36

One fifth more full-time homemakers than employed homemakers bought fully prepared cereals.

Staples were purchased by slightly more than one-half of the homemakers. Staples includes such foods as flour, sugars of various forms, syrups, spices and seasonings, and leavenings. The bulk of these foods typically require preparation on the part of the homemakers before serving. In this sample an equal number (56 per cent) of full-time homemakers and of employed homemakers purchased staples.

Examples of foods included under food accessories include: nuts, coconut, chocolate chips, Maraschino cherries, catsup, mustard, pickles, sauces, marshmallows, and the like. About three-fourths of the homemakers in each group purchased such items.

Main dishes were of interest in this study more for lack of differences in purchase practice between the two groups of homemakers than for the number of homemakers purchasing these items. Fully prepared main dishes were those that required only heating before serving, such as frozen or canned spaghetti and meatball, frozen or canned macaroni and cheese, frozen waffles,

1. The first part of the report is a general introduction to the subject of the study.

2. The second part of the report is a detailed description of the methods used in the study.

3. The third part of the report is a discussion of the results of the study.

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24. The twenty-fourth part of the report is a list of footnotes.

frozen pizza, frozen meat or poultry pies, frozen TV dinners, and other such products. There was little purchase of such items in this sample and only a slight difference between full-time homemakers and employed homemakers in the purchase of fully prepared main dishes (Three full-time homemakers and four employed.)

Partially prepared main dishes, such as pizza mix, spaghetti and meatballs mix, and the like showed a somewhat greater difference in purchase practice between the two groups of homemakers. One full-time homemaker and four employed homemakers purchased partially prepared main dishes.

Four times as many employed homemakers as full-time homemakers bought partially prepared main dishes; however, only about one-sixth of the employed homemakers made such purchases.

For some homemakers foods classified as "miscellaneous" accounted for an appreciable number of their purchases. Examples of these foods are: pet food, baby food, gelatin, candy, gum, and soups. There seemed to be some differences as to the kinds of miscellaneous foods purchased by the homemakers in relation to the length of time typically required for its preparation. The fact that employed women had few babies probably explains why some of these differences existed. Some of the baby foods, gelatin, some forms of soups, and candy mixes require varying degrees of preparation before being served. Over one-and-two-thirds as many full-time homemakers as employed homemakers bought miscellaneous foods requiring some preparation before being eaten.

Miscellaneous foods such as most pet foods, canned baby foods, gum, and candy are ready to eat when purchased. Approx-

imately two out of three full-time homemakers in this study purchased ready-to-eat foods, compared against almost one out of two of the employed homemakers purchasing such foods. Roughly one and one-half times as many full-time homemakers as employed homemakers bought miscellaneous foods.

In reviewing the information given in Tables 4 through 13 it may be observed that one of the tables supports the hypothesis that employed homemakers buy more mixes and prepared foods than do full-time homemakers, who tend to buy more of the basic ingredients from which foods are made. Three of the tables refute this first hypothesis, and six of the tables neither support nor refute Hypothesis One. Twenty-four percent more employed homemakers than full-time homemakers purchased slow-cooking meats and 16 percent more full-time homemakers than employed homemakers bought fast-cooking meats. Twenty percent more full-time homemakers than employed homemakers purchased fully prepared cereals. Almost four times as many full-time homemakers as employed homemakers purchased unprepared cereals. A rough summary is given in Table 14.

There were twice as many full-time homemakers as employed homemakers who purchased partially, fully, or relatively quickly prepared foods as there were employed homemakers purchasing such foods. Also there were four times as many full-time homemakers as employed homemakers who purchased unprepared foods, or foods in the form that typically require a relatively long preparation time. Thus it seems that full-time homemakers in this small study bought foods representing a greater range of preparation

time required prior to serving than did employed homemakers.

TABLE 14. - Summary of Previous Tables in Relation to Hypothesis One: Employed Homemakers Buy More Mixes and Prepared Foods than do Full-time Homemakers

Category	Support	Refute	Neither
Meats			
Slow-cooking		X	
Fast-cooking		X	
Fully prepared			X
Fruits & Vegetables			
Canned			X
Frozen			X
Fresh and/or dried			X
Baked Products			
Fully prepared			X
Partially prepared			X
Cereals			
Unprepared	X		
Fully prepared		X	

These data support the findings reported by Rollins (2) that women employed in the labor force did not buy as many of the prepared foods or the semi-prepared foods as did the women who were full-time homemakers. However, these data do not support the first hypothesis of this study, namely: that employed homemakers buy more mixes and prepared foods than do full-time homemakers. The case which supports the hypothesis is supported by a wider margin than are the cases which refute it. In unprepared cereals there was a differential of 8 cases (11 full-time homemakers purchased in this category while only 3 employed homemakers did so.) In contrast there was a differential of 6 cases in the purchase of slow-cooking meats (8 full-time homemakers and 14

1. The first part of the document is a letter from the President of the United States to the Congress.

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3. The third part is a report on the state of the Union, prepared by the President.

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employed homemakers), of 4 cases in the purchase of fast-cooking meats (20 full-time homemakers and 16 employed), and of 5 cases in the purchase of fully prepared cereals (14 full-time homemakers and 9 employed homemakers).

Amount of Money Homemakers Spent:

It was hypothesized that employed homemakers in general spend more per person for food than do full-time homemakers. Typically foods that take less time and/or attention in their preparation, (whether due to previous processing and preparation or, as in the case of meats, to choicer cuts), cost more than do the foods which typically take a relatively long preparation time. Since the families of employed homemakers were slightly less than three-fourths as large as the families of full-time homemakers, this hypothesis had to be considered on an expenditure per person basis. Table 15 shows the total amount spent by the 25 families of full-time homemakers and of employed homemakers, the average number of persons per family, the average amount spent per family, and the average amount spent per person. The data on the amount spent by the homemakers refers to the shopping trip on which the interview was focused. The data indicate that the employed homemakers spent an average of 42 cents more per person per week, or approximately 10 percent more than did full-time homemakers. However, this study was not set up to yield information necessary to calculate the total food costs for the two groups of homemakers.

1. The first part of the report is a general introduction to the subject of the study.

2. The second part of the report is a detailed description of the methods used in the study. This includes a description of the subjects, the experimental design, the data collection procedures, and the statistical analysis.

3. The third part of the report is a discussion of the results of the study. This includes a comparison of the results with previous research, a discussion of the limitations of the study, and a conclusion about the findings.

TABLE 15. - The Amount of Money Spent by 25 Full-time and 25 Employed Homemakers

Type of home-maker	Total amount spent per 25 families	Average number of persons per family	Average amount spent per family	Average amount spent per person
Full-time home-maker	\$410.49	4.5	\$16.41	\$3.65
Employed home-maker	333.84	3.3	13.35	4.07

Since the total amount of money spent by the homemakers includes non-food as well as food items, it might be said that there is less information on the amount of money that was spent for food alone. However, the difference in the purchase of non-food items between employed homemakers and full-time homemakers is of little consequence. Twenty-three of the 25 employed homemakers purchased non-food items (2.26 items per purchaser) and 22 of the 25 full-time homemakers bought non-food items (2.95 items per purchaser).

Shopping Lists of Homemakers:

Assuming that most jobs have relatively rigid time requirements which an employee must meet, it was felt possible that employed homemakers plan and make shopping lists more completely than do full-time homemakers, whose time demands are usually far more flexible. Employed homemakers not only have less time to go to the supermarket for a forgotten item, but also the time they do have is often when the supermarket is closed for business. In addition there are many demands other than food shopping and preparation upon the "free" time of employed homemakers.

The average number of trips to a supermarket was 1.92 trips per week for both the employed and the full-time homemakers. The following table shows the number of women in each group who went to the store once per week, the number who shopped two to three times per week, and the number who shopped four to five times per week.

TABLE 16. - The Number of Shopping Trips per Week Made by Full-time Homemakers and Employed Homemakers

Type of homemaker	One trip per week	Two to three trips per week	Four to five trips per week
Full-time homemaker	11	13	1
Employed homemaker	11	13	1

• **3. The second step** is to identify the **causal** relationships between the variables. This is done by using a **causal diagram** (also known as a **path diagram** or **Bayesian network**). A causal diagram is a directed graph where the nodes represent variables and the edges represent causal relationships. The direction of the edges indicates the direction of causation. For example, in the case of the relationship between exercise and weight, the causal diagram would show exercise leading to weight loss, and weight loss leading to exercise. This step is crucial because it helps to identify the **causal** relationships between the variables, which is essential for understanding the underlying mechanisms of the relationship.

• **Figure 1** shows the results of the regression analysis. The dependent variable is the number of days of absence from work due to illness. The independent variables are the age, sex, and education of the respondent, and the number of children in the household. The results show that the number of days of absence from work due to illness increases with age, and is higher for females than for males. The number of days of absence from work due to illness also increases with the number of children in the household. The results also show that the number of days of absence from work due to illness is higher for respondents with a high school education than for respondents with a college education.

There seemed to be little if any difference between full-time homemakers and employed homemakers in regard to the number of trips made per week to the supermarket.

Since management consists not only of making a plan, but also of controlling the plan in action, it was felt that failure to buy everything on a shopping list, or to buy items that were not on the list did not necessarily detract from the quality of the initial plan. One of the first questions which the respondents were asked in the supermarket (see Interview Form A, Appendix) was whether or not they had a written shopping list with them. No differentiation was made between women who had only a few items on their list and those who had planned meals for the coming week and had made a complete inventory of their food supplies before making out their list. The number of homemakers in each group who made written lists, the number who came to the supermarket with a mental plan, and the number who said they had nothing in mind when they came into the supermarket is shown in Table 17.

TABLE 17. - The Amount of Planning Reported by Two Groups of Homemakers

Type of homemaker	Number with written list	Number with mental list	Number without a plan
Full-time homemaker	13	11	1
Employed homemaker	14	9	2

Three of the employed homemakers had taken inventory of

their food supplies before making their list, while none of the full-time homemakers mentioned taking an inventory. It was a far more common practice for a homemaker, whether employed or full-time, to jot down items as they ran out of them, or noticed that the supply was low.

The difference in the planning practices between full-time homemakers and employed homemakers is insufficient to support the hypothesis that employed homemakers plan and make shopping lists more than do full-time homemakers.

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SUMMARY

The food shopping practices of 25 full-time homemakers and 25 employed homemakers who patronize supermarkets were compared for one shopping trip to see if the employed homemakers utilized products and practices which conserve on time, even though the money cost may be greater, more than did the full-time homemakers. The information was obtained by use of a checklist and by personal interview. Some of the more notable findings of this study were:

1. The families of the full-time homemakers in this study averaged 1.2 persons more than did the families of the employed homemakers. There were six times as many preschool children in the families of full-time homemakers as there were in the families of employed homemakers while there were nearly five times as many children of junior high and high school age in the families of employed homemakers. There were twice as many children in the families of full-time homemakers as there were in the families of employed homemakers.

2. More employed homemakers bought meats which require a relatively long cooking time than did full-time homemakers, while more full-time homemakers than employed homemakers bought meats which require only a short cooking time.

3. Differences between the two groups of homemakers in the purchase of any of the forms of fruits and vegetables were of no consequence.

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4. Slightly more full-time homemakers than employed homemakers purchased fully prepared baked goods, and slightly more employed homemakers purchased partially prepared baked goods (mixes) than did full-time homemakers.

5. The widest difference in the number of cases of the two groups was in the category of unprepared cereals. Nearly four times as many full-time homemakers as employed homemakers made such purchases. Roughly half again as many full-time homemakers as employed homemakers purchased fully prepared cereals. This might be more a result of the greater number of children in the families of full-time homemakers than of the state of employment of the homemakers.

6. More employed homemakers than full-time homemakers bought partially and fully prepared main dishes; however, the number of cases in both groups of homemakers making such purchases were very small.

7. For the shopping trip under consideration the employed homemakers spent 42 cents per person more than did the full-time homemakers.

8. There was no notable difference between the two groups of homemakers in the amount of planning that was given to the shopping trip.

There were thus no great differences between the 25 full-time homemakers and the 25 employed homemakers considered in this study with regard to kinds of food purchased or amount of planning given to the food purchases.

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[illegible]

APPENDIX

INTERVIEW A

Yes No

___ ___ 1. When you came into this store, had you figured out what you wanted to buy?

___ ___ 2. Did you have a written list?

___ ___ 3. Did you purchase all of the items you had in mind?

If not, what did you not purchase: _____

What extras did you purchase?

Item	Placement	Item	Placement
_____	_____	_____	_____
_____	_____	_____	_____

___ ___ 5. Would you be willing to talk further with me about this next week? Will you keep this list for our talk?

Name: _____

Address: _____ Telephone _____

Do you farm? Yes _____ No _____

Date of home interview _____

Accompanied by: _____ Man _____ Woman _____ Age: _____ Young _____ Older
 _____ Children, ages _____ _____ Middle-aged

PORTIONS OF INTERVIEW FORM B WHICH WERE USED IN THIS STUDY

Who is in the family for whom you go food shopping?

4. Adults

- _____ (1) Respondent only
- _____ (2) One other adult
- _____ (3) Two other adults
- _____ (4) Three other adults
- _____ (5) Four or more other adults

5. Children under one year of age

- _____ (1) None
- _____ (2) One
- _____ (3) Two
- _____ (4) Three
- _____ (5) Four

6. Children one year to school age

- _____ (1) None
- _____ (2) One
- _____ (3) Two
- _____ (4) Three
- _____ (5) Four or more

7. Children in elementary school

- _____ (1) None
- _____ (2) One
- _____ (3) Two
- _____ (4) Three
- _____ (5) Four or more

8. Children in junior and/or high school

- _____ (1) None
- _____ (2) One
- _____ (3) Two
- _____ (4) Three
- _____ (5) Four or more

9. Children beyond high school (at home)

- _____ (1) None
- _____ (2) One
- _____ (3) Two
- _____ (4) Three
- _____ (5) Four or more

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11. Does anyone besides (your husband, the breadwinner) work outside the home?

- _____ (1) No
- _____ (2) Adult other than respondent
- _____ (3) Respondent
- _____ (4) Children

12. (If homemaker works) approximately how many hours did you work last week?

- _____ (1) Less than ten
- _____ (2) Ten to nineteen
- _____ (3) Twenty to twenty-nine
- _____ (4) Thirty to thirty-nine
- _____ (5) Forty or more

15. Would you tell me how many times you or a member of your family shopped for food in the past week?

- _____ (1) Once
- _____ (2) Two or three times
- _____ (3) Four or five times
- _____ (4) Daily
- _____ (5) More than once a day

22. Do you have any way of reminding yourself of the staple items you need to buy when you go to the store?

If yes, when did you (Make a list, think of what you needed, etc.)

- _____ (1) No particular planning recalled
- _____ (2) While in the store
- _____ (3) On way to store
- _____ (4) Before leaving home
- _____ (5) Other, specify: _____

1. The first part of the report is a general introduction to the subject of the study.

2. The second part of the report is a detailed description of the methods used in the study.

3. The third part of the report is a discussion of the results of the study.

4. The fourth part of the report is a conclusion and a list of references.

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20. The twentieth part of the report is a list of the names of the restorers.

21. The twenty-first part of the report is a list of the names of the conservators.

22. The twenty-second part of the report is a list of the names of the collectors.

23. The twenty-third part of the report is a list of the names of the dealers.

24. The twenty-fourth part of the report is a list of the names of the auctioneers.

No. _____
Date _____
Total _____

GROCERY CHECK LIST, FORM C

MEATS:

<u>Roasts:</u>	<u>Steaks and Chops:</u>	<u>Chicken</u>	<u>Variety Meats</u>
___ Beef	___ Beef	___ Broilers	___ Sausage
___ Pork, fresh	___ Pork, fresh	___ Fryers	___ Bacon
___ Pork, smoked	___ Pork, smoked	___ Stewing	___ Spareribs
___ Veal	___ Veal	___ Roast	___ Wieners
___ Lamb	___ Lamb		___ Cold cuts
___ Turkey	___ Ground		___ Fish

FRUITS:

___ Apples	___ Oranges
___ Apricots	___ Peaches
___ Bananas	___ Pears
___ Cherries	___ Pineapple
___ Fruit	___ Plums
___ Cocktail	___ Raspberries
___ Grapes	___ Strawberries
___ Grapefruit	___ Prunes
___ Lemons	___ Raisins

VEGETABLES:

___ Lettuce	___ Asparagus	___ Beets
___ Cabbage	___ Beans, green	___ Cauli-
___ Carrots	___ " kidney	___ flower
___ Celery	___ " lima	___ Corn
___ Cucumbers	___ " navy	___ Onions
___ Peppers	___ Bean	___ Potatoes
___ Radishes	___ Sprouts	___ Saurkraut
___ Spinach	___ Peas, green	___ Squash
___ Tomatoes		___ Turnips

CEREALS AND BAKED PRODUCTS:

___ Bread	___ Cake	___ Biscuits	___ Pies	___ Dry Cereal
___ Crackers	___ Cookies	___ Bun & Roll	___ Pie Crust	___ Cooked Cereals
	___ Frosting	___ Muffin	___ Pancake, Waffle	___ Spaghetti

DAIRY PRODUCTS AND RELATED ITEMS:

___ Eggs	___ Milk, whole Cream:	___ Canned Milk:	___ Cheese:
___ Butter	___ Skim Milk	___ Coffee	___ Condensed
___ Margarine	___ Buttermilk	___ Half & Half	___ Evaporated
	___ Chocolate	___ Pressurized	___ Cottage
		___ Whipping	___ Other

MISCELLANEOUS:

___ Soft Drinks	___ Alcoholic	___ Pet Food	___ Candy	___ Staples
___ Coffee	___ Tea	___ Baby Food	___ Gum	___ Garnishes
___ Instant coffee	___ Cocoa	___ Gelatin	___ Soup	___ Shortening

FROZEN FOODS

___ TV Dinners	___ Meat Pie
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NONFOOD ITEMS

___ Cigarettes
___ Paper Supplies
___ Cleaning Supplies
___ Household Supplies
___ Personal Care & Baby Items

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