Factors Affecting Consumers' Utilization of Unit Pricing

Maurine Bingham

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FACTORS AFFECTING CONSUMERS' UTILIZATION OF UNIT PRICING

by

Maurine Bingham

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Home Economics and Consumer Education

Approved:

Major Professor

Committee Member

Committee Member

Dean of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

1975
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I would also like to thank my committee members, Miss Edith Nyman and Mrs. Frances Taylor. Their time, interest and helpful suggestions were greatly appreciated.

To my fellow graduate students and friends, I would like to express my thanks for the encouragement they offered throughout the course of this study.

Finally, to my family, especially to my parents, I would like to express my love and appreciation. Their encouragement and support was greatly appreciated.

Maurine Bingham
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>11</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>vi</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>- The Problem</td>
<td>2</td>
</tr>
<tr>
<td>- The Purpose</td>
<td>3</td>
</tr>
<tr>
<td>- Definition of Terms</td>
<td>3</td>
</tr>
<tr>
<td>- Objectives</td>
<td>4</td>
</tr>
<tr>
<td>REVIEW OF LITERATURE</td>
<td>5</td>
</tr>
<tr>
<td>- Government Action</td>
<td>5</td>
</tr>
<tr>
<td>- Need for Information</td>
<td>6</td>
</tr>
<tr>
<td>- History of Unit Pricing</td>
<td>7</td>
</tr>
<tr>
<td>- Purpose of Unit Pricing</td>
<td>8</td>
</tr>
<tr>
<td>- Consumers' Use of Unit Pricing</td>
<td>9</td>
</tr>
<tr>
<td>- Summary</td>
<td>10</td>
</tr>
<tr>
<td>METHODS AND PROCEDURES</td>
<td>11</td>
</tr>
<tr>
<td>- Sample</td>
<td>11</td>
</tr>
<tr>
<td>- Pretest</td>
<td>11</td>
</tr>
<tr>
<td>- Study Instrument</td>
<td>11</td>
</tr>
<tr>
<td>- Procedure</td>
<td>12</td>
</tr>
<tr>
<td>- Analysis of Data</td>
<td>12</td>
</tr>
<tr>
<td>RESULTS AND DISCUSSION</td>
<td>13</td>
</tr>
<tr>
<td>- Objective One</td>
<td>13</td>
</tr>
<tr>
<td>- Marital status</td>
<td>14</td>
</tr>
<tr>
<td>- Age of consumer</td>
<td>14</td>
</tr>
<tr>
<td>- Occupation of consumer</td>
<td>16</td>
</tr>
<tr>
<td>- Education of consumer</td>
<td>18</td>
</tr>
<tr>
<td>- Occupation of spouse</td>
<td>18</td>
</tr>
<tr>
<td>- Objective Two</td>
<td>20</td>
</tr>
<tr>
<td>- Annual family income</td>
<td>20</td>
</tr>
<tr>
<td>Objective Three</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Number of individuals shopped for</td>
<td>22</td>
</tr>
<tr>
<td>Objective Four</td>
<td>23</td>
</tr>
<tr>
<td>Shopping frequency</td>
<td>23</td>
</tr>
<tr>
<td>SUMMARY AND CONCLUSIONS</td>
<td>25</td>
</tr>
<tr>
<td>Recommendations</td>
<td>27</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>29</td>
</tr>
<tr>
<td>APPENDIX</td>
<td>32</td>
</tr>
<tr>
<td>VITA</td>
<td>37</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marital status of consumer</td>
<td>14</td>
</tr>
<tr>
<td>2.</td>
<td>Age of consumer</td>
<td>15</td>
</tr>
<tr>
<td>3.</td>
<td>Occupation of consumer</td>
<td>16</td>
</tr>
<tr>
<td>4.</td>
<td>Employment pattern of consumer</td>
<td>17</td>
</tr>
<tr>
<td>5.</td>
<td>Education of consumer</td>
<td>18</td>
</tr>
<tr>
<td>6.</td>
<td>Occupation of spouse</td>
<td>19</td>
</tr>
<tr>
<td>7.</td>
<td>Occupation of spouse and education of consumer</td>
<td>20</td>
</tr>
<tr>
<td>8.</td>
<td>Annual family income</td>
<td>21</td>
</tr>
<tr>
<td>9.</td>
<td>Number of individuals shopped for</td>
<td>22</td>
</tr>
<tr>
<td>10.</td>
<td>Shopping frequency</td>
<td>23</td>
</tr>
</tbody>
</table>
ABSTRACT

Factors Affecting Consumers' Utilization of Unit Pricing

by

Maurine Bingham

Utah State University, 1975

Major Professor: Dena Lee Call
Department: Home Economics and Consumer Education

Characteristics of consumers who used unit pricing were compared to consumers who did not use unit pricing. A numerical rating was developed to aid the researcher in classifying consumers into two extreme groups, "usually" and "seldom." The sample consisted of 50 shoppers who usually and 50 shoppers who seldom used unit pricing. Data was collected at a local supermarket where unit pricing is provided.

Of the variables tested, annual family income was not significant (.861); number of individuals shopped for was relatively significant (.283); and age of consumer (.028), occupation of consumer (.067), employment pattern of consumer (.031), education of consumer (.00014), occupation of spouse (.00001), and shopping frequency (.026) were significant.

(43 pages)
INTRODUCTION

The passage of a bill in 1872 protecting consumers from frauds involving the U.S. Mails was one of the first pieces of governmental legislation dealing with consumer programs. In 1906 a Federal Meat Inspection Bill was passed; the next major consumer bill, a modified version of the Pure Food and Drug Act of 1906 was passed in 1938.

During the forties and fifties consumer legislation was minimal, however, interest was aroused on March 15, 1962 when President John F. Kennedy delivered the first presidential message devoted to the problems of the consumer. The body of the message outlined needed improvements for existing consumer programs as well as the need for new consumer programs. A portion of this speech identified four consumer rights, one of which was the following:

- The right to be informed--to be protected against fraudulent, deceitful, or grossly misleading information, advertising, labeling, or other practices, and to be given the facts he needs to make an informed choice (H.R. Document #364, 1962, p. 2).

One of the chief objectives of the consumer movement is for more information (Dameron, 1974). The right to be informed is a fundamental economic interest of the consumer. The right goes beyond avoiding deception--it involves providing the consumer with sufficient information to make wise decisions. To accomplish this, government seeks to assure a supply of information which permits an individual to evaluate more correctly the goods available for purchase (Dameron, 1974).
The Problem

Some legislation has been designed to provide the consumer with useful comparative information, a part of this is unit pricing. As proposed by consumer advocates, unit pricing laws would:

1) give the NECESSARY information to those consumers who feel price is an important buying criterion, and 2) give ADDITIONAL information to those consumers who have a low motivation to use price as the only buying criterion, such as the consumer who uses a brand name as his buying criterion (Monroe and LaPlaca, 1974, p. 194).

Dollars could be saved if consumers used unit pricing and purchased the least costly items. In a recent test 33 young married women with at least 1 year of college and regular shopping experience were asked to select the best buys in terms of cost of 20 items typically found in a supermarket. They chose incorrectly 43 percent of the time spending an average of almost 10 percent more than necessary (Birmingham, 1974). Assuming an annual food budget of $2800, a savings of $280 could be realized if unit pricing was used.

Although a law requiring unit pricing has not been passed nationally, the service is provided voluntarily by many supermarkets. Nevertheless, research indicates little concrete use. Homemaking Testing Corporation surveyed 100 shoppers in Washington D.C. area supermarkets shortly before check out. Of the 100, 73 were aware of the pricing system, 46 were in favor of the idea, but not one had used it in his shopping that day (Changing Times, 1971). Independent tests sponsored by the Consumer Research Institute and the National Association of Food Chains and Safeway Stores, Inc., studied consumer
utilization of unit pricing and concluded that about 30 percent of
the shoppers made use of unit pricing information (Good Housekeeping, 1971).

The Purpose

The purpose of this study was to compare characteristics of
shoppers who usually used unit pricing with those who seldom used
unit pricing. By using this information, programs might be established
by legislators, businessmen and educators that would aid consumers in
implementing consumer services available to them in their buying
decisions.

Definition of Terms

Unit Pricing: The calculation in dollars and/or cents of
products in terms of weight (potatoes), liquid measure (juice), area
(plastic wrap), and numerical count (napkins). It is the cost per
unit (pounds, quarts, numerals, etc.).

Usually: Those consumers obtaining 24 or more points on a
numerical scale rating use of unit pricing. The cutoff point was
determined by rounding to the nearest whole number 75 percent of the
total points possible on question #9 from the questionnaire concerning
consumers' use of unit pricing.

Seldom: Those consumers obtaining 8 or fewer points on a
numerical scale rating use of unit pricing. The cutoff point was
determined by rounding to the nearest whole number 25 percent of the
total points possible on question #9 from the questionnaire concerning
consumers' use of unit pricing.
Professional: Those occupations requiring an education beyond high school.

Laborer: Those occupations not requiring an education beyond high school.

Objectives

1. To determine whether or not consumers' use of unit pricing is related to consumers' marital status, age, occupation, education, and occupation of spouse.

2. To determine whether or not consumers' use of unit pricing is related to annual family income.

3. To determine whether or not consumers' use of unit pricing is related to the number of individuals shopped for.

4. To determine whether or not consumers' use of unit pricing is related to shopping frequency.
REVIEW OF LITERATURE

Government Action

Government has long been concerned with consumer needs as legislation has been passed for over a century pushing consumer protection. One of the first pieces of governmental legislation dealing with consumer problems was the passage of a bill in 1872 protecting consumers from frauds involving the U.S. Mails (Consumer Reports, 1962). In 1906 a Federal Meat Inspection Bill was passed after the disclosure of conditions in meat packing houses from Upton Sinclair's book The Jungle. The next major bill in 1938 was a modified version of the Pure Food and Drug Act of 1906 (Herrmann, 1974).

During the forties the outbreak of World War II turned consumer attention to national survival. However, momentum gained during the sixties, when three successive presidents transmitted messages to Congress dealing solely with consumer problems and interests (Gordon and Lee, 1972). In March 1962 President John F. Kennedy delivered the first presidential message pertaining to the problems of the consumer. The President called for additional legislation and administrative action to meet its responsibilities to the consumer. He defined broad aims by specifying four consumer rights, one of which was "the right to be informed...to be given the facts he [consumer] needs to make an informed choice" (Consumer Reports, 1962, p. 256).

Congruent with this message, President Kennedy created a Consumer Advisory Council within the Council of Economic Advisors.
to examine and provide government with ideas on issues of "broad economic policy, on governmental programs protecting the consumer needs, and on needed improvements in the flow of consumer research materials to the public" (H.R. Document #364, 1962, p. 5).

In 1965 President Lyndon B. Johnson reaffirmed the rights indicated by President Kennedy by appointing the first Special Presidential Assistant on Consumer Affairs and a Presidential Committee on Consumer Interests. He indicated the voice of the consumer needed to be "loud, clear, uncompromising, and effective, 'in the highest councils of government'," (H.R. Document #248, 1965, p. 7). And in a message to Congress in 1969, President Richard M. Nixon stated that "consumerism in the Americas of the 70's means that we have adopted the concept of 'buyer's rights'," (Gordon and Lee, 1972, p. 7). The rights he spoke of were, again, those outlined by President Kennedy in 1962.

**Need for Information**

Aaker and Day (1971) indicated that the widening choice of complex goods and services available has made it impossible for consumers to be expert purchasing agents (Dickinson, 1974). One of the chief objectives of the consumer movement, therefore, is for more information. (Dameron, 1974). Even under the most thoroughly enforced laws, consumers need information to judge today's diverse and complex goods and services. The consumer, much like a business firm, must be able to analyze available information, if he expects to be able to exercise choice in the market place (Muskrat, 1966). Consumers are no longer
content to know just where goods may be secured and how much they cost (Dameron, 1974).

The right to be informed is a fundamental economic interest of the consumer. The right goes beyond avoiding deception—it involves providing the consumer with sufficient information for him to make wise decisions (Aaker and Day, 1974). To accomplish this, government seeks to assure a supply of information which permits an individual to evaluate more correctly the goods available for purchase (Birmingham, 1974).

**History of Unit Pricing**

Existing and proposed consumer oriented legislation has been designed to increase the amount of information available to the buyer. Of the existing legislation, the Fair Packaging and Labeling Act (1966) was designed to provide the consumer with more relevant information for his purchasing decisions and thereby increase his ability to make price comparisons (Monroe and LaPlaca, 1974). But the goods and services have multiplied and become complicated thereby making it difficult to choose wisely. The right kind of information needed to make an intelligent selection is often lacking (Dameron, 1974). Therefore, availability of unit pricing would make price comparisons less difficult (Business Week, October 31, 1970).

On September 1, 1971, with the signing of a legislative "act establishing a unit pricing law for certain retail stores," Massachusetts became the first governmental body to require unit pricing (Monroe and LaPlaca, 1974, p. 193). Connecticut, Rhode Island, and Maryland along with New York City also passed unit pricing laws in 1971.
In July 1972 the federal government as well as 20 other states had unit pricing proposals pending, however, most failed to pass. Even so, many stores installed the system voluntarily (Monroe and LaPlaca, 1974).

**Purpose of Unit Pricing**

Before World War II supermarkets stocked 1,500 separate items (H.R. Document #364, 1962). Today there are literally thousands of products and services competing for the consumer dollar (Muskrat, 1966). When the consumer enters the supermarket, three decisions must be made. First, whether or not to buy a particular product, second, which brand to buy, and third, how much to buy (Granger and Billson, 1972). With the increase in items carried by supermarkets, in addition to the variety of package sizes, and brands, the consumer finds it difficult to know which product is the best buy (Monroe and LaPlaca, 1974).

After giving a shopping test to college educated housewives, who were instructed to choose the "largest amount for the lowest price" on 14 everyday items, unit pricing was proposed by Consumer Union (Consumer Reports, February, 1971, p. 84). Participating housewives succeeded in less than half of their purchases (Consumer Reports, 1971).

In another study, approximately 50 minutes were given to married participants with at least one year of regular shopping experience to select 20 best buys in terms of cost of items typically stocked in a supermarket. They chose incorrectly 43 percent of the time, spending an average of almost 10 percent more money than necessary.
The average shopper sweeps past the 8,000 products found in the store and buys 32 items in 15 to 18 minutes (Birmingham, 1974).

The idea behind unit pricing is to simplify pricing, thereby, making it easier for the customer to know whether she saves by buying a particular product. As proposed, unit pricing would 1) give the necessary information to those consumers who use price as their buying standard and 2) give additional information to those consumers who use buying standards other than price, such as brand names, when purchasing products (Monroe and LaPlaca, 1974).

Consumers' Use of Unit Pricing

Unit pricing is a service most commonly provided by chain supermarkets, but evidence suggests that unit pricing is seldom used (New Republic, 1973). Homemaking Testing Corporation in Washington D.C. area supermarkets questioned 100 shoppers shortly before check out concerning their use of unit pricing. Of the 100, not one had used unit pricing in their shopping that day (Changing Times, 1971).

Jewel Food stores conducted a series of tests in the Chicago area from January to July 1970. After seven months, only 7.4 percent of those customers interviewed used unit pricing (Monroe and LaPlaca, 1974). In independent tests sponsored by the Consumer Research and the National Association of Food Chains and Safeway Stores, Inc., studies of consumer utilization of unit pricing concluded about 30 percent of the shoppers made use of unit pricing information (Good Housekeeping, 1971).
However, in cooperation with Kroger Supermarket Chain, a study by Cornell University suggested that better educated and higher income consumers were more likely to be aware of unit pricing (Business Week, October 31, 1970). A study by Jewel Food Chain confirmed these findings indicating a significant increase in use of unit pricing by higher income and better educated consumers (New Republic, 1970).

Summary

Government and businesses have taken steps to provide the consumers the information they want. But studies indicate there is little concrete use. The extent to which the program of unit pricing will expand will depend on consumer responses as well as store policies and legislative requirements (Campbell, 1973).
METHODS AND PROCEDURE

Sample

The sample was comprised of 100 women shoppers who purchased over 50 percent of the groceries used at their residence. One hundred and ninety-seven questionnaires were received from the consumers contacted in a local supermarket. From these questionnaires, women were categorized into groups, but only the first 50 shoppers who usually used unit pricing and the first 50 shoppers who seldom used unit pricing comprised the sample. Those questionnaires not fitting into these two categories were disregarded.

Pretest

A pretest was administered to local consumers, and as a result, changes were made to clarify two of the original questions.

Study Instrument

A 9-item, one page questionnaire was administered to shoppers in a local supermarket. Questions surveyed characteristics of consumers such as marital status, age, occupation, education, and occupation of spouse. Annual family income, number of individuals shopped for, shopping frequency, and use of unit pricing were also compared.
Procedure

The researcher contacted the manager of a local supermarket that provided unit pricing, explained the nature of the study and requested his cooperation. The manager was very cooperative, and offered his assistance as well as gave permission to the researcher to work with consumers who shopped in the supermarket. One interested employee asked for the results of the study.

The researcher went to the supermarket on eight consecutive days spending one to five hours in the store each day. No specific block of time was set in order to include working and non-working women. Consumers were approached at random as they were shopping. After a brief explanation of the purpose of the study, consumers were asked to participate. The first 50 questionnaires received from those who usually used unit pricing and from those who seldom used unit pricing comprised the sample.

A predetermined numerical scale was used to classify consumers who usually and seldom used unit pricing. Those consumers totaling 24 points or above were classified as usually. Those consumers totaling 8 points or below were classified as seldom. (Appendix)

Analysis of Data

Percentage analysis of the results was made to indicate trends and as an aid in determining possible relationships between use of unit pricing and the variables tested. For further analysis, the chi square test for independence was used to indicate at what level the relationships were significant. (Appendix)
RESULTS AND DISCUSSION

This study was designed to compare characteristics of shoppers who usually used unit pricing with those who seldom used unit pricing. The two categories were compared in order to determine any relationship between the use of unit pricing and the characteristics of consumers such as marital status, age, occupation, education, and occupation of spouse. Annual family income, number of individuals shopped for and shopping frequency were also compared.

The sample was comprised of 100 women shoppers who purchased over 50 percent of the groceries used at their residence. Shoppers were contacted in a local supermarket and asked to participate in this study by completing a questionnaire. The majority of the women contacted in the store were willing to participate. The women were categorized into groups, but only the first 50 shoppers who usually used unit pricing and the first 50 shoppers who seldom used unit pricing comprised the sample. A predetermined numerical scale was used to classify consumers who usually and seldom used unit pricing. Those consumers totaling 24 points or above were classified as usually. Those consumers totaling 8 points or below were classified as seldom.

Objective One

Objective one was to determine whether or not consumers' use of unit pricing was related to consumers' marital status, age, occupation, education, and occupation of spouse.
Marital status

One hundred percent of the consumers who usually used unit pricing were married. Ninety-four percent of the consumers who seldom used unit pricing were married (Table 1).

Table 1. Marital status of consumers

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Usually</th>
<th>Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Married</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Widowed</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Because of the large number of married participants, the chi square test for independence was not run on marital status.

Age of consumer

The ages of consumers who usually used unit pricing ranged from the 20 to 29 category to the 60 and above category, with 38 percent in the 30 to 39 category. The average age category was 30 to 39 with the mode in the same category (Table 2).
Table 2. Age of consumers

<table>
<thead>
<tr>
<th>Age of consumers</th>
<th>Usually</th>
<th></th>
<th>Seldom</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Below 20</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>20 to 29</td>
<td>14</td>
<td>28</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>30 to 39</td>
<td>19</td>
<td>38</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>40 to 49</td>
<td>6</td>
<td>12</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>50 to 59</td>
<td>10</td>
<td>20</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>60 and above</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>8</td>
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Chi square value = 12.36*  Level of significance at 12.5 = .028

*Degrees of freedom = 5

The ages of consumers who seldom used unit pricing ranged from the below 20 category to the 60 and above category, with 26 percent in the 40 to 49 category. The average age category was in the 30 to 39, with the mode in the 40 to 49 category (Table 2).

The age of consumers was tested using the chi square test for independence. The results were significant at the .028 level which indicated a relationship between age of consumers and use of unit pricing (Table 2).

When consumers were approached in the supermarket, there was a greater tendency for those consumers over 45 (researcher's estimate) to refuse to complete a questionnaire. Some refused saying they did not use of know anything about unit pricing. If there had been more women in the higher age categories, the results may have been different.
Occupation of consumer

The occupation of consumers was divided into three categories: 1) homemaker, 2) professional, including those occupations requiring an education beyond high school (e.g., dental assistant, teacher, college student), and 3) laborer (e.g., secretary, sales clerk, bookkeeper).

Sixty-six percent of the consumers who usually used unit pricing were homemakers. Eighty-two percent of the consumers who seldom used unit pricing were homemakers (Table 3).

Table 3. Occupation of consumer

<table>
<thead>
<tr>
<th>Occupation of consumer</th>
<th>Usually No.</th>
<th>Usually %</th>
<th>Seldom No.</th>
<th>Seldom %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homemaker</td>
<td>33</td>
<td>66</td>
<td>41</td>
<td>82</td>
</tr>
<tr>
<td>Professional</td>
<td>9</td>
<td>18</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Laborer</td>
<td>8</td>
<td>16</td>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

Chi square value = 5.39*  Level of significance at 5.4 = .067

*Degrees of freedom = 2

Eighteen percent of the consumers who usually used unit pricing were employed professionally. Four percent of the consumers who seldom used unit pricing were employed as professionals (Table 3).
Occupation of consumers was tested using the chi square test for independence. The results were significant at the .067 level which indicated a relationship between occupation of consumer and use of unit pricing. Those consumers who worked outside the home had a tendency to use unit pricing (Table 3).

Twenty-four percent of the consumers who usually used unit pricing worked outside the home. Eighteen percent of the consumers who seldom used unit pricing worked outside the home.

Of those who worked outside the home and usually used unit pricing, 76 percent worked full time. Of those who seldom used unit pricing and worked outside the home, 33 percent worked full time (Table 4).

Table 4. Employment pattern of consumers

<table>
<thead>
<tr>
<th>Employment pattern</th>
<th>Usually</th>
<th>Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Full time</td>
<td>13</td>
<td>76</td>
</tr>
<tr>
<td>Part-time</td>
<td>4</td>
<td>24</td>
</tr>
</tbody>
</table>

Chi square value = 4.63* Level of significance at 4.6 = .031

*Degrees of freedom = 1

The employment pattern of the consumers was tested using the chi square test for independence. The results were significant at the .031 level which indicated a relationship between full time employment of consumers and use of unit pricing (Table 4).
Education of consumers

Educational status of the consumers was determined by the last grade of formal education completed. Seventy-six percent of the consumers who usually used unit pricing attended business school or college. Thirty-eight percent of the consumers who seldom used unit pricing attended business school or college (Table 5).

Table 5. Education of consumer

<table>
<thead>
<tr>
<th>Education of consumers</th>
<th>Usually</th>
<th></th>
<th>Seldom</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Kindergarten-12th</td>
<td>12</td>
<td>24</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>Business school or college</td>
<td>38</td>
<td>76</td>
<td>19</td>
<td>38</td>
</tr>
</tbody>
</table>

Chi square value = 14.73*  Level of significance at 14.5 = .00014

*Degrees of freedom = 1

The education of consumers was tested using the chi square test for independence. The results were very significant at the .00014 level which indicated a relationship between business school or college educated consumers and use of unit pricing (Table 5).

These findings agreed with other studies (Business Week, October 31, 1970, p. 80; New Republic, 1970, p. 10) which indicated better educated consumers were more likely to use unit pricing.

Occupation of spouse

The occupation of spouse was divided into three categories:
1) professional, including those occupations which required an
education beyond high school (e.g. engineer, educator, college student), 2) laborer (e.g. farmer, maintenance, salesman), and 3) retired or deceased.

Of the consumers who usually used unit pricing, sixty percent had spouses who were professionally employed. Fourteen percent of the consumers who seldom used unit pricing had a professionally employed spouse (Table 6).

Table 6. Occupation of spouse

<table>
<thead>
<tr>
<th>Occupation of spouse</th>
<th>Usually No.</th>
<th>%</th>
<th>Seldom No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>30</td>
<td>60</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Laborer</td>
<td>19</td>
<td>38</td>
<td>38</td>
<td>76</td>
</tr>
<tr>
<td>Retired or deceased</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

Chi square value = 23.3* Level of significance at 23 = .00001

*Degrees of freedom = 2

The occupation of spouse was tested using the chi square test for independence. The results were very significant at the .00001 level which indicated a relationship between professional employment of spouse and consumers' use of unit pricing (Table 6).

In further analysis of the results, occupation of spouse was compared to education of the consumer. Forty-eight percent of the consumers who usually used unit pricing with spouse professionally employed had attended business school or college. Twelve percent of
the consumers who seldom used unit pricing with spouse professionally employed had attended business school or college. It would appear that those professionally employed, consequently having higher educations, had wives who were more highly educated and used unit pricing more often (Table 7).

Table 7. Occupation of spouse and education of consumer

<table>
<thead>
<tr>
<th>Occupation of spouse</th>
<th>Usually</th>
<th>Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High school</td>
<td>College</td>
</tr>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Professional</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Laborer</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Retired or deceased</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Percent subtotals</td>
<td>22</td>
<td>78</td>
</tr>
</tbody>
</table>

Objective Two

The second objective was to determine whether or not the consumers' use of unit pricing was related to annual family income.

Annual family income

The average income of the consumers who usually used unit pricing was in the $10,000 to $14,999 category with the mode in the same
category. The average income of the consumers who seldom used unit pricing was in the $10,000 to $14,999 category with the mode in the same category (Table 8).

Table 8. Annual family income

<table>
<thead>
<tr>
<th>Annual family income</th>
<th>Usually</th>
<th>Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Up to $4,999</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>$5,000 to $9,999</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>$10,000 to $14,999</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>$15,000 to $19,999</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>$20,000 and above</td>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

Chi square value = 1.29*  Level of significance at 1.3 = .861

*Degrees of freedom = 4

The annual family income was tested using the chi square test for independence. The results were significant at the .861 level which indicated annual family income did not influence consumers' use of unit pricing (Table 8).

These findings disagreed with other studies (Business Week, October 31, 1970, p. 80; New Republic, 1970, p. 10) which indicated consumers with higher incomes were more likely to use unit pricing.
Objective Three

The third objective was to determine whether or not consumers' use of unit pricing was related to the number of individuals shopped for.

Number of individuals shopped for

Sixty percent of the consumers who usually used unit pricing shopped for 4 to 5 individuals. The average number of individuals shopped for was 5. Forty-eight percent who seldom used unit pricing shopped for 4 to 6 individuals. The average number of individuals shopped for was 4 (Table 9).

Table 9. Number of individuals shopped for

<table>
<thead>
<tr>
<th>Number of individuals</th>
<th>Usually</th>
<th>Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td>shopped for</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>1 to 3</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>4 to 6</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>7 to 9</td>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

Chi square value = 3.8* Level of significance at 3.8 = .283

*Degrees of freedom = 2

The number of individuals shopped for was tested using the chi square test for independence. The results were relatively significant at the .283 level which indicated a possible relationship between the number of individuals shopped for and use of unit pricing.
unit pricing had a tendency to increase as the number of individuals shopped for increased (Table 9).

Objective Four

The fourth objective was to determine whether or not consumers’ use of unit pricing was related to shopping frequency.

Shopping frequency

There was a larger percentage of consumers (36 percent) who usually used unit pricing and shopped every two weeks, every three weeks or monthly than those consumers who seldom used unit pricing. However, the majority of the consumers who usually and seldom used unit pricing shopped once a week (Table 10).

Table 10. Shopping frequency

<table>
<thead>
<tr>
<th>Shopping frequency</th>
<th>Usually No.</th>
<th>Usually %</th>
<th>Seldom No.</th>
<th>Seldom %</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than once a week</td>
<td>7</td>
<td>14</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Once a week</td>
<td>25</td>
<td>50</td>
<td>27</td>
<td>54</td>
</tr>
<tr>
<td>Every two weeks</td>
<td>8</td>
<td>16</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Every three weeks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Monthly</td>
<td>9</td>
<td>18</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Chi square value = 10.83*  Level of significance at 11 = .026

*Degrees of freedom = 4
The shopping frequency of the consumers was tested using the chi square test for independence. The results were significant at the .026 level which indicated a relationship between shopping frequency and use of unit pricing. Use of unit pricing had a tendency to increase as shopping frequency decreased (Table 10).
SUMMARY AND CONCLUSIONS

In comparing characteristics of consumers who usually and seldom used unit pricing, a numerical rating was assigned to question #9 on the questionnaire concerning consumers' use of unit pricing. Those consumers obtaining 24 points or above were classified as those who usually used unit pricing. Those consumers obtaining 8 points or below were classified as those who seldom used unit pricing. Characteristics of 50 shoppers who usually and 50 shoppers who seldom used unit pricing were compared.

Four objectives were tested. The first objective was to determine whether or not consumers' use of unit pricing was related to consumers' marital status, age, occupation, education, and occupation of spouse. The following conclusions might be made from this study concerning objective one.

Marital status: Marital status seemed to have no influence on consumers' use of unit pricing. However, because of the large number of married participants, this was difficult to determine.

Age: Age of the consumer was significant at the .028 level. However, the results may have been different if a greater number of women over 45 had participated in this study.

Occupation: Occupation of the consumer was significant at the .067 level. Those who usually used unit pricing had a tendency to work outside the home.
The employment pattern of the consumer was significant at the .031 level. Those consumers who worked full time had a tendency to use unit pricing more.

Education: Education of the consumer was significant at the .00014 level. Those consumers who had attended business school or college used unit pricing more than those consumers who had kindergarten-12th educations.

Occupation of spouse: Occupation of spouse was significant at the .00001 level. Those consumers with spouse professionally employed used unit pricing more than consumers with spouses employed as laborers.

The second objective was to determine whether or not consumers' use of unit pricing was related to annual family income. Annual family income was significant at the .861 level indicating no relationship between annual family income and consumers' use of unit pricing.

The third objective was to determine whether or not consumers' use of unit pricing was related to the number of individuals shopped for. The number of individuals shopped for was significant at the .281 level. There was a slight tendency for consumers to use unit pricing more often as the number of individuals shopped for increased.

The fourth objective was to determine whether or not consumers' use of unit pricing was related to shopping frequency. Shopping frequency was significant at the .026 level. The results indicated a tendency for consumers who usually used unit pricing to shop every two weeks, every three weeks, or monthly.

Based on the results of this study, a typical consumer who usually used unit pricing was a married homemaker between 30 and 39.
If the consumer was employed outside the home, she would be a professional working full time. The consumers had attended business school or college. Her spouse was employed professionally and their annual family income was between $10,000 to $14,999. The consumer shopped every two weeks, every three weeks, or monthly for 3 to 6 (an average of 5) individuals.

The typical consumer who seldom used unit pricing was a married homemaker between 30 and 39. If the consumer was employed outside the home, she was a laborer working part-time. The consumer had attended kindergarten-12th. Her spouse was employed as a laborer and their annual family income was $10,000 to $14,999. The consumer shopped more than once a week, once a week, or every two weeks for 3 to 6 (an average of 4) individuals.

Recommendations

It is recommended that a similar study be conducted concerning consumers' use of unit pricing considering the following factors:

1. A sampling of consumers who usually and seldom use unit pricing where unit pricing has been provided for several years.

2. A study on the specific areas of shopping (canned goods, meat products, dairy products) where unit pricing is most often used.

3. A study to determine reasons for and against consumers' use of unit pricing.

4. A study to determine the percentage of shoppers who do use unit pricing.

5. A study to determine to what extent men use unit pricing.
6. A study comparing the characteristics of women shoppers and men shoppers with use of unit pricing.

7. A study comparing consumers' use of unit pricing and education of the consumer with marital status, age, and occupation of the consumer, occupation of spouse, annual family income, number of individuals shopped for, and shopping frequency.


QUESTIONNAIRE

Please complete the following questions which best describe you, and other members of your family. If you are not certain, please check the answer you feel is most correct.

1. Marital status: single__ married__ divorced__ widowed__

2. Age: below 20 ___ 20-29 ___ 30-39 ___ 40-49 ___ 50-59 ___ 60 and above ___

3. Occupation of consumer _____________________________ part-time__ full time__

4. Education (please indicate grade last completed and/or degree obtained)
   Kindergarten-12th __________________________
   College __________________________
   Technical Training __________________________
   Other (specify) __________________________

5. Occupation of spouse __________________________________________

6. Annual family income:
   up to $4,999 ___ $5,000 to $9,999 ___ $10,000 to $14,999 ___ $15,000 to $19,999 ___ $20,000 and above ___

7. Number of individuals you shop for (please circle);
   1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ___ specify

8. How often do you go shopping;
   more than once a week ___ once a week ___ every three weeks ___ monthly ___ every two weeks ___ other (specify) ___

9. How often do you use unit pricing in the following areas: (UNIT PRICING IS PRICING BY THE POUND, OUNCE, QUART, ETC.)
   Canned goods always usually seldom never not applicable
   Packaged goods
   Frozen goods
   Meat products
   Dairy products
   Household supplies
   Personal supplies
   Paper products

COMMENT: ____________________________________________


NUMERICAL RATING

To compute the numerical value of those consumers who "usually" used unit pricing and those who "seldom" used unit pricing, the researcher assigned the following numerical values to each response to the question on the questionnaire concerning consumers' use of unit pricing: always, 4; usually, 3; seldom, 1; never 0; and not applicable, 0. A score of 24 or more points represents the "usually" category and a score of 8 or fewer points represents the "seldom" category. These numbers represent 75% and 25% of all total points possible.
**CHI SQUARE ANALYSIS**

Statistical analysis was done with the chi square test for independence. The test analyzes differences between categorical variables. The statistical formulas used for computing a $\chi^2$ value are:

$$\chi^2 = \frac{(O - E)^2}{E}$$

Where $O =$ observed frequencies

$E =$ expected frequencies

$df = (r - 1)(c - 1)$

Where $df =$ degrees of freedom

$r =$ number of rows in contingency
c = number of columns in the contingency table

The statistical analysis using the chi square test for independence was programmed through the computer. The computed values were checked for significance with the $\chi^2$ distribution table. Significance is based on the probability that a particular deviation occurred by chance.
30 January 1975

Jim King, Manager
Albertson's Food Center
49 E. 4th North
Logan, Utah

Dear Mr. King:

I am writing this letter of introduction for Maurine Bingham, a graduate student in Home Management and Consumer Education. Maurine is concerned about why people do not use unit pricing, and for her thesis research, has decided to explore this idea further. Since your store is one that provides consumers with unit pricing, we hope you will be willing to help her. We will appreciate your help and cooperation.

Sincerely,

Dena Lee Call
Instructor
Home Economics and Consumer Education
VITA

Maurine Bingham

Candidate for the Degree of

Master of Science

Thesis: Factors Affecting Consumers' Utilization of Unit Pricing

Major Field: Home Economics and Consumer Education

Biographical Information:

Personal Data: Born at Logan, Utah of Don Robert and Myrle Nelson Bingham

Education: Attended elementary school at Honeyville, Utah; attended Bear River High School in Tremonton, Utah; graduated in 1970; completed requirements for Bachelor of Science degree in 1974 with major in Family Economics and Home Management and minor in Food Science and Nutrition at Brigham Young University, Provo, Utah; completed requirements for Masters of Science in Household Economics and Consumer Education at Utah State University in 1975.

Professional Experience: Undergraduate assistantship, Brigham Young University, 1973-1974; Resident Advisor of Home Management House, Utah State University, 1974-1975.