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VARIABLES UPON THE PRICE-QUALITY RELATIONSHIP.

The City University of New York, Ph.D., 1973  
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THE INFLUENCE OF SOCIOECONOMIC AND ATTITUDINAL  
VARIABLES UPON THE PRICE-QUALITY RELATIONSHIP

by

BARRY BERMAN

A dissertation submitted to the Graduate  
Faculty in Business in partial fulfillment  
of the requirements for the degree of Doctor  
of Philosophy, The City University of New York.

1973

This manuscript has been read and accepted for the Graduate Faculty in Business in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Barry Berman

Merrick, New York  
February, 1973

To my mother, Gussie, whose pride and joy  
would have been to see the completion of this dissertation.

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CHAPTER I

SIGNIFICANCE OF PRICE-QUALITY RESEARCH

THE PROBLEMGeneral Statement

The purpose of this investigation is to determine the relative influence which various socioeconomic, demographic and attitudinal variables have upon the price-quality relationship. This study will also investigate the degree to which price is used as a quality cue for panty hose.

Specific Problems

1. To investigate the degree to which price is related to quality perception of panty hose;
2. To investigate the degree to which price is related to a "willingness to buy" criterion;
3. To determine the relationship between a subject's reference price and product choice behavior;
4. To determine the influence of the following variables upon the price-quality relationship:
  - a) highest education level attained by housewife
  - b) household income
  - c) self-esteem
  - d) specific self-confidence
  - e) perceived risk;
5. To determine the interrelationships among perceived risk, specific self-confidence and self-esteem;
6. To determine the interrelationships among perceived risk, self-esteem and specific self-confidence and various demographic and socioeconomic variables;
7. To determine the relationship between price level and occasion to which respondents would wear panty hose;
8. To determine the relationship between price level and type of retail store in which panty hose would be purchased..

### Delimitations

Price-quality relationships have only been studied in relation to panty hose. Price may not influence quality judgements in the same manner for other goods or for other price levels of panty hose. While the influence of price levels on quality has been studied, the influence of changes in the price level upon quality judgements has not been examined.

Price has been studied in relation to the direct outlay purchase price. Secondary purchase costs - such as anxiety, waiting time, travel time and search time - and their influence on quality perception, have not been studied.

Quality judgements in this experiment were based upon subjects' observations of panty hose and not upon product use. The degree to which product use adds or detracts from this expectation, based upon observation, will not be examined.

The price-quality relationships reported in this study may be unique to mothers of high school juniors and seniors enrolled in the publicly-supported high schools which were studied.

HYPOTHESES

1. A significant number of subjects will impute higher quality to the higher-priced panty hose.
2. Subjects with a low panty hose reference price will be less likely to choose the higher-priced hose.
3. Subjects of moderate self-esteem will be more prone to be influenced by price in their quality judgements than subjects of low or high self-esteem.
4. Subjects of moderate specific self-confidence will be more prone to be influenced by price in their quality judgements than high or low specific self-confidence subjects.
5. Subjects of moderate specific self-confidence and moderate self-esteem will be most prone to be influenced by price in their quality judgements.
6. Subjects high in perceived risk will be more prone to accept price cues as quality indicators than those low in perceived risk.
7. Subjects low in perceived risk and high in generalized self-confidence will not be influenced by price cues.
8. Price cues will have a greater influence on lower socioeconomic class subjects.
9. Price level will influence occasion of use judgements.
10. Price level will influence judgement as to type of retail store in which panty hose is purchased.
11. Price level will influence the confidence level associated with quality judgement.

### THE NEED FOR THE STUDY

The price-quality relationship has significant implications on marketing strategy, particularly with regard to new product pricing, analyzing demand, and product policy. It is also a central element in consumer behavior. Although research findings relative to the price-quality relationship exist, they are deficient. A firmer research foundation would provide the marketer with additional insight into the price-quality relationship.

Price-quality research has direct application in new product pricing, in analyzing demand and in product strategy. In a review article, Benson Shapiro highlighted the price-quality relationship "because this has been a very neglected concept that may prove quite useful to retailers and manufacturers."<sup>1</sup>

Price-quality research may be most applicable in new product pricing or in pricing decisions for new brands or in pricing decisions after radical product change. In these instances, the product has no reputation and quality must be appraised partly or wholly on the basis of price. Perhaps the simplest way to convince consumers that a new commodity is equal in quality to an already established competitor's good is to sell it at the same price at which the latter is sold.

---

<sup>1</sup>Benson P. Shapiro, "The Psychology of Pricing," Harvard Business Review Vol. 46 (July-August 1968), p. 15.

With regard to pricing strategy, existing price-quality research lends partial support to the use of skimming pricing, instead of penetration pricing for new products. Thus, in certain cases, a high price may expand a market rather than limit it. Present price-quality research also affirms the use of resale price maintenance as a product policy. Continued price cutting of a manufacturer's product, or the use of a manufacturer's product as a price promotion, may result in diminished quality judgements by consumers. Thus, price maintenance may be an important factor in retaining, as well as in creating, a favorable quality image.

Lastly, the trends toward increased emphasis on self-service in retailing and increased technical product complexity make it increasingly difficult for the average consumer to judge product quality. Many experts, as well as shoppers, find product evaluation difficult because of the multi-dimensionality of quality, the need for laboratory equipment to measure quality and the need for knowledge in unrelated disciplines. In a study of price variations in discount stores, an economic consultant and a professor of textiles found it impossible to judge the quality of several soft goods (including men's work trousers, boys' undershirts, infants' blankets and bath towels) by visual inspection. While it appeared that all brands were equivalent by visual inspection,

laboratory tests indicated significant quality differences among the various brands tested.<sup>2</sup>

Cochran and Bell (1956) discuss the technical nature of product quality evaluation by stating:

To analyze the structure of plastic dishes, synthetic textiles, molded plastic furniture, lemonade mix or shampoo, for example, would require more proficiency in more fields of technical knowledge, as well as more laboratory equipment than a consumer could possess.<sup>3</sup>

The difficulty of judging quality by objective criteria explains, in part, the use of cues in quality judgement. Research conducted by Dudycha and Naylor (1966), for example, has found that people tend to use cues systematically, even when these cues possess no predictive value whatsoever. Secondly, Blum and Naylor (1968) have found that if a decision maker is placed in a situation where none of the cues available to him is of any value, he will still tend to pick out and use some of them as if they did have value.<sup>4</sup>

Given the existence of uncertainty in a purchase decision, an important factor confronting marketing men is whether consumers will accept marketer-

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<sup>2</sup>Rachel Dardis and Louise Skow, "Price Variations for Soft Goods in Discount and Department Stores," Journal of Marketing, Vol. 33 (April 1969), p. 47.

<sup>3</sup>Willard W. Cochran and Carolyn Shaw Bell, The Economics of Consumption (New York: McGraw-Hill, 1956), p. 41.

<sup>4</sup>M.L. Blum and J.C. Naylor, Industrial Psychology (New York: Harper and Row, 1968), p. 459.

dominated cues, such as price, to reduce this uncertainty, considering the assumed biased nature of this information. Secondly, it is important to know which consumers are most prone to accept such cues. To the consumer, the price-quality relationship is meaningful in that one must know whether price is an accurate predictor of quality. A second consumer-oriented consideration relating to price-quality is the regulation of cues which can be used to deceive the consumer.

While fourteen studies of the price-quality association have been reviewed by the writer, the research findings were not found to be conclusive. In general, the studies examined state that in the absence of other cues, price will be used as a quality cue. While the existence of a price-quality relationship has been established on a broad range of goods, questions relating individual differences to the acceptance of price cues need additional study.

In general, the parameters of the price-quality relationship have not been given adequate attention in the literature. Only one study analyzed the effect of personality characteristics on the acceptance of price cues (Lambert, 1972). Two studies related socioeconomic correlates to the acceptance of price cues (Tull, Boring and Gonsior, 1964 and Gabor and Granger, 1966). Of the fourteen studies cited, ten involved student-subjects (see Table 1). Only one study related specific product

attributes to price cues (McConnell, 1968 a and b). Only two studies directly related willingness to buy to quality judgement (Gardner, 1970 and Gardner, 1971). Lastly, only one study examined whether price influences one's judgement as to where an item is to be sold (Gardner, 1970).

One explanation for the lack of research on individual differences (personality and socioeconomic factors) is the lack of an interdisciplinary framework in all price-quality studies. No price-quality study examined the price-quality relationship from the perspective of persuasibility research or decision theory. Thus, while Lambert (1972) examined psychological correlates of price-quality, he did not have any framework for the hypotheses to be tested (relating respondents' scores on the Gordon Personality Profile to the price-quality relationship).

While research findings on correlates of cue usage are sparse (in terms of both personality or socioeconomic variables), a discussion of this topic is essential for market segmentation strategy. A study of correlates of brand loyalty by Frank (1967) stated the importance of a link between correlates of cue usage and market segmentation strategy.

If customers have identical incomes, personalities, media experience, etc., the effectiveness of segmenting the market is constrained as there is no way to tailor promotion to one customer segment.<sup>5</sup>

While it is known that subjects do not respond equally to price cues, an efficient use of price cues relies upon economically reaching the segment of consumers who are prone to use price cues.

While Jacoby, Olson and Haddock (1971) state that "price has received the greatest attention of all product quality cues in the literature," only two studies of socioeconomic correlates were reported.<sup>6</sup> In contrast, at least six studies relating brand loyalty to socioeconomic factors have been reported (Cunningham, 1956; Advertising Research Foundation, 1964; Guest, 1964; Farley, 1964; Cunningham, 1967 and Massey, Frank and Lodahl, 1968). Apparently, the use of panels in five of the above six studies provided a more heterogeneous sample than was present in the price-quality studies.

Of the fourteen studies cited (see Table 1), eleven involved student-subjects. The use of student-subjects precluded the study of socioeconomic correlates. In addition, the samples employed in these studies suffered from other methodological biases.

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<sup>5</sup>Ronald E. Frank, "Is Brand Loyalty a Useful Basis for Market Segmentation?" Journal of Advertising Research Vol. 7 (June 1967), p. 30.

<sup>6</sup>Jacob Jacoby, Jerry C. Olson and Rafael S. Haddock, "Price, Brand Name and Product Composition Characteristics as Determinants of Perceived Quality," Journal of Applied Psychology Vol. 55 (December 1971), p. 570.

Of the eleven studies, only Massey's (1963) employed a random sample. Thus, technically, the results of these studies cannot even be extrapolated to a universe of college students. Another related problem is that college students may not behave in the same manner as other shoppers. Gardner (1970) comments that "there is always a problem when limiting the experimental findings to one group of subjects, especially when they are college juniors and seniors."<sup>7</sup>

Stafford and Enis (1969) caution the reader that while students should judge product quality in a similar manner to housewives, additional research is needed to verify this assumption.<sup>8</sup> Lastly, Lambert (1970) states that unequivocal projections of this finding cannot be made, since "there is little assurance that subjects were representative of another group; for example, consumers or university students in general."<sup>9</sup> It is noteworthy that the use of student-subjects appears to be more widespread in price-quality studies than in consumer behavior studies in general. An audit of the first thirty

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<sup>7</sup>David M. Gardner, "An Experimental Investigation of the Price-Quality Relationship," Journal of Retailing Vol. 46 No. 3 (Fall 1970), p. 40.

<sup>8</sup>James Stafford and Ben M. Enis, "The Price-Quality Relationship: An Extension," Journal of Marketing Research Vol. 6 (November 1969), pp. 456-7.

<sup>9</sup>Zarrel V. Lambert, "Product Perception: An Important Variable in Price Strategy," Journal of Marketing Vol. 34 (October 1970), p. 69.

issues of the Journal of Marketing Research found that over half of the consumer behavior experiments (forty-eight of the eighty-one experiments) involved student-subjects.<sup>10</sup>

For quality to be used effectively as a marketing strategy, not only must consumers perceive that quality differences exist, but also, they must be willing to pay more for the higher quality good. The notion of economic sacrifice accompanying the choice of a higher-priced good can be interpreted as an indication that one's quality judgement is made with some degree of confidence.

Research on willingness to buy, with the exception of the studies by McConnell (1968 a and b) and Smith and Broome (1966), did not take into account economic sacrifice in the choice of the most expensive alternative. By imposing the economic sacrifice restriction, studies could determine the relationship between quality judgement and willingness to buy. While Gardner (1970) studied this relationship, both judgements in his experiment were of the pencil-and-paper variety. Subjects were not given the opportunity to choose among the differently priced goods. Thus, there was no performance or economic sacrifice risk associated with the experiment.

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<sup>10</sup> Ben M. Enis, Keith K. Cox, and James E. Stafford, "Students as Subjects in Consumer Behavior Experiments," Journal of Marketing Research Vol. 9 (February 1972), p. 73.

The experimental design of this study overcomes many of the methodological problems present in the studies reviewed. Firstly, subjects are randomly chosen mothers of high school juniors and seniors from three different areas of Long Island. The nature of this sample extends the degree of generality of the findings, as well as eliminates the problems associated with the use of student-subjects. In addition, the choice of a stratified sample from three communities allows the experimenter to study the role of socioeconomic correlates, an area previously neglected.

Secondly, subjects were allowed to examine the panty hose product stimuli, thereby presenting product as well as price cues to the subjects. This methodological refinement makes the research more realistic than pencil-and-paper tests of price-quality, where no product stimuli are present.

Thirdly, instead of measuring willingness-to-buy the experimenter allowed subjects to choose among the differently-priced panty hose. Thus, choice instead of attitude was measured. The choice criterion also makes the experiment more realistic in that subjects were confronted with some form of economic, as well as performance, risk.

Lastly, the impact of attitudinal and personality variables such as self-esteem, specific self-confidence and perceived risk on the price-quality relationship will be studied.

RELATED LITERATURE

Each of the fourteen price-quality studies examined supports the general notion that price is a surrogate indicator of quality. This finding is especially significant, considering the diversity of the fourteen studies.

The experiments cited differ with respect to their experimental designs, the goods tested, the subjects employed and their method of judging quality. Some experiments were pencil-and-paper tests (Leavitt, 1954; Tull, Boring and Gonsior, 1964; and Gabor and Granger, 1966) in which subjects did not physically examine any goods but were asked to make a product choice between two differently-priced goods. In other studies, subjects actually examined several "brands" of one good (Massey, 1963; Gabor and Granger, 1966; McConnell, 1968 a and b; and Jacoby, Olson and Haddock, 1971) and made inferences about the quality of these identical but differently-priced goods. Lastly, in two studies, subjects examined only one brand of each good (Smith and Broome, 1966 and Gardner, 1970). When groups which had received different price treatments for the same product were matched, price treatment was found to influence quality judgement.

The goods in these experiments varied. Goods utilized in these studies included: cooking sherry, various meat dishes, coffee, electric shavers, beer, hair spray, men's suits, carpeting and nylon stockings. While many

of these goods could be classified as convenience goods (because of the high purchase frequency and low search), other goods typically involved moderate or high search and have either low or moderate purchase frequencies; i.e., shirts, suits and carpeting.

Different subjects were tested in these studies (college students, U.S. Air Force Officers, salesmen and housewives), implying that the price-quality relationship is not limited to one class of subjects.

Lastly, several different means of judging quality (equal interval preference scales, probability of purchase scales and paired comparison tests) were employed.

Thus, even though some studies were not random and had other methodological deficiencies, the fact that studies with diverse experimental designs, subject groups, product lines and measures of quality indicate the same direction of the price-quality relationship, gives credence to this relationship. All of the studies reported significant differences in quality judgement based on different price treatments at the .05 level of significance or better for some of the products tested.

Aside from testing the price-quality relationship as a whole, the studies examined the influence of the following variables on the price-quality relationship: perceived brand differences, difference in price level between alternative products, respondent's product-related experience and reference price.

It appears from the studies examined that the price-quality relationship is most applicable when subjects view brands to be considerably different. Leavitt (1954), for example, found a perfect rank relationship between the number of subjects who chose a higher-priced item and the subject's feeling towards product dissimilarity. Tull, Boring and Gonsior (1964) found a similar phenomenon to exist. In their study, low reference price subjects were twice as willing to pay the higher price when products were judged dissimilar than when they were judged similar. Lastly, Lambert (1970) found that the proportion of subjects who selected the higher-priced brand was positively related to the amount of perceived brand-to-brand variation.

Two studies reported that as the difference in price between products increases, the probability of subjects' ascribing higher quality to the higher-priced good increases. Leavitt (1954), for instance, found a statistically significant difference between the percent of subjects who chose a higher-priced brand when the price differential was thirty-six cents, than when the price differential was four cents, eight cents or sixteen cents.

Massey (1963) offers further support to this relationship. When experts (salesmen with an average of 11.8 years of experience in selling shirts) were asked to assign prices to six pairs of identical but differently priced shirts, the subjects recorded significantly

different prices for these shirts only when the differences among price cues were greatest. Apparently, when the difference between price cues was great, experts ascribed more confidence to the use of price as a means of judging quality than they did to their own ability to judge quality by observation.

Price cues appear to be relied upon more when one has little product information. Thus, if no other means of judging quality exists, subjects will tend to use price as a quality cue. Massey (1963) found students to be more prone to react to price cues than experts. Smith and Broome (1966) found price and market standing cues to be significantly more important in product evaluation when brands are unknown to respondents, than when brands are known.

Lastly, one's reference price may influence quality judgements associated with a given price. Tull, Boring and Gonsior (1964) found that the proportion of respondents selecting the higher-priced brand increased substantially as respondent's reference price increased. Massey (1963) also found that subjects were influenced by the normal price they paid for shirts. Evidently, subjects used their customary price as a basis for making quality comparisons.

Related to the price-quality relationship is research on persuasibility and risk. This research reveals differences in the degree to which individuals

accept information cues, such as sales clerk judgement or advertising, in their evaluation of products. Some respondents have been found to be greatly influenced by such marketer-dominated information. Others have paid little or no attention to these information sources in their evaluation process.

The researcher analyzed studies relating the variables self-esteem, specific self-confidence and perceived risk to the importance of marketer-dominated cues in product quality evaluation.

Cox and Bauer (1964), Bell (1967), Barach (1967) and Venkatesan (1968) studied the effect of specific self-confidence and self-esteem upon product quality judgement. In these experiments, the role of salesmen, television commercials or social pressure on quality evaluation was tested. The research cited has direct application to the price-quality relationship if one infers that sales clerks, television commercials and price cues are marketer-dominated information and that a shopper must weigh his own judgement of product quality against that supplied by the marketer.

Cox and Bauer (1964) were the first to study the interaction of self-esteem and specific self-confidence simultaneously. While they concluded that those subjects with medium self-esteem and low or medium specific self-confidence were most easily persuaded by marketer-dominated information, some question exists as

to the validity of this observation. Although the relationship between generalized self-confidence and persuasibility is significant at the .01 level, Shuchman and Perry (1969), in an analysis of the Cox and Bauer (1964) data, found that the low negative cell contributes about thirty-four percent of the overall chi-square value. Dropping the "low" category yields a chi-square value which is significant at the .35 level.<sup>11</sup>

Bell (1964), in an analysis of behavior of car buyers, found that buying units (buyer plus purchase pal) who were relatively high or low in specific self-confidence were least able to be persuaded by salesmen. Those medium in specific self-confidence were high in persuasibility. However, as in the case of Cox and Bauer's study, Shuchman and Perry (1969) found that one cell, medium specific self-confidence low persuasibility, constitutes almost forty percent of the total value of chi-square.<sup>12</sup> Bell attributes the lack of a relationship between self-esteem and persuasibility to the support of a purchase pal and the degree of risk present.

Barach (1967) found that a curvilinear relationship exists between self-esteem and persuasibility. However, Barach did not confirm Cox and Bauer's (1964)

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<sup>11</sup> Abe Shuchman and Michael Perry, "Self-Confidence and Persuasibility in Marketing: A Reappraisal," Journal of Marketing Research Vol. 6 (May 1969), p. 147.

<sup>12</sup> Ibid., p. 148.

curvilinear relationship with regard to specific self-confidence and persuasibility.

Lastly, while Venkatesan (1968) reported a similar pattern to that of Cox and Bauer (1964) with respect to self-esteem and persuasibility, the relationship obtained in his study was not significant.

Evidently, the relationship among self-esteem, specific self-confidence and persuasibility needs further attention. Shuchman and Perry concluded:

The evidence in these studies is not only largely contradictory, but also failing to support conclusions based upon it. We showed that where evidence exists of a relationship between self-confidence and persuasibility, this evidence does not adequately support a finding that the relationship's form is curvilinear.<sup>13</sup>

Bauer (1970) summarized his reply to the Shuchman and Perry (1969) criticism by stating:

I no longer have any doubt that there are circumstances under which a curvilinear relationship represents some real phenomena. The task is to understand the circumstances and the phenomena and to see if we can reproduce the anticipated relationship experimentally.<sup>14</sup>

While the research cited above is not conclusive, it provided the writer with the necessary base for developing hypotheses as well as for devising the experimental methodology.

<sup>13</sup>Ibid., p. 154.

<sup>14</sup>Raymond A. Bauer, "Self-Confidence and Persuasibility: One More Time," Journal of Marketing Research Vol. 7 (May 1970), p. 258.

METHODOLOGY

The sampling frame consisted of 225 randomly-chosen female subjects. The list of parent subjects was derived from a list of Roslyn High School juniors, seniors in the June, 1973 graduating class at Long Beach High School and seniors of Lawrence High School who reside in Atlantic Beach (see Table 2). These communities were chosen because of their diverse socioeconomic and demographic compositions. One evidence of the diversity of the communities is their racial composition. While the 1970 Census of Population reports that census tracts within Roslyn and Atlantic Beach are over ninety-five percent white, sizable black minorities are present in Long Beach. In fact, one census tract of Long Beach is approximately twenty-eight percent black.<sup>15</sup>

Data on the median value of homes in Long Beach, Atlantic Beach and Roslyn also sheds light on the diversity of these communities. Available details of the 1970 census show that the median value of owner-occupied homes in Nassau County was \$30,200. While the median value of owner-occupied homes in Long Beach was \$24,700, the majority of census tracts in Roslyn (with one exception) had homes whose median value was above \$50,000. The median home value in the census tract comprising Atlantic Beach was \$41,100. The Long Beach area was far more heterogeneous. While one tract had

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<sup>15</sup>Edward C. Burks, "Blacks in Census for Nassau," New York Times Brooklyn-Queens Section (February 6, 1972), p. 49.

homes whose median value was \$34,500, another tract had a median value of \$17,700. Of 256 census tracts in Nassau County, there was only one other tract - Inwood - in which the median home value was so low.<sup>16</sup> Every value classification from below \$20,000 to \$34,999 (\$15,000 - \$19,999, \$20,000 - \$24,999 and \$25,000 - \$34,999) was represented by the median value of homes in individual Long Beach census tracts.<sup>17</sup> No other community in Nassau County was as diverse. (The Bureau of Census median home values reported in this study are based upon homeowner estimates and not upon assessed or appraised valuations.)

The choice of these three communities allows one to test the influence of socioeconomic variables. Each median home value classification interval from over \$15,000 to \$50,000 or more, specified by the U.S. Bureau of Census, is represented by median home values in one or more of the census tracts studied. An analysis of median annual 1970 family income figures confirms this diversity. While the Nassau County-wide median family income was \$14,632, four of Nassau County's census tracts had median family incomes of less than \$10,000.<sup>18</sup> One of those four tracts was 4165, with a median family

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<sup>16</sup>Ibid.

<sup>17</sup>Ibid.

<sup>18</sup>Edward C. Burks, "\$14,632 Median Income Found in Nassau County," New York Times (September 10, 1972), p. 98.

income of between \$9,100 and \$10,000. The median family income of Long Beach was reported as \$11,958; the mean family income, \$14,464.<sup>19</sup> Roslyn census tracts 3020, 3021.01 and 3021.02 had median family incomes of over \$30,000. Tract 3022, also in Roslyn, had a median family income of between \$20,000 and \$30,000.<sup>20</sup>

A stratified random sampling procedure was used. Subjects were stratified, based on the size of each census tract as a proportion of the total universe size (see Table 2). For example, census tract 4163 contains forty-one parents of Lawrence High School seniors residing in Atlantic Beach. Since this tract comprises 5.3% of the total universe and the total sample to be drawn equals 225 respondents, census tract 4163 will have a sample frame of twelve respondents. This method insures that each census tract will have proportionate representation in the sampling frame. This is especially important due to the disparate characteristics of each census tract.

Panty hose was chosen for the experiment because it satisfies the following criteria: many buyers perceive that definite differences exist in quality among competing brands; product composition differences are difficult to determine by observation; established price lines exist for the products tested; female shoppers typically purchase

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<sup>19</sup>Ibid.

<sup>20</sup>Ibid.

the good; and the items are portable and not easily damaged. In addition, panty hose is the most frequently purchased female wearing apparel.<sup>21</sup>

Secondly, stockings were widely studied in cue usage studies. Laird (1932) and Women's Wear Daily (1961) found that scent of influenced female subjects' quality perceptions of stockings. Gabor and Granger (1966) found that nylon stockings were the only product that they tested for which the probability of purchase did not decrease at low price levels. Studies by Cox (1967 f) and Cox and Bauer (1964) were conducted on stockings where the influence of specific self-confidence and self-esteem were related to judging stocking quality.

Lastly, Shapiro, in a study reported by Nadel (1972), found the price to be a quality cue on stockings. Shapiro displayed six pairs of stockings which differed only in color: three were beige and three were taupe. For one portion of the experimental group, the beige stockings were displayed at the high price and the taupe at the low price. For the other portion of the experimental group, the taupe were high priced and the beige low priced. When the beige stockings were priced higher, they most often received the highest quality ratings. When the beige stockings had a low price sticker on them, the taupe stockings received the high ratings.

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<sup>21</sup>Interview with Paul F. Bernhardt, Marketing Research Director, Burlington Hosiery Co., February 17, 1972.

This researcher's work is facilitated by this body of research. Firstly, it appears that consumers have no objective means of judging stocking quality. No study reported that subjects were suspicious of the samples' being identical. Even when placed in a situation where "brands" were identical, consumers did not realize this and relied upon some marketer-dominated form of information.

Secondly, these studies provided attributes which describe stocking quality. Thirdly, they provided hypotheses to be tested. For instance, Gabor and Granger's (1966) finding that low price cues are not related to quality judgements deserves special attention.

Subjects were mailed a letter and then called on the telephone, asking for their cooperation in a marketing study (see Exhibit 1). The exact nature of the study was excluded from both the letter and phone conversation to avoid any pretest sensitization. Cooperation of subjects was secured through granting each respondent a gift whose retail value approximated four dollars. This gift served as the motivation for the subjects' acceptance of being interviewed, as well as the willingness to buy criterion. Interviews were given to each respondent individually in their home, at a time and date convenient to them.

One reason for the use of home interviews is the elimination of inter-respondent communication. Cox

(1967) found that interaction with other subjects offered an opportunity to compare their judgements with others, and thereby satisfied their need for certainty in this situation.<sup>22</sup>

Secondly, social risk could operate to get respondents to choose higher-priced nylons than they normally would have had. The social risk factor would be reduced by having subjects interviewed individually and by training interviewers not to render judgements on the subject's choice. Even though respondents were interviewed on a one-to-one basis, respondents were assured of anonymity. Their names did not appear on the questionnaire nor were they associated with their response.

The author was aided in the data collection process by under-graduate female students. Each interviewer received a three-hour paid orientation period which included a discussion of the scope and importance of the study, the scientific method of interviewing, the importance of assuring that respondents do not confer with other respondents during the course of the study, the need for uniformity in explaining the study, and a role-playing session to familiarize the interviewers with the handling of typical questions. Instructions and background information for the study were explained

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<sup>22</sup>Donald F. Cox, "The Influence of Cognitive Needs and Styles on Information Handling in Making Product Evaluations," in Donald F. Cox, ed. Risk Taking and Information Handling in Consumer Behavior (Boston, Mass.: Harvard Business School, 1967), p. 375.

by the researcher without informing them that the study dealt with price-quality relationships, in order to avoid interviewer bias. The researcher incorporated instructions to respondents and background information into the questionnaire so as to assure compatibility of respondent treatments. Only female interviewers were used to prevent any bias which may have occurred because of the respondents' hesitancy to discuss product attributes with male interviewers.

Subjects were introduced to the experiment as a marketing study whose purpose was the development of reliable instruments to measure panty hose quality. Subjects were told they were chosen for this study since females of this age group were large consumers of panty hose. Subjects were asked to evaluate three samples of panty hose. They were told that each of the samples was produced by the same manufacturer, thereby explaining the similar color and texture characteristics of the alternatives. Lastly, subjects were informed that all three samples had brand name and other distinguishing characteristics removed.

Experimental subjects were asked to evaluate three samples of panty hose in terms of product quality. Subjects could examine each product for as long as they desired and could handle the product in any manner normally allowed in a store. Each respondent was given the opportunity to examine a sample of each panty

hose "brand" which had been removed from the package. After examining each sample, the subjects were asked to complete a questionnaire with respect to quality judgements on specific product attributes and on overall quality of panty hose, and to state their confidence in the above quality determination.

The panty hose samples were identical, except for the identifying letters, R, N and M. The letters R, N and M were typewritten on one inch x 1½-inch self-sticking white labels. The samples R and N had prices of \$1 and \$2, respectively, typewritten on the label. The labels were affixed to the upper right hand corner of each hose sample's cellophane wrapper, as commonly done by hose manufacturers. Of the three "brands" to be evaluated, price cues (low and high price) were present on two of these hose, with no price cue on the third pair.

Price treatments for the two-priced products were obtained from discussions with marketing executives of two panty hose manufacturers. Price levels of \$1.00 and \$2.00 were cited by these executives as indicative of two distinct price lines. The 1970 Market Research Corporation of America's consumer purchase panel confirmed the popularity of the prices. In 1970, 15.3% of the unit sales and 13.0% of dollar sales of panty hose were made in the \$.97 - \$1.00 price range. The \$1.98 - \$2.00 price range accounted for 5.7% of units and 9.8%

of dollar panty hose sales. (The average price of panty hose in this time period was \$1.17.) More sales were made in the \$.97 - \$1.00 price range than in any other price range.<sup>23</sup>

In the experiment, the order of presentation was rotated to prevent order of presentation bias. Subjects answered questions on stocking buying behavior and attitudes and provided some demographic and socio-economic data. They were then asked to choose four dollars' worth of the two priced panty hose samples. The interviewer explained to the respondents that this represented their compensation for their cooperation in the study.

The self-esteem test was administered about five minutes after the subjects rated the last pair of panty hose. This sequence was used by Janis and Rife (1959), Cox and Bauer (1964) and Barach (1967), using the Janis and Field (1959) measure of self-confidence, and by Bell (1967), using a de Charms and Rosenbaum (1960) measure of self-esteem, with no apparent undesirable effects. In the present experiment, as in the case of both Janis and Rife (1959) and Cox and Bauer (1964), subjects were told that the test was part of a different survey.

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<sup>23</sup>"1971 Annual Consumer Purchase Panel," (New York, N.Y.: Market Research Corporation of America) dated March 25, 1972, no pagination.

Cox and Bauer (1964) concluded that:

The fact that this measure correlated with prior measures of ability to judge people, color, fabrics, fashion and nylon stockings indicates that our measure tapped some generalized aspect of personality, rather than a momentary reaction to success or failure in the experiment.<sup>24</sup>

Two mail call-backs were attempted for each sample member in an effort to reduce non-response bias. Those respondents with listed phone numbers were called by phone until they could be reached. This is consistent with Mayer's (1964) finding that additional call-backs significantly increased the response rate. Mayer found that the response rate on the first call in a national probability sample is about one-third, and that this varies from twenty percent in large metropolitan areas to forty-two percent in rural areas. If two call-backs are attempted, the response rate rises to between seventy and seventy-five percent.<sup>25</sup>

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<sup>24</sup> Donald F. Cox and Raymond A. Bauer, "Self-Confidence and Persuasibility in Women," Public Opinion Quarterly Vol. 28 (Fall 1964), p. 457.

<sup>25</sup> Charles S. Mayer, "The Interviewer and His Environment," Journal of Marketing Research Vol. 1 (November 1964), p. 24.

MEASURES USED IN THE STUDY

This section will examine the psychological measures which will be used in the price-quality study. The experiment involves the psychological measurement of self-esteem, specific self-confidence and perceived risk, as well as quality judgement and willingness to buy. The development of each of the above measures and methods of scoring respondents' answers will now be examined.

### Self-Esteem Measurement

The measure of self-esteem used in this experiment was developed by de Charms and Rosenbaum (1960) and was based, in part, on an earlier measure by Janis (1954).<sup>26</sup> Subjects were instructed to choose an answer ranging from "very strongly agree" through "very strongly disagree" that best characterized their usual reactions. Seven response categories were established for each of these questions (see Exhibit 2, pages 16, 17 and 18).

Agreement with items 1, 2, 3, 8 and 10 and disagreement with items 4, 5, 6, 7 and 9 indicates high self-esteem or self-confidence and little concern with the presentation of self; that is, with the management of the image presented to others. On the other hand, opposite responses to these items indicate low self-esteem and low self-confidence and a great deal of concern and anxiety about the presentation of self in everyday situations.<sup>27</sup>

Since half of the ten items were worded negatively, contamination of the self-esteem measure by response set was avoided. While Rosenbaum and de Charms (1960) stated that the items have been shown to be highly intercorrelated, the authors gave no

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<sup>26</sup>R.C. Day and R.L. Hamblin, "Some Effects of Close and Punitive Styles of Supervision," American Journal of Sociology Vol. 69 No. 5 (1964), p. 504.

<sup>27</sup>Ibid.

reliability data.<sup>28</sup> However, a study by Day and Hamblin (1964) on ninety-six female subjects factor analyzed the ten test items, using the principal-axis method. The factor analysis weights (for the pre- and post-experimental questionnaire scales) for those items for which agreement indicates high self-esteem (items 1, 2, 3, 8 and 10) were .77, .42, .74, .38 and .58, respectively. The weights obtained for items 4, 5, 6, 7 and 9 (agreement with these items indicates low self-esteem) were -.50, -.42, -.75, -.35 and -.65, respectively.<sup>29</sup> Thus, the ten items were significantly interrelated.

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<sup>28</sup>M.E. Rosenbaum and R. de Charms, "Direct and Vicarious Reduction of Hostility," Journal of Abnormal and Social Psychology Vol. 60 (1960), p. 107.

<sup>29</sup>Day and Hamblin, op. cit.

### Specific Self-Confidence Measurement

While the relationship between specific self-confidence and persuasibility was studied by Cox and Bauer (1964), Barach (1967) and Bell (1967), all three studies measured specific self-confidence differently. Cox and Bauer (1964) used a relative measure which contrasted one's confidence in judging nylons with confidence in judging sales clerks.<sup>30</sup> Barach's (1967) measure determined confidence in judging a product as opposed to confidence in brand choice before an appropriate commercial was shown.<sup>31</sup>

In a study of car buyers, Bell (1967) measured specific self-confidence in buying a car by asking questions about the purchase:

- a) In general, how much experience have you had in purchasing a car?
- b) Is buying a new car an area in which you have godd ability?
- c) How confident are you in your efforts at buying a new car?
- d) To what extent have you not had the chance to learn about buying a new car?

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<sup>30</sup>Cox and Bauer, op. cit., p. 456.

<sup>31</sup>Jeffrey A. Barach, "Self-Confidence and Reactions to Television Commercials," in Donald F. Cox, ed., Risk Taking and Information Handling in Consumer Behavior (Boston, Mass.: Harvard Business School, 1967), p. 433.

The researcher used Bell's specific self-confidence measure, since it is the most descriptive of the measures cited. Secondly, it employed a reliability measure, Kendall's Tau rank order correlation coefficient. The intercorrelation among the four measures was found to be .71 (this is significant at the .001 level.)<sup>32</sup>

Five response categories were established for each of Bell's specific self-confidence questions. Respondents who gave favorable answers to questions 'a', 'b' and 'c' and a negative reaction to question 'd' were considered to have high specific self-confidence. Total scores to these four questions were summed and respondents' specific self-confidence level was classified, using the median split method.

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<sup>32</sup>Gerald D. Bell, "Self-Confidence and Persuasibility among Automobile Buyers," in Donald F. Cox, ed. Risk Taking and Information Handling in Consumer Behavior (Boston, Mass.: Harvard Business School, 1967), p. 448.

### Perceived Risk Measure

Kogan and Wallach (1964) define risk from two perspectives: a chance aspect (relating to the probability of an event) and a danger aspect (relating to the severity of the negative consequences). Cunningham (1967) utilized this conception of risk by operationally defining uncertainty and consequences. Simple correlation coefficients obtained by Cunningham (1967) for uncertainty and consequences are +.22, +.10 and +.06 for headache remedies, fabric softeners and dry spaghetti.<sup>33</sup> These correlations indicate a slight positive relationship between the perception of serious consequences and low certainty as to the performance of an untried brand. Although the correlations are significantly different from zero (at the .05 level of significance), the low correlations suggest that two relatively independent dimensions of perceived risk have been found.

Cunningham (1967) used an arbitrary method of constructing the perceived risk index. Both the certainty scale and consequences scale were collapsed into a three-point scale, and a numerical value attached to each point on the scale (see Exhibit 2, page 172 question 1 and 2). The two questions were then multiplied together in a matrix and each cell was given

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<sup>33</sup>Scott M. Cunningham, "The Major Dimensions of Perceived Risk," in Donald F. Cox, ed. Risk Taking and Information Handling in Consumer Behavior (Boston, Mass.: Harvard Business School, 1967), p. 90.

a specific weight that was used as the basis for ordering the combined index (see Table 3).

The rationale for constructing the perceived risk scale rests upon two assumptions:

- a) that both consequences and certainty are equally weighted, and
- b) that the gradations are spaced equally on both scales, with the distance between each gradation being equal on each scale.

While Cunningham (1967) cites evidence that the consequences component may be more heavily weighted on risk perception than the certainty component, the appropriate weight distribution cannot be determined. In his test of seven alternative weights to the certainty and consequences components of perceived risk, none was superior when related to product-related discussion of brand loyalty.<sup>34</sup> According to Cunningham (1967), the selection of an equally weighted scale is more defensible than any arbitrarily weighted scale in these circumstances.<sup>35</sup>

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<sup>34</sup>Ibid., p. 86.

<sup>35</sup>Ibid.

### Quality Measurement

Most studies of the price-quality association and cognitive dissonance measured quality judgements using an hedonic rating scale. However, little agreement exists among the authors as to how many points to ascribe to the scale.

Of the fourteen studies cited which utilized hedonic rating scales, five utilized five-point scales; one utilized a seven-point scale; three used eight-point scales; two used a nine-point scale; one a ten-point scale and two utilized one-hundred-point scales (see Table 4).. Noteworthy is the fact that beer was studied, using five-, ten- and one-hundred-point scales. Turkey quality was studied by Makens (1955), using a five-point scale, whereas Benson and Peryam (1958) used a nine-point scale for respondents to judge meat preference.

Green and Rao (1970) offer an explanation to the diversity of categories. According to the authors, ". . . it is not unusual to find that pretests on respondent discriminatory ability are not carried out before establishing the number of response categories."<sup>36</sup>

The writer is aware that several problems arise in the use of hedonic rating scales to measure product quality. Firstly, the intervals may be unequal

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<sup>36</sup>Paul E. Green and Vithala R. Rao, "Rating Scales and Information Recovery: How Many Scales and Response Categories to Use?" Journal of Marketing Vol. 34 (July 1970), p. 43.

in the buyer's mind. It is possible, therefore, that the respondent's opportunity for indicating a higher quality level is progressively more restricted as he approaches higher points on the scale.

Secondly, quality judgements may be meaningful only in relation to the confidence which respondents have in their appraisal. Leavitt (1954) found that thirty-eight percent of the subjects were doubtful about their floor wax decisions.<sup>37</sup> The doubt may be so high that the quality judgements obtained in his study may be meaningless. Because of this problem, the researcher intends to record confidence judgements in addition to quality judgements. Lastly, quality measurement may not be the same as willingness to buy, since quality judgement does not take into account economic sacrifice. It is apparent from the above discussion that there is no agreement as to the proper number of scale intervals. Therefore, the writer pretested his ten-point scale to determine whether it is adequate.

Many of the attributes included in the product evaluation checklist were discussed by Cox (1967 f) and Laird (1932). Subjects rated panty hose in terms of overall quality and quality of specific attributes. These attributes, rated on a ten-point continuum, are: dependability, durability, feel, color, sheerness,

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<sup>37</sup>Harold J. Leavitt, "A Note on Some Experimental Findings about the Meaning of Price," Journal of Business Vol. 27 (June 1954), p. 209.

versatility, attractiveness and fit. The degree of confidence in quality determination of each panty hose "brand" was also rated on a ten-point scale.

The quality rating scales which were pretested are in accord with Green and Rao's (1970) recommendation that each response scale be at least six points and that at least eight scales be used to "cover" the hypothesized space.<sup>38</sup>

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<sup>38</sup>Green and Rao, op. cit., p. 38.

### Willingness-to-Buy Measurement

The product choice criterion often employed in price-quality studies is somewhat unrealistic, as one would expect economic sacrifice to decrease purchases at the higher price levels. No economic sacrifice was experimentally manipulated, except in the studies by McConnell (1968 a and c) and Smith and Broome (1966).

In addition, all product choice studies cited were of a forced-choice design. This precluded respondents from not choosing any alternative because of unresolved risk. The latter problem has been resolved through rating the probability of purchase on a continuum. This method has been used by Hempel (1966), Popielarz (1967) and Gardner (1970). As in the product quality scales, no agreement exists among the authors as to the number of intervals to employ.

Instead of measuring willingness-to-buy on a scale, the writer decided to relate this criterion to the motivation method for attracting respondents. Subjects were allowed to "purchase" four dollars' worth of panty hose at prices quoted in the experiment. Thus, actual preferences and not attitudes were measured. Secondly, product choice was related to economic sacrifice. Subjects who chose the more expensive product could purchase fewer pairs of panty hose. Thus, one could expect quality evaluation to be more sensitive to price cues than willingness-to-buy.

Although subjects did not pay for the panty hose, they faced some form of economic and performance risk due to the experimental manipulation.

CHAPTER II

EMPIRICAL STUDY OF PRICE-QUALITY RELATIONSHIP

SAMPLING INFORMATION

Forty-one percent of the individuals within the sampling frame were interviewed. The response rate was high, considering that the interview had, on the average, a thirty-minute duration and that respondents were told as little as possible concerning the subject of the study, in the belief that this might have biased the study.

The relatively high response rate can be attributed to several factors: the mailing of all correspondence to potential respondents on university letterhead; the use of mail and phone call-backs; a flexible interviewing schedule encompassing twelve days, from 10 A.M. to 8P.M.; and lastly, the persistence of interviewers to reschedule interviews and to obtain respondent cooperation. Since many interviews had to be rescheduled at the last minute, the researcher decided to remunerate interviewers on an hourly basis instead of a per-interview basis, as originally agreed upon. In this manner, interviewers were not financially motivated to complete an interview quickly and could schedule interviews on a six-day week, 10 A.M. to 8 P.M. basis, without any financial loss.

An analysis of the effectiveness of the initial mail interview request form showed that there was no significant difference between Roslyn and Long Beach concerning the proportion of respondents who accepted the

initial mail invitation to be interviewed. In total, thirty-nine percent of the individuals in the Roslyn sampling frame and forty-four percent of the individuals in the Long Beach sampling frame consented to be interviewed upon receiving the first request. Neither was the proportion of individuals consenting to be interviewed on the initial mail request significantly different by median home value.

The second attempt - phone - accounted for fifty-eight percent and fifty-two percent of the respondents in Roslyn and Long Beach, respectively. The proportion of individuals consenting to be interviewed when contacted by phone was not significantly different by either place of residence or median home value. The remainder of the respondents in each area were contacted by mail (these subjects who could not be reached by phone).

The similarity in receptivity to the means of obtaining respondents by both place of residence and median home value suggests that the optimum method of obtaining respondent cooperation is not a function of the socio-economic characteristics of the subjects to be interviewed.

While the final response rate was fairly high in both Roslyn and Long Beach (see Table 5), the researcher noted some limitations to the representativeness of the sample. The researcher compared the characteristics of this sample to those in the 1970 Census of Population and Housing to determine the representativeness

of the sample. Unfortunately, the classifications employed by the researcher differ from those employed in the census. For example, in this study, the education level of respondents and the occupation of spouse are recorded. The 1970 Census of Population and Housing classifies education of all persons twenty-five and older and all workers sixteen years and older. Differences in the distribution of sample respondents and census data may be caused by the differences in the classification method employed.

While the percentage figures for the sample and census tract do not correspond, the general direction of differences between the Roslyn and Long Beach sub-samples is in agreement in both the research sample and census tract data. In terms of education, significantly higher percentages of college-educated individuals were present in the sample than are present in the census tracts. While seventy-one percent of the sample members residing in Roslyn indicated they were college graduates or had graduate degrees, only thirty-five percent of those residing in Roslyn census tracts had similar degrees of education. Similarly, in Long Beach, forty-eight percent of individuals surveyed were college-educated as compared to twelve percent reported in the census tract.

The proportion of professionals-managerial level workers in Roslyn also reflected the tendency for sample respondents to be higher-educated. Eighty percent of the

Roslyn sample spouses were professional-managerial as compared to forty-six percent in the census tract. However, twenty-four percent of Long Beach respondents' spouses were classified as professional-managerial, as contrasted to thirty-two percent in the census tract.

From an analysis of the differences in education in the sample and census tract data that the sample is biased in terms of the percentage of higher-educated individuals.

The Bureau of the Census reported in the 1970 enumeration that census tract 3022 in Roslyn was comprised of over ten percent Negroes, and that census tracts 4165 and 4166 in Long Beach were 28.6 and 6.8 percent Negro, respectively. The writer did not get the cooperation of any black respondents.

The response rate for each census tract is unequal. This is evident in Long Beach, where tract 4164 had a response rate of eight percent and tract 4166 had a sixty-two percent response rate. The most under-represented tract - 4164 - had the lowest median home value (\$17,700) of the tracts studied. However, other low median home value tracts (4165, 4167 and 4168) had relatively high response rates of forty-seven percent, forty-four percent and fifty-nine percent, respectively. The respective median home values of these tracts is \$23,800, \$26,300 and \$27,800. Noteworthy is that tract 4165's median income is lower than that of 4164.

Response rates were found to differ significantly, depending upon whether the respondent had a listed phone number, a non-listed one, or no phone. In Long Beach, fifty-three percent of the individuals who had a listed phone number consented to be interviewed, while only nineteen percent of those with no phone or unlisted numbers consented to be interviewed. In Roslyn, forty-four percent of the individuals with listed numbers consented to be interviewed, as contrasted to thirty-three percent with no phone or an unlisted phone number. The greatest response rate of individuals in Roslyn with unlisted phones, as compared with Long Beach, may be attributed to the fact that the researcher was able to obtain the unlisted phone numbers of the Roslyn sample and to convince many in a second phone call-back to respond. In terms of the entire sample, the probability of an individual's affirming an interview is .48, given he has a listed number, and only .23, given he has no phone or an unlisted phone number. This difference is significant at the .01 level.

Analysis of Demographic and Socioeconomic Characteristics

The intent in sampling respondents in both Roslyn and Long Beach was to obtain a cross-section of individuals with regard to socioeconomic characteristics and to test the relationship among these characteristics and price-quality. While the study did not secure the cooperation of black respondents, making it impossible to study the influence of race on price-quality, and while respondents were biased in favor of individuals with listed phone numbers, the study was successful in obtaining respondents from the middle to upper socioeconomic groups.

The following results support the above contention. Firstly, the overall response rate was forty-one percent. In addition, forty percent of the Roslyn sample and forty-two percent of the Long Beach sample responded. Thus, even though the socioeconomic characteristics of both communities differed, these characteristics apparently did not affect the willingness to respond.

Secondly, substantial variation in demographic and socioeconomic characteristics existed between Roslyn and Long Beach respondents. Significant differences between Roslyn and Long Beach respondents were recorded on the following characteristics: percent of respondents in the 51-65 age group; percent of respondents who have college or graduate degrees; percent of

respondents who currently work full-time; percent of part-time workers who are classified as being professional/managerial and the percent of spouses who are professional/managerial.

The poor response rate with regard to blacks may be attributable to several factors. While the use of phone call-backs significantly increased the response rate in both communities studied, blacks in the sampling frame may have been less prone to have phones or listed numbers. Therefore, the chance of obtaining black respondents was decreased.

Blacks may also have been skeptical of the nature of the study, as well as the offer of a gift for their participation. While an invitation to respond, mailed on Hofstra University letterhead to those in the sampling frame, may have indicated the authenticity of the project to white respondents, this letter may have had no such effect on blacks. It is also possible that white respondents felt a greater commitment to a neighboring university, its research and its effect on themselves as consumers than black non-respondents.

The researcher attempted to increase the response rate among blacks through the cooperation of the school district administrators of Long Beach and Roslyn. However, both administrators refused to cooperate in this study. While the researcher considered

using a team of one white and one black interviewer to call on the homes of non-respondents, this concept was rejected, since the interview required a half-hour, uninterrupted time period. Secondly, many of the non-respondents were averse to being interviewed, as indicated by their phone conversations and written refusals. Lastly, the researcher was leery of sending female interviewers into the field in the early evening hours without appointments.

Analysis of Attitudinal Characteristics of Respondents

The pretest of the seven-point self-esteem scale, as employed by Rosenbaum and de Charms (1960), Day and Hamblin (1964) and Bell (1967) revealed relatively poor reliability. Based upon a pretest of twenty-four subjects, the Kendal Tau coefficient for the odd-even scores was computed to be .25, and the product-moment method correlation coefficient equaled .50. While this product-moment method correlation coefficient is significantly different from zero at the .02 level, the researcher decided to increase reliability by changing to a five-point scale in the experiment. The trade-off of precision for reliability, by using a five-point instead of a seven-point scale, yielded an odd-even Kendal Tau of .43 and a product-moment correlation coefficient of .61. This product-moment correlation coefficient is significantly different from zero at the .001 level.

The Kendal Tau coefficient and product-moment method correlation coefficient for the specific self-confidence measure is .62 and .83, respectively. The product-moment method correlation coefficient for the specific self-confidence measure is significantly different from zero at the .001 level of significance.

The use of two reliability measures - the product-moment correlation and the Kendal Tau - is

justified by Palumbo (1969). According to Palumbo (1969), one can assume that the numbers obtained by summing responses to ordinal scales are either ordinal or form a ratio scale.

Strictly speaking, it is better to rank these scores and use the statistical tests. . . . of Spearman rank order correlation and the Kendal Tau  $\tau$  rather than to treat the scores as if they formed a ratio scale . . . although the numbers obtained by adding responses of individuals to the several questions or items in the scales themselves do form a ratio scale.<sup>1</sup>

According to Cunningham (1967), the perceived risk scale is comprised of two relatively independent dimensions: consequences and uncertainty. The product-moment correlation coefficient of +.22 in the experiment, obtained for uncertainty and consequences scores, is similar to the correlation coefficients of +.22, +.10 and +.02, obtained for uncertainty and consequences for headache remedies, fabric softeners and dry spaghetti, respectively, by Cunningham (1967). The correlation coefficient of +.22 is significantly different from zero at the .05 level of significance and indicates that a slight positive relationship exists between the uncertainty and consequences dimension.

For each of the three attitudinal measures - self-esteem, specific self-confidence and perceived risk -

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<sup>1</sup>Dennis J. Palumbo. Statistics in Political and Behavioral Science. (New York: Appleton-Century Crofts, 1969), p. 165.

the researcher tested to determine if the distribution of these scores differed by place of residence. A difference in score distribution by place of residence - Roslyn versus Long Beach - would indicate the possibility of socioeconomic factors being related to attitudinal measures because of the disparity of both communities with respect to socioeconomic characteristics. In each case, the distribution of the attitudinal measure was not significantly related to place of residence.

A further analysis of the attitudinal measures showed several significant interrelationships to exist among the variables studied:

- a) between specific self-confidence and median home value (at the .15 level)
- b) between perceived risk and specific self-confidence (at the .10 level)
- c) between perceived risk and education (at the .15 level)

The method of classifying respondents by median home value deserves attention before discussing the relationship between specific self-confidence and median home value. At the time this study was conducted, the Bureau of the Census did not provide median income data by census tract. The researcher decided, therefore, to use median home value, which was provided by the Bureau of the Census, instead of family income. Census tracts with median home values below \$28,000 (tracts

4164, 4165, 4167 and 4168) were classified as low median home value areas for purposes of this study. Tracts with median home values between \$30,000 and \$42,000 (tracts 4163, 4166 and 3022) were classified as medium median home values. Lastly, tracts with median home values over \$50,000 (tracts 3020, 3021.01 and 3021.02) were classified as high median home value areas. (It is important to note that the Bureau of the Census median home values are based upon homeowners' estimations of value, which may not correspond to market value.)

In terms of the relationship between specific self-confidence and median home value, medium specific self-confidence subjects were comprised of relatively fewer low median home value subjects, and relatively more medium median home value subjects than was expected by chance. Secondly, high specific self-confidence subjects were comprised of relatively more low median home value subjects and relatively fewer medium median home value subjects than were expected by chance (see Table 6).

Table 7 analyzes the relationship between perceived risk and specific self-confidence. Respondents with low perceived risk levels were more prone to have high rather than low specific self-confidence levels; respondents with high perceived risk were more prone to have low rather than high specific self-

confidence. This finding of an inverse relationship between perceived risk and specific self-confidence is in agreement with the notion that low perceived risk indicates high specific self-confidence.

Table 8 shows that the relationship between perceived risk and education is significant at the .15 level. Respondents with high school educations are more prone to have low perceived risk associated with panty hose, and those subjects with graduate school training are more prone to have high perceived risk levels.

The above findings are important in that if perceived risk or specific self-confidence are found to be related to either quality inference or choice behavior, one must have means of economically reaching consumers with given levels of each trait. The finding of a relationship between socioeconomic variables and attitudinal variables provides such a means. Secondly, this research questions whether perceived risk and specific self-confidence, with regard to panty hose, are independent variables, and whether they should be treated as such.

ADDITIONAL CHARACTERISTICS OF RESPONDENTS  
WITH RESPECT TO PANTY HOSE

This section analyzes the retail sales price of the panty hose which respondents generally purchase, and determines whether any relationship exists between retail price generally paid and the socioeconomic and attitudinal variables previously discussed. The experimenter will also study the price ascribed to the unpriced panty hose sample M and its correlates.

Respondents were asked not only to indicate the price generally paid for panty hose, but also to list the brand name generally purchased. Brand name was included to reduce a possible tendency for respondents to inflate the price paid because of any social risk related to stating purchase price. A second reason for inclusion of the brand name was to allow the experimenter to eliminate support panty hose from this analysis, since it has a different price distribution and different market characteristics from regular panty hose.

Table 9 shows the price generally paid for panty hose by the respondents. The sum of responses in Table 9 is greater than eighty-eight because multiple responses to this question were possible; i.e., some respondents purchased several price lines of panty hose.

The modified mean price generally paid for panty hose (not including responses in the below \$.79 or above \$3.51 classes) is \$1.91, \$1.63 and \$1.75 for the

Roslyn, Long Beach and total sample, respectively. These average prices are higher than the average price of \$1.17 reported in the 1971 Market Research Corporation of America's consumer purchase panel.<sup>2</sup>

The different price distributions for the Market Research Corporation data and this analysis may be a result of respondent tendency to inflate the purchase price paid, due to the social risk accompanying giving price information. The researcher expected this to occur and attempted to reduce this tendency by assuring respondents of their anonymity and by asking them to provide brand name information.

An additional possible reason for the disparity in price distributions between the Market Research Corporation panel data and this present study is due to the nature of this sample. Thirty of the eighty-eight respondents reside in census tracts with median annual 1970 family income of over \$30,000. The tendency for wealthier individuals to purchase more expensive party hose could explain the disparity in price distributions.

Respondents residing in high median home value areas (over \$50,000) are more prone to purchase hose in the \$2.01 price range and less prone to purchase hose in the \$1.00 or less range than respondents in the low

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<sup>2</sup>"1971 Annual Consumer Purchase Panel" (New York: Market Research Corporation of America) dated March 25, 1972, no pagination.

or medium median home value areas. Respondents residing in low median home value areas (less than \$28,000) were more prone to buy hose in the \$2.00 or less price range than in the \$2.01 or more price range. This relationship is significant at the .005 level (see Table 10).

Price generally paid for panty hose was also significantly related to place of residence at the .025 level of significance. Roslyn respondents were less prone to purchase panty hose in the \$1.00 or less price and were more prone to purchase hose in the \$2.01 or more classification. Long Beach respondents, on the other hand, were more prone to purchase panty hose in the \$1.00 or less price line, and less prone to purchase panty hose at \$2.01 or more (see Table 11).

Prices ascribed to M, the unpriced panty hose, were also found to be significantly related to place of residence. Table 11, which analyzes price generally paid for panty hose, shows that Roslyn respondents were more prone to purchase more expensive hose.

It can be hypothesized, therefore, that Roslyn housewives would be more prone to ascribe a higher price to the unpriced hose sample. Table 12 shows that the relationship between place of residence and price ascribed to M is significant at the .10 level. Roslyn housewives were more prone to ascribe a price of \$1.51 or more to M than a price of \$1.50

or less. Secondly, Long Beach respondents were more prone to ascribe a price of between \$1.01 and \$1.50 than \$1.51 or more.

While the relationship between M's ascribed price and median home value is not significant at the .10 level, the researcher found a significant relationship between price ascribed to M and price generally paid for panty hose (see Table 13). Respondents who reported generally buying panty hose at \$1.00 or less were more prone to ascribe a price of \$1.00 or less than a price of \$1.51 or more to the unpriced hose sample, M. Respondents who reported buying hose between \$1.01 and \$2.00 were more prone to ascribe a price of between \$1.01 and \$1.50 to M, rather than a price of \$1.00 or less or \$1.51 or more. It appears that one's buying experience significantly effects one's price perception, given an environment of uncertainty.

TESTS OF HYPOTHESES

All of the hypotheses relate quality to two criteria: overall panty hose quality shifts and product choice.

Each hose sample was rated by respondents on a one-hundred millimeter scale, scored by the researcher from one to ten, with a score of one indicating poor overall quality and a score of ten indicating excellent overall quality. The dependent variable, in terms of product quality, differed, however, depending upon whether the data was subjected to a one-way or two-way analysis of variance.

For the one-way analysis of variance, the raw scores were used. For the two-way analysis of variance, the quality criterion of N-R, N-M or M-R quality shift scores was used. Shift scores represented the difference between quality evaluations of N and R (the two-dollar versus the one-dollar priced sample), N and M (the two-dollar versus the non-priced sample) and M and R hose samples (the non-priced and one-dollar sample), respectively. The shift scores varied from plus nine to minus nine, with a plus nine shift indicating the highest level of persuasibility of a price cue, and minus nine shift indicating the highest level of counter-persuasibility. A score of zero indicated a no persuasibility dimension to the price cue. Each shift pair - N-R, N-M and M-R - was studied, using a separate analysis of variance.

The second criterion employed for each hypothesis was the choice criterion. This criterion imposes a more difficult test on the price-quality relationship because it employs the notion of economic sacrifice.

### Hypothesis 1

A significant number of subjects will impute higher quality to the higher-priced panty hose.

This hypothesis was tested, using an absolute quality scale scored by the researcher from one to ten. The mean quality rating for all respondents of the \$1.00, \$2.00 and non-priced panty hose sample is 5.39, 6.24 and 5.54, respectively (see Table 14).

The influence of price as a quality cue was tested, using a one-way analysis of variance program which allowed for the three replications. Table 15 shows the summary analysis of variance computations. For total respondents, the price-quality association was significant at the .05 level.

An analysis of variance of price-quality ratings by area (see Tables 16 and 17) shows that the price-quality relationship was significant at the .15 level for Roslyn and at the .10 level for Long Beach. Thus, even though respondents in both communities differed in terms of various socioeconomic characteristics (education, occupation and current work status), in terms of price generally paid for panty hose and in the price attributed to the non-priced sample, M (these distributions were significantly different in both areas), the price-quality relationship was established.

A significance of difference test of the quality ratings made by Roslyn and Long Beach-respondents

for hose samples R, N and M found that Long Beach respondents gave significantly higher quality ratings (at the .06 level) for panty hose samples N (the two-dollar priced sample) and M (the non-priced sample), than Roslyn respondents. However, the ratings for sample R (the one-dollar priced sample) were not significantly different between Roslyn and Long Beach respondents.

Aside from studying the overall quality shift, the researcher studied whether the quality shift applied to specific panty hose quality attributes; namely, dependability, durability, feel, color, sheerness, versatility, attractiveness and fit. Each quality component was rated on a one-hundred millimeter scale, scored by the researcher from one to ten, with a score of one indicating poor appraisal of quality on a given quality attribute, and a score of ten indicating excellent quality. The axes for poor and excellent quality were shifted to reduce response-set bias.

Table 18 shows the results of the R, N and M quality attribute shifts for Roslyn, Long Beach and total respondents. Of the twenty-four quality attribute shifts studied, eight were significant at the .10 level or better. Five of the eight attribute shifts were significant in either Roslyn or Long Beach.

An examination of Table 19 shows the magnitude of the shift on each quality component. For

every product attribute, N's rating (the \$2.00 hose sample) is higher than that of R (the \$1.00 hose sample). Interestingly, N's product attribute rating is higher than M's (the unpriced hose) for all attributes, except the feel component of quality within the Long Beach sub-sample. In contrast, for the Roslyn sample, the shift in feel appraisal was plus .95 points. Thus, even though the Long Beach shift for feel was negative, the total shift (for Long Beach and Roslyn) was positive.

A third test of the price-quality relationship is concerned with subject's choice behavior. The researcher determined whether the increased quality attributed to hose sample N was accompanied by respondents' choosing sample N, given the experimental manipulation of economic sacrifice. Table 20 examines the choice behavior of Roslyn and Long Beach respondents. In total, thirty-eight percent of the respondents chose the \$1.00 hose, thirty-two percent of the respondents the \$2.00 hose, and thirty percent the combination of \$1.00 and \$2.00 hose. Thus, even though all samples were equivalent, except for price label, a significant number of subjects had enough confidence in their quality judgement, based upon price, to choose the more expensive hose. Reliance upon price as a means of product differentiation can be shown in that thirty percent of the subjects chose the combination plan and thirty-two percent the most expensive hose.

The relationship between choice behavior and place of residence was tested, using a chi-square analysis (see Table 20) and found to be significant at the .05 level. Roslyn respondents were found to be more prone to accept the two-dollar hose rather than the one-dollar hose samples. On the other hand, Long Beach respondents were more prone to accept the dollar hose, rather than the two-dollar pair. There was no difference between residence of respondents and proneness to choose the \$1.00 and \$2.00 combination.

The price-quality relationship was studied through an examination of overall quality shifts, specific product attribute shifts, and product choice behavior. Although respondents' examinations of hose samples and the economic sacrifice choice criterion used in the study had the potential for reducing both quality judgement and choice of the \$2.00-priced hose sample, the price-quality relationship was still significant in each of the three tests.

Hypothesis 2

Subjects with a low panty hose reference price will be less likely to choose the higher-priced hose.

It would seem likely that differences in choice behavior of Roslyn and Long Beach respondents, noted in Table 20, could be attributed to differences in their reference price of the price generally paid for hose. It would appear that a low reference price would limit choice at higher price levels, as was found in research by Tull, Boring and Gonsior (1964). An appraisal of Table 11 further documents this reasoning in that Roslyn respondents were found to be more prone to generally purchase panty hose selling at \$2.01 or more than those hose selling at \$1.00 or less. In addition, Long Beach respondents were more prone to purchase panty hose at \$1.00 or less than at \$2.01 or more.

Table 21 examines the relationship between choice of panty hose and price generally purchased. (Since respondents purchased hose at several price lines, the responses for this chart exceed the number of respondents.) The relationship between price generally purchased and choice behavior is significant at the .001 level. Respondents who reported generally buying panty hose at the \$1.00 or below level were most prone to accept four one-dollar hose in the

experiment, and were least prone to accept two-dollar hose. Likewise, subjects who reportedly purchased hose for more than \$2.01 were most prone to accept the two-dollar hose and least prone to accept the dollar hose. Thus, the hypothesis relating reference price to price level of hose chosen is confirmed.

Hypotheses 3, 4 and 5

Hypothesis 3: Subjects of moderate self-esteem will be more prone to be influenced by price in their quality judgements than subjects of low or high self-esteem.

Hypothesis 4: Subjects of moderate specific self-confidence will be more prone to be influenced by price in their quality judgements than high or low specific self-confidence subjects.

Hypothesis 5: Subjects of moderate specific self-confidence and moderate self-esteem will be most prone to be influenced by price in their quality judgements.

Since hypotheses 3, 4 and 5 involve the variables specific self-confidence and self-esteem, and their interaction, the experimenter decided to test these hypotheses together, using a two-way analysis of variance with quality shift as the dependent variable, and specific self-confidence, self-esteem and their interaction as independent variables. Three levels of both specific self-confidence and self-esteem were employed, based upon a median split in their respective distributions. This analysis used as the quality criterion the quality shift scores of N-R (the two-dollar versus the one-dollar priced hose), M-R (the non-priced versus the one-dollar priced hose) and N-M (the two-dollar versus the non-priced hose).

Therefore, three two-way analyses of variance tests are needed to test the hypotheses relating to quality inference.

Of particular interest in these analyses is the mean quality shift ratings of N-R, which are reported in Table 19. This table suggests counter-persuasibility within the low self-esteem/low specific self-confidence group. This group is the only one of the nine groups studied which has a negative shift. While Cox and Bauer (1964) reported that individuals of low general self-confidence were more likely to change in an opposite direction to that indicated by marketer-dominated cues, this tendency appeared to be evident only when low self-esteem was coupled with low specific self-confidence. The logic of Cox and Bauer's analysis can be used to explain this phenomenon. Not only did respondents in this group have brittle ego defenses, but also their specific self-confidence was low.

Cox and Bauer (1964) suggest that among subjects with high specific self-confidence, general self-confidence plays no role in persuasibility, but plays a greater role among subjects with low or moderate self-confidence. In the case of low specific self-confidence, Cox and Bauer (1964) reported that thirty-two percent of low self-esteem individuals exhibited a negative shift. This constituted the largest percentage

of negative shifters for the nine combinations of self-esteem and specific self-confidence studied, and is in agreement with the mean shift analysis in this experiment.

The highest degree of quality shifting occurred in the case of medium specific self-confidence, coupled with either medium or high self-esteem. Not only were these groups large shifters in terms of the N-R shift illustration, where concrete price cues were evident, but also, these groups exhibited large shifts in the M-R and N-M cases (see, also, Tables 23 and 24), where those sample M's price was undefined.

While the large shifts in the medium specific self-confidence group and medium self-esteem group are in accord with Cox's (1967 f) hypothesis, the shifts in the medium specific self-confidence/high self-esteem group are not. Cox (1967 f) postulated that medium general self-confidence subjects were most likely to change in those groups which had low or medium specific self-confidence.

An analysis of variance of the N-R shift is contained in Table 25. Only the specific self-confidence variable in the N-R shift is significant at the .15 level. Thus, the data does not support either hypothesis 2 or 4, even though the mean rating tables suggest that hypothesis' general direction to persuasibility. Neither self-esteem nor the interaction of self-esteem with

specific self-confidence is significant at the .05 level in the N-R, M-R or N-M quality shift cases. This finding supports hypothesis 3 as well as some of the findings of Cox (1967 f) and Bell (1967). However, an interaction model, or a model advocating the importance of self-esteem, is not supported by this experiment.

Perhaps the different findings can be explained by differences in methodology in the studies. Only Bell (1967), aside from the present researcher, used the Rosenbaum and de Charms (1960) measure and administered the questionnaire in respondents' homes. Cox and Bauer (1964), Barach (1967) and Gergen and Bauer (1967) used an adopted measure from Janis and Rife (1959), consisting of nine of Janis and Rife's twenty-one items. (A phone interview with Dr. Donald Cox confirmed the researcher's belief that no reliability study was performed between the nine-item and the twenty-one-item self-esteem measure. Dr. Cox also reported that he no longer had a copy of the nine-item self-esteem measure which he used.)<sup>3</sup>

Due to the general unavailability of the above information, the writer decided to use Rosenbaum and de Charms' scale, which is based on Janis' (1954) measure, as was Janis and Rife's (1959). It is possible

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<sup>3</sup>Phone interview with Dr. Donald F. Cox, Vice President and Director, Coca-Cola of U.S.A., February 12, 1973.

that differences in items selected caused part of the difference in response.

The other studies administered the self-esteem tests in groups. Respondents did not answer personal information questions on a one-to-one basis. Despite directions instructing respondents that the self-esteem test was part of a different study, labeling it as personal opinions test, advising respondents of their anonymity and instructing interviewers in gaining the respondents' confidence and honesty of response, it is possible that this one-to-one relationship, coupled with the fact that respondents knew they could be identified (the study took place in their homes), biased the self-esteem portion. The difference in testing environments between this study and in self-esteem studies, where respondents completed the questionnaire in a group setting and where responses were not traceable to themselves (Cox and Bauer (1964); Barach (1967) and Gergen and Bauer (1967) ), may explain the difference in research findings. It is noteworthy that Bell's (1967) findings (based on a sample of 234 respondents), with respect to both self-esteem and specific self-confidence, are directly in accord with this study.

The measures employed by this researcher and Bell are identical. Secondly, in both studies, respondents were interviewed individually and their responses were traceable.

Apparently, only in research by Gergen and Bauer (1967) and Barach (1967), which employed the same self-esteem measure as Cox and Bauer (1964), and where answers were not traceable, did Cox and Bauer's curvilinear relationship with regard to self-esteem apply. It is noteworthy that in Venkatesan's (1968) study, which employed the full twenty-three-item Janis and Field (1959) measure (as opposed to the nine-item used by Cox and Bauer (1964), Gergen and Bauer (1967) and Barach (1967) ) and in which respondents' scores were traceable, no significant relationship between self-esteem and persuasibility was found.

It is possible that the curvilinear relationship between self-esteem and persuasibility is an artifact of both the experimental design and self-esteem measure employed.

Tables 26 and 27 examine the relationship between choice behavior of respondents and their respective self-esteem and specific self-confidence levels. As in the two-way analysis of variance, the relationship of choice and self-esteem is not significant, and the relationship between choice and specific self-confidence is significant (in this case at the .025 level). Subjects low in specific self-confidence were more prone to accept the four one-dollar hose choice alternative, rather than the two two-dollar hose choice. This concurs with the N-R (the two-dollar

versus the one-dollar hose) quality rating analysis, which indicated that subjects with low specific self-confidence would be least persuasible, and is in accord with research conducted by Cox and Bauer (1964).

While the economic sacrifice notion did not constrain individuals who chose the one-dollar hose exclusively, it is interesting to note its effect on those of moderate specific self-confidence who are expected to be most persuasible, from the analysis of N-R mean quality shift ratings, as well as from research conducted by Cox and Bauer (1964).

An analysis of the medium specific self-confidence group's choice behavior reveals that it was more prone to accept the \$1.00 and \$2.00 combination than any other specific self-confidence level group. The high specific self-confidence group was more prone to accept the \$2.00 alternative and was less prone to accept the \$1.00 and \$2.00 combination.

It is possible that choice behavior of respondents can be related to their overall confidence in judgement of quality. Thus, one could hypothesize that those of high specific self-confidence had greater certainty in their appraisal of sample N than those of medium or low certainty.

Table 28 examines the relationship between certainty of quality judgement of sample N (the two-dollar sample) by specific self-confidence level. The

relationship between certainty of quality judgement for sample N and specific self-confidence level is significant at the .025 level. High specific self-confidence respondents were more prone to have high certainty in their appraisal of N than to have low certainty. On the other hand, low specific self-confidence subjects were more prone to have medium certainty in their appraisal of N and less prone to have high certainty. Thus, the choice of two-dollar hose by high specific self-confidence individuals can be related to their certainty in judging the \$2.00 hose. Medium specific self-confidence subjects were more prone to be moderate in certainty of appraisal rather than low, and, thus, were more prone to hedge their choice by choosing one \$2.00 and two \$1.00 hose samples. Lastly, low specific self-confidence subjects were more prone to have low or medium certainty in appraising M than high certainty. Thus, choice behavior has been found to be directly related to the certainty of respondents' quality judgements.

Hypotheses 6 and 7

Hypothesis 6: Subjects high in perceived risk will be more prone to accept price cues as quality indicators than those low in perceived risk.

Hypothesis 7: Subjects low in perceived risk and high in generalized self-confidence will not be influenced by price cues.

As in the case of hypotheses 3, 4 and 5, since hypotheses 6 and 7 employ the variables perceived risk and self-esteem and their interaction, they will be studied together. Tables 29, 30 and 31 show the mean quality shifts by self-esteem and perceived risk classification for the N-R (the two-dollar versus one-dollar priced hose), M-R (the non-priced versus the one-dollar priced hose) and N-M (the two-dollar versus the non-priced hose) shifts.

An analysis of the mean N-R shifts indicates high shifts for the high self-esteem/low perceived risk case. However, an analysis of variance for the N-R shift (see Table 32), as well as analyses of variance for the M-R and N-M shifts (see Tables 33 and 34), found that neither perceived risk, self-esteem or their interaction are significant at the .05 level.

Table 35 examines choice behavior by perceived risk levels. While quality shifts by perceived risk classification have been found not to be significant,

a chi-square test of choice behavior by perceived risk was significant at the .05 level.

An analysis of Table 35 shows that low perceived risk individuals are more prone to accept the \$2.00 option, rather than the \$1.00 and \$2.00 combination. Secondly, high perceived risk subjects are more likely to choose the four \$1.00 hose choice than the two \$2.00 alternative. This finding is not in agreement with hypothesis 6. An examination of Table 3, however, lends an explanation to the choice pattern observed.

Table 3 indicates that the relationship between perceived risk and specific self-confidence is significant at the .10 level. Subjects with low levels of perceived risk were more prone to have high rather than low specific self-confidence. Also, subjects with high levels of perceived risk were more prone to have low rather than high specific self-confidence.

The perceived risk and specific self-confidence variables lead to different hypotheses. One would expect individuals with low specific self-confidence to be counter-persuadable. However, one would anticipate high cue usage by individuals with high perceived risk. In terms of this experiment, the specific self-confidence hypothesis is valid. Table 36 verifies this contention, showing that the relationship between specific self-confidence and N-R quality shift is

significant at the .20 level. However, neither the relationship between perceived risk and the N-R shift, nor between the interaction of specific self-confidence and perceived risk and the N-R shift, is significant.

A two-way analysis of quality shifts for M-R and N-M hose by specific self-confidence and perceived risk also revealed no significant relationships.

### Hypothesis 8

Price cues will have a greater influence upon lower socioeconomic class subjects than upon higher socioeconomic class subjects.

While the respondents represent a wide category of income, education and occupational groups, the number of respondents in the very low socioeconomic categories in the sample is limited. Even though median home values in the low median home value census tract was between \$17,000 and \$28,000, the researcher doubts that a significant percentage of poverty-level individuals were reached by the study.

One indication that few poor individuals responded is the fact that no respondent was black, even though two Long Beach census tracts had significant black populations. Secondly, a study of the relationship between education and median home value of a census tract found no significant relationship between the two variables.

A report of median income by census tract found that in terms of the median income level of each census tract, even the poorer areas (in terms of median home value) were not considered to be poverty level. For instance, even though tract 4165's median income was below \$10,000 (three other tracts in Nassau County had median family incomes of below \$10,000), the median

income of this tract (as in the other three tracts in Nassau County) exceeded \$9,100.<sup>4</sup>

Secondly, while the relationship between occupation of spouse and median home value is significant at the .001 level (see Table 37), sizable proportions of professional/managerial spouses resided in the low and medium median home value tracts, in spite of the fact that high median value tracts were more prone to have professional/managerial heads of household than low median value tracts.

While the low and medium median home value tract respondents represent two levels of middle income respondents, the high median home value tracts definitely represent very high income levels. In fact, the median annual family income for high median home value areas is above \$30,000.

Of the three quality shifts studied, only the relationship with education in the N-R quality shift approached significance (see Table 38). A tendency was exhibited in this illustration for graduate school respondents to be counter-persuasive and for positive shifts to occur in both the high school and college-educated sub-groups (see Table 39). Perhaps this finding can be attributed to the fact that those with graduate school education realized the nature of the study.

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<sup>4</sup>Edward C. Burks, "\$14,632 Median Income Found in Nassau County," New York Times (September 19, 1972), p. 98.

While education approached significance in the N-R case, the researcher found that the relationship between median home value and choice was significant at the .01 level (see Table 40). Respondents residing in low median home value areas were more prone to choose \$1.00 hose than \$2.00 hose.

Respondents from high median home value tracts, on the other hand, were more prone to choose \$2.00 hose than \$1.00 hose. Table 10 explains this phenomenon. Firstly, respondents residing in high median home value tracts were more prone to generally purchase panty hose at \$2.01 or more than at \$1.00 or less. Secondly, respondents residing in low median home value tracts were more prone to purchase hose at \$1.00 or less, or between \$1.01 and \$2.00, than at \$2.01 or more. Evidently, the reference price or the price generally paid had a significant impact upon choice behavior. Table 41 shows that the above relationship is significant at the .001 level.

Hypothesis 9

Price level will influence occasion of use judgements.

Since subjects gave significantly higher quality ratings to the higher-priced hose, regardless of the criterion used, it is possible that these higher-priced hose will be perceived to be worn at different occasions than the less-expensive hose. A second indication of such a relationship is that many subjects purchased more than one price line of panty hose (see Table 9). It is likely that these different price lines are worn at different occasions by consumers.

An analysis of Table 42 shows that no significant relationship exists between price level and occasion of use for the total respondents. An analysis of the relationship between price level and occasion of use for Long Beach and Roslyn respondents also was insignificant.

Hypothesis 10

Price level will influence type of retail store in which panty hose is purchased.

This hypothesis is based on the notion that different forms of retailers carry different price lines of panty hose. An analysis of Table 43 reveals that the relationship between price level of panty hose and type of store in which the hose are perceived to be sold is insignificant for total respondents. An analysis of price level and type of store in which hose are perceived to be sold for the Roslyn and Long Beach samples also reveals an insignificant relationship.

Hypothesis 11

Price level will influence the confidence level associated with quality judgement.

From the perspective of risk theory, consumers can use marketer-dominated cues, such as price, as a means of increasing the certainty of a decision. One would expect that the cues would be especially meaningful in an ambiguous situation, such as established in the present experiment. Price provides the subject with some guide or reference for the reduction of risk.

The notion of a higher-priced good being judged with greater confidence than a lower-priced good was substantiated by Leavitt (1954) and Massey (1963). Leavitt (1954) found that a larger percentage of respondents would choose a higher-priced brand when the price differential was large, rather than small. Massey (1963) found that experts placed greater reliance upon marketer-dominated pricing information when the price differential was large and relied more upon their own ability when the differential was small.

While an analysis of Table 44 shows that Long Beach respondents were more prone to be more confident in their judgement of the non-priced alternative, Table 45 reveals that the certainty shift between the three hose samples was not significant. Perhaps the experimental nature of the study made subjects suspect the prices stated on the panty hose samples.

The higher certainty rating given the non-priced hose by Long Beach respondents could also have been an experimental artifact. The respondents were presented with an environment of conflicting cues (two hose samples which appeared to be the same, yet were priced differently). Thus, respondents had to decide whether they had greater confidence in their ability to judge product characteristics or in the price cue. The non-priced alternative could have yielded the greatest confidence level because of the absence of this conflict.

ANALYSIS OF FINDINGS RELATING TO HYPOTHESES

The most important finding relative to this study is the confirmation of the price-quality relationship, given an environment of adult respondents who had a substantial opportunity to examine goods. Not only was the price-quality relationship significant in terms of overall quality ratings, but also in terms of the choice criterion. Thus, even with economic sacrifice, only thirty-eight percent of the subjects chose the \$1.00 hose.

Also noteworthy are significant findings relating to correlates of price-quality. Of the variables studied in this experiment, specific self-confidence appears to have the highest relationship with the price-quality theory. Medium specific self-confidence subjects are more prone to large quality shifts than low or high specific self-confidence subjects. Not only were the quality ratings significantly affected by specific self-confidence, but also was choice behavior. Low specific self-confidence subjects were more prone to accept \$1.00 than \$2.00 hose, highlighting Cox's (1967) hypothesis relative to this group's low or counter-persuasibility. Medium specific self-confidence subjects, on the other hand, were more prone to accept the \$1.00 and \$2.00 combination than the \$1.00 offerings. Lastly, high specific self-confidence subjects were more prone to accept the \$2.00 alternative than the combi-

nation of \$1.00 and \$2.00. It appears, therefore, that a linear relationship exists between the retail price of hose chosen and specific self-confidence.

The relationship of specific self-confidence to perceived risk deserves attention. Low perceived risk indicates high specific self-confidence and high perceived risk indicates low specific self-confidence at the .10 level. However, the literature suggests that respondents of high perceived risk are the most persuasible, while individuals with low specific self-confidence are supposed to be counter-persuasible. An analysis of the interrelationships among price-quality, specific self-confidence and perceived risk shows that the specific self-confidence relationship is significant in terms of quality shifts, while the perceived risk relationship is not. An examination of the mean quality shifts by specific self-confidence and perceived risk confirms this relationship.

This study highlighted the importance of reference price as a variable. Thus, both price ascribed to sample M and choice behavior were significantly related to the price generally purchased. Apparently, price generally purchased serves as an indication to respondents of product value. Given an uncertain environment, respondents use their experience with a given good to reduce the complexity of a decision.

Lastly, while price was found to have a significant effect upon quality judgements, the relationship between price level and store associated with product purchase and occasion of use were both found to be insignificant.

CHAPTER III  
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS  
FOR FUTURE RESEARCH

SUMMARY OF PRICE-QUALITY RESEARCH

Research on the price-quality relationship began with speculation of a relationship and extended to the realization of the existence of price-quality relationships, and finally, to the testing of internal parameters of this relationship.

Price-quality relationships were speculated to occur as early as 1940 in marketing texts. Thus, Converse and Hueghy (1940) stated that "to many buyers, higher prices carry the idea of superior quality. Some people will choose the higher-priced article for the reason that they think that the higher prices signifies a better quality."<sup>1</sup>

Price-quality was subjected to at least fourteen published studies from 1954 to the present. The studies undertaken encompassed several different research methodologies, as well as used a broad range of goods as stimuli.

In general, the body of research conducted on price-quality examined the internal price-quality relationship parameters. Thus, perceived brand difference and price-quality was studied by Leavitt (1954), Tull, Boring and Gonsior (1964) and Lambert (1970). Price differences and price-quality were studied by Leavitt (1954) and Massey (1963). Product information

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<sup>1</sup>Paul D. Converse and Harvey W. Hueghy, The Elements of Marketing (New York: Prentice-Hall, Inc., 1940), p. 702.

and price-quality were studied by Massey (1963) and Smith and Broome (1966). Reference price was studied by Tull, Boring and Gonsior (1964) and Massey (1963). Based upon the above research, the following findings are suggested:

- a) The greater the degree to which subjects perceived brand variation in quality, the greater the degree to which they impute quality to the higher-priced alternative.
- b) As the difference in price between product alternatives increases, the probability of subjects' ascribing higher quality to the higher-priced good increases.
- c) Price cues appear to be relied upon when one has little product information.
- d) Quality imputations are related to one's reference price, as well as to the specific price cue. In effect, one interprets the price cue based upon one's experience.

Research emphasis recently has changed from an analysis of the parameters of the price-quality relationship to cue preference, given more than one cue. Thus, Stafford and Enis (1969) studied the interrelationship among store, price cues and quality inference. Jacoby, Olson and Haddock (1971) and Gardner (1971) studied the influence of price and brand cues on quality judgements. While Stafford and

Enis (1969.) found price to be a stronger cue than store image, Jacoby, Olson and Haddock (1971), as well as Gardner (1971), found that brand and merchandise cues may influence quality judgements more than price. In addition, Roselius (1971) found that brand was perceived to be a more favorable cue than price. Gardner (1971) found, however, that the importance of cues is related to the product studied. While brand name is of primary importance in toothpaste quality appraisals, brand name is next to least in importance in the evaluation of suit quality.

While the research studies cited gave the researcher a solid framework for analysis, they lacked several research refinements which made price-quality research less than definitive. The limitations of the research studies are discussed below:

- a) The use of student-subjects on a strict methodological basis confines the findings to this group, as well as precludes the study of socioeconomic correlates.
- b) Only Massey's (1963) study was conducted on a random basis. Thus, theoretically, only one study could be interpreted as being representative of any group - in this case, college students.

c) While the work of McConnell (1958 a and b) and Smith and Broome (1966) studied the notion of economic sacrifice on price-quality, the economic sacrifice dimension was limited to a few cents loss per product sample. One could argue that the receipt or non-receipt of a few cents per sample is not a large enough dimension to merit careful attention.

The present study was designed to rectify these biases, as well as to test the role of individual differences in price-quality.

While the major contribution of the researcher has been in the area of individual differences in the price-quality relationship, the realization of the importance of this subject area is not unique to the researcher.

Hence, Alpert (1971) notes that it is important to "identify those market segments for which price-quality relationships are strong and develop an appropriate marketing mix to reach them carefully."<sup>2</sup> In a discussion partially based on Shapiro (1968), Alpert (1971) listed three individual differences which he feels are associated with high price-quality shifters:

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<sup>2</sup>Mark I. Alpert, Pricing Decisions (Glenview, Ill.: Scott, Forsman and Co., 1971), p. 126.

- 1) risk awareness
- 2) prestige consciousness
- 3) unwillingness or inability to judge quality by functional product characteristics.<sup>3</sup>

Neither Shapiro (1968) nor Alpert (1971), however, discuss the theoretical framework behind their choice of market segments. The use of self-esteem, specific self-confidence and perceived risk variables by the present researcher is based upon research conducted on persuasibility, brand loyalty studies and search behavior. The fact that no author, except Cox, discussed any of these areas may explain the lack of research on individual differences. The theoretical framework developed for individual difference research is from these areas.

Of the personality variables studied, specific self-confidence appears to have the highest relationship with price-quality, with medium specific self-confidence subjects being most price-quality influence prone.

Secondly, the researcher found a significant relationship between perceived risk and specific self-confidence. While the relationship between specific self-confidence and price-quality is significant (at the .10 level), the relationship between perceived risk and price-quality was insignificant.

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<sup>3</sup>Ibid., p. 129.

Thirdly, the present study confirms the importance of the reference price concept in terms of price ascribed to an unpriced sample and choice behavior. It would appear, therefore, that a low reference price would inhibit quality imputations based on price.

The research findings infer that a higher price may not trade up all consumers. A consumer who typically buys a more-expensive good would appear to be more susceptible to price-quality (and more likely to be misled by a ficticiously high price) than a low reference price consumer, despite her experience with high-priced goods.

CONCLUSIONS

The main findings of this study relate to the substantiation of the price-quality relationship and to the finding of a significant relationship between specific self-confidence and price-quality. These findings have implications for marketers, as well as for consumers.

For marketers, the study suggests that the price-quality relationship is valid for a broad range of subjects. The price-quality relationship was significant in both Roslyn and Long Beach for each of three quality criteria, despite differences in socioeconomic characteristics of both communities, price generally paid for panty hose and the price attributed to the unpriced sample. Apparently, despite these differences, the price treatments used were capable of eliciting similar patterns of behavior from the respondents of both communities.

Noteworthy is that the price-quality relationship was valid, although the notion of economic sacrifice was employed in the choice criterion and subjects had significant opportunity to examine the products. These findings, based upon a random sample of consumers, lend considerable credence to the existence of price-quality. While economic theory suggests that a high price may curtail purchases by a segment of the population, this study suggests that a higher price may increase both choice and quality evaluation.

A second important finding relates to the counter-persuasive nature of price cues to individuals of low specific self-confidence and the persuasiveness of price cues to individuals of moderate specific self-confidence. This finding has important implications for promotional strategy during different stages of the product life cycle. Since the specific self-confidence measure is heavily loaded on an experience factor, one would expect that a large class of consumers would have low specific self-confidence in the introductory stages of a product's life cycle. Therefore, informative promotion would be essential to increase specific self-confidence levels of consumers. The research findings in this study suggest that reliance on promoting product quality cues by marketers in the introductory stage would not have a desirable effect.

The promotional strategy of using cues to suggest quality would seem to be a better strategy in growth and early maturation stages, where more consumers have moderate specific self-confidence. Lastly, one could anticipate that the use of cues would be less effective in late maturity and decline where more consumers have high specific self-confidence.

The importance of the specific self-confidence distribution in determining the nature of promotional effort by marketers supports the need for compiling a specific self-confidence distribution data-bank.

The substantiation of the price-quality relationship imposes ethical responsibilities upon marketers. Apparently, consumers are capable of being deceived by cues. Not only is this finding confirmed by the present study, but also by Makens (1965) on turkey samples, Allison and Uhl (1965) and Printers Ink (1962) on beer samples, Brown (1958) on bread evaluation and Hall (1958) on sherbert. Makens, Allison and Uhl and Printers Ink found brand name to influence quality judgement in situations where the physical product stimulus was identical. Brown found package type to influence consumer's perception of bread freshness and Hall found color to influence sherbert flavor perception.

At least one marketing legal expert has called for the Federal Trade Commission to regulate cues based upon their potential for deception. Cohen (1971) states that when ". . . surrogate indicators have the potential to mislead, they should be subject to the same regulation as false advertisements."<sup>4</sup>

While the Federal Trade Commission has involved itself in the past in cases where trade names are directly misleading - i.e., Lite Diet, Profile, Hi-C, and Proslim - it has recently examined indirect

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<sup>4</sup>Dorothy Cohen, "Behavioral Criterion for Determining Deception in Consumer Advertising," Paper read before the American Marketing Association Conference, Minneapolis, Minnesota, September 1, 1971.

evaluative statements. In a recent case, the Federal Trade Commission challenged the endorsement of toy racing car sets to children by well-known racing car drivers, on the grounds that their background has not given them experience in judging toys.<sup>5</sup> If the Federal Trade Commission can question the expertise of an endorser, as well as his motives, it can question surrogate indicators which do not represent true product characteristics.

Other means of limiting the potential of consumer deception include increased standards and other forms of information which can be provided by government, manufacturer or independent institution. An example of a model of standards is West Germany's DIN (Deutsche Industrie Norm), which is the world's most comprehensive system of standards and specifications. Most German products have DIN numbers specifying both quality and quantity. For example, DIN 4 typewriter paper has a given size, weight and color, regardless of manufacturer, and a DIN 500 high-fidelity system has the same performance characteristics, regardless of manufacturer. Since the standard indicates quality of the goods analyzed, cues would assume less importance in the environment.

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<sup>5</sup>Mattel, Inc. et. al. and Topper Corp., et. al.,  
3 Trade Regulation Reporter (November 1970), No. 19,  
p. 398.

Increased product information sources, such as consumer education programs, independent product testing reports and General Services Administration buying lists, are also important deterrents to deception.

RECOMMENDATIONS FOR FUTURE RESEARCH

The notion of the price-quality relationship being valid on a non-student random sample, despite allowing respondents to examine product alternatives and employing an economic sacrifice restriction, lends a greater degree of generality to the price-quality relationship.

However, future research is necessary with regard to the analysis of individual differences. It would be important to reexamine several facets of the present study.

1. The interrelationship between specific self-confidence and perceived risk deserves further attention, in light of the present evidence. It would appear from the current study that some common components are present in each. A factor analysis may be necessary to separate the independent elements of each variable.
2. The relationship between self-esteem and price-quality. It appears, from the present study, that both the self-esteem measure employed and the environment in which the measure is given has an effect on research findings with regard to self-esteem and persuasibility. An experiment employing each of the two self-esteem measures and the traceable versus non-traceable condition

could determine what impact, if any, these variables have upon price-quality.

3. The effect of price-quality on the disadvantaged is significant. The group of respondents did not include enough disadvantaged to study this variable. However, one could hypothesize that this group would be influenced in their quality judgements, based upon price. The relationship between reference price and choice would suggest, however, that the disadvantaged would be less subject to deception than other groups.
4. The effect of social risk on the price-quality relationship should be studied. The perceived risk appears to be performance-risk based. The other facet of price-quality relates to the snob-appeal motive. It would be interesting to see the relationship between quality considerations and snob-appeal, as well as the interrelationship, if any, between social risk, performance risk and specific self-confidence. Thus, one may impute that the degree to which a good is perceived to be visible and conspicuous will influence quality imputations, based on price because of snob-appeal.

5. The influence of price changes on quality judgements is noteworthy. All of the price-quality studies cited, including the present one, are concerned with price from the perspective of different price levels as cues, or price changes. It would be interesting to determine if similar results would be obtainable on a price-change basis. While Oxenfeldt (1961) notes that a buyer may interpret a price increase to represent an item of such unusually good value that the seller could not make a profit at the old price, no empirical study was conducted in this area.

Other areas relating to price-quality deserve additional research attention, namely:

6. The development and testing of a cue-selection model, given a multiple cue environment. Cues, such as brand and store, typically compete with price in the development of image. Such a model would be extremely important in that it would broaden the horizon of application of price-quality out of the new product planning area into the broad area of pricing in general. Such a model would have to analyze the problem of consistent, as well as inconsistent, cues.

7. The study of the relationship between quality expectation and post-purchase behavior.

This relationship is critical to price-quality since each study examined quality expectation, and not a more final form of quality appraisal. A price-quality study obtaining two quality measurements, an initial measure and a measure after a degree of use, could explore this area.

APPENDIX

TABLE 1

A REVIEW OF PRICE-QUALITY RESEARCH WITH RESPECT TO SAMPLE AND ITEMS STUDIED

| <u>Study</u>                    | <u>Sample</u>  | <u>Items Studied</u>  | <u>Items Studied Where Price-Quality Relationship Was Confirmed</u>          | <u>Form of Price-Quality Relationship</u> |
|---------------------------------|--|---|--|---|
| Leavitt (1954)                  | N=60<br>Air Force Officers and College Students          | Cooking Sherry, Floor Wax, Moth Flakes, Razor Blades  | Floor Wax  | Positive Relationship                     |
| Benson and Peryam (1958)        | N=1500 - 4000<br>Army Enlisted Men                       | Seventeen Meat Dishes   | Seventeen Meat Dishes  | Positive Curvilinear Relationship         |
| Massey (1963)                   | N=50<br>College Students<br>N=10<br>Experienced Salesmen | Men's Shirts  | Men's Shirts (by Student Subsample)  | Positive Curvilinear Relationship         |
| Tull, Boring and Gonsior (1964) | N=110<br>Unspecified Judgement Sample                    | Aspirin, Shampoo, Salt, Floor Wax   | Aspirin, Shampoo, Salt, Floor Wax  | Positive Curvilinear Relationship         |
| Gabor and Granger (1966)        | N=2290<br>Various Social Classes                         | Nylon Stockings, Carpeting, Two Unspecified Food Products, Two Unspecified Household Products | Carpeting, Two Unspecified Food Products, Two Unspecified Household Products | Positive Curvilinear Relationship         |

TABLE 1  
(continued)

| <u>Study</u>                | <u>Sample</u>                    | <u>Items Studied</u>  | <u>Items Studied Where Price-Quality Relationship Was Confirmed</u> | <u>Form of Price-Quality Relationship</u> |
|-----------------------------|----------------------------------|---|---|---|
| McConnell<br>(1968 a & b)   | N=60<br>Married College Students | Beer  | Beer  | Positive Curvilinear Relationship         |
| Smith and Broome<br>(1966)  | N=186<br>Wives of Students       | Known and Unknown Brands of: Green Peas, Coffee, Toothpaste, Aspirin  | Unknown Brands of: Green Peas, Coffee, Toothpaste, Aspirin          | (a)                                       |
| Stafford and Enis<br>(1969) | N=178<br>College Students        | Carpeting   | Carpeting   | Positive Relationship                     |
| Gardner<br>(1970)           | N=60<br>College Students         | Toothpaste, Shirt, Men's Suit   | Toothpaste, Shirt   | Positive Curvilinear Relationship         |
| Lambert<br>(1970)           | N=172<br>College Students        | Portable Tape Recorders, Instant Coffee, Portable Stereo, Luggage, Tennis Rackets, Toothpaste, Sun Tan Lotion | Portable Stereo, Tennis Rackets                                     | Positive Curvilinear Relationship         |

<sup>a</sup> not enough information given in experiment

TABLE 1  
(continued)

| <u>Study</u>                     | <u>Sample</u>             | <u>Items Studied</u>   | <u>Items Studied Where Price-Quality Relationship Was Confirmed</u>  | <u>Form of Price-Quality Relationship</u> |
|----------------------------------|---------------------------|--|--|---|
| Gardner (1971)                   | N=360<br>College Students | Toothpaste, Shirt, Men's Suit  | Suit   | Positive Curvilinear Relationship         |
| Jacoby, Olson and Haddock (1971) | N=136<br>College Students | Beer   | Beer. However, price was found to serve as an indicant of product quality only when it was the only cue available. | Positive Curvilinear Relationship         |
| Valenzi and Andrews (1971)       | N=77<br>College Students  | Margarine, Butter  | Margarine (except in case in which it was identified as low-priced as compared to medium-priced), Butter           | Positive Linear Relationship              |
| Shapiro (in Nadel 1972)          | N=600<br>Consumers        | Stockings, Sweaters, Carpeting, Perfume, Upholstered Reclining Chair | Stockings, Sweaters, Carpeting, Perfume, Upholstered Reclining Chair   | (a)                                       |

<sup>a</sup> not enough information given in experiment

TABLE 2

SAMPLE USED IN STUDY

| <u>Census Tract</u>                         |                  | <u>Universe<br/>Size</u> | <u>Census Tract Size<br/>As Percent of Total<br/>Universe Size</u> | <u>Sample Size<br/>to Be Drawn</u> |
|---|------------------|--------------------------|--|------------------------------------|
| Atlantic Beach                              | 4163             | <u>41</u>                | <u>5.3%</u>  | <u>12</u>                          |
|   | <u>Sub-Total</u> | <u>41</u>                | <u>5.3%</u>  | <u>12</u>                          |
| Long Beach                                  | 4164             | 40                       | 5.2  | 12                                 |
|   | 4165             | 60                       | 7.8  | 18                                 |
|   | 4166             | 44                       | 5.8  | 13                                 |
|   | 4167             | 90                       | 11.8   | 27                                 |
| Long Beach,<br>Lido Beach,<br>Point Lookout | 4168             | <u>135</u>               | <u>17.5</u>  | <u>39</u>                          |
|   | <u>Sub-Total</u> | <u>369</u>               | <u>48.1%</u>   | <u>109</u>                         |
| Roslyn Harbor,<br>Roslyn,<br>Roslyn Estates | 3020             | 83                       | 10.8   | 24                                 |
| East Hills                                  | 3021.01          | 136                      | 17.8   | 40                                 |
|   | 3021.02          | 41                       | 5.4  | 12                                 |
| Roslyn<br>Heights                           | 3022             | <u>95</u>                | <u>12.4</u>  | <u>28</u>                          |
|   | <u>Sub-Total</u> | <u>355</u>               | <u>46.4%</u>   | <u>104</u>                         |
| Total Universe Size                         |                  | <u>765</u>               | <u>100.0%*</u>   | <u>225</u>                         |

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\* Total may not be equal to 100%, due to rounding.

TABLE 3

CONSTRUCTION OF THE PERCEIVED RISK SCALE

| <u>PERCEIVED RISK MATRIX</u> |        |                                    |                                 |               |
|------------------------------|--------|------------------------------------|---------------------------------|---------------|
| <u>CERTAINTY SCALE</u>       |        | <u>CONSEQUENCES SCALE (Danger)</u> |                                 |               |
|                              | Weight | A Great Deal of Danger (1)         | Some/Not Very Much Danger (2.5) | No Danger (4) |
| Very Certain                 | (4)    | 4                                  | 10                              | 16            |
| Usually/Sometimes            | (2.5)  | 2.5                                | 6.25                            | 10            |
| Almost Never Certain         | (1)    | 1                                  | 2.5                             | 4             |

| <u>PERCEIVED RISK SCALE DERIVED FROM MATRIX</u> |                   |               |                     |
|---|-------------------|---------------|---------------------|
|   | <u>CERTAINTY</u>  | <u>DANGER</u> | <u>MATRIX VALUE</u> |
| High Perceived Risk:                            | Almost never      | A great deal  | (1)                 |
|   | Almost never      | Some/not much | (2.5)               |
|   | Usually/sometimes | A great deal  | (2.5)               |
| Medium Perceived Risk:                          | Very              | A great deal  | (4)                 |
|   | Almost never      | No danger     | (4)                 |
|   | Usually/sometimes | Some/not much | (6.25)              |
| Low Perceived Risk:                             | Very              | Some/not much | (10)                |
|   | Usually/sometimes | No danger     | (10)                |
|   | Very              | No danger     | (16)                |

Source: Scott M. Cunningham. "The Major Dimensions of Perceived Risk," Donald F. Cox, ed. Risk Taking and Information Handling in Consumer Behavior (Boston, Mass.: Harvard University, 1967), p. 85.

TABLE 4

AN ANALYSIS OF QUALITY RATING SCALES  
RELATING POINTS IN SCALE TO GOODS TESTED

| <u>Study</u>                                  | <u>Point Scale</u> | <u>Items Studied</u>   |
|---|--------------------|--|
| Benson and Peryam<br>(1958)                   | 9-pt. scale        | prepared meat dishes   |
| Allison and Uhl<br>(1964)                     | 10-pt. scale       | beer   |
| Cardozo<br>(1965)                             | 100-pt. scale      | pens   |
| Makens<br>(1965)                              | 5-pt. scale        | turkey   |
| Anderson,<br>Taylor and<br>Holloway<br>(1966) | 8-pt. scale        | tennis net, lady's pen, percolator, car floor mat, golf balls, pin and earrings, toaster, spotlight, lantern, lady's watch, broiler, wax and polish kit, fishing pole, pearl necklace, portable heater, seat belts |
| McConnell<br>(1966 a and b)                   | 5-pt. scale        | beer   |
| Gerard<br>(1967)                              | 8-pt. scale        | paintings  |

TABLE 4  
(continued)

| Study                                  | Point Scale   | Items Studied  |
|--|---------------|--|
| Stafford and Enis<br>(1967)            | 5-pt. scale   | carpeting  |
| Andrews and Valezi<br>(1970)           | 9-pt. scale   | margarine and<br>butter  |
| Gardner<br>(1970)                      | 7-pt. scale   | toothpaste,<br>shirt, suit   |
| Gardner<br>(1971)                      | 7-pt. scale   | toothpaste,<br>shirt, suit   |
| Lambert<br>(1970)                      | 5-pt. scale   | portable tape<br>recorders, instant<br>coffee, portable<br>stereos, luggage,<br>tennis rackets,<br>toothpaste, sun<br>tan lotion |
| Jacoby, Olson<br>and Haddock<br>(1971) | 100-pt. scale | beer   |
| Enis, Cox and<br>Stafford<br>(1972)    | 5-pt. scale   | glassware  |
| Olshavsky and<br>Miller<br>(1972)      | 8-pt. scale   | tape recorder  |

TABLE 5

SAMPLE RESPONSE RATE BY CENSUS TRACT

|                                    | <u>col (1)</u>          | <u>col (2)</u>                   | <u>col (3) =</u>    | <u>col (1) - col (2)</u> | <u>col (4)</u>                    | <u>col (5) =</u>     | <u>col(4)</u><br><u>col(3)</u> |
|------------------------------------|-------------------------|----------------------------------|---------------------|--------------------------|-----------------------------------|----------------------|--------------------------------|
| <u>Census Tract</u>                | <u>Initial Mail Out</u> | <u>Moved - No Such Addressee</u> | <u>Net Received</u> |                          | <u>Favorable Replies Received</u> | <u>Response Rate</u> |                                |
| <b>Roslyn</b>                      |                         |                                  |                     |                          |                                   |                      |                                |
| 3020                               | 24                      | 2                                | 22                  |                          | 10                                | 45%                  |                                |
| 3021.01                            | 40                      | 1                                | 39                  |                          | 17                                | 44                   |                                |
| 3021.02                            | 12                      | 3                                | 9                   |                          | 3                                 | 33                   |                                |
| 3022                               | <u>28</u>               | <u>4</u>                         | <u>24</u>           |                          | <u>8</u>                          | <u>34</u>            |                                |
| <b>Total Roslyn</b>                | 104                     | 10                               | 94                  |                          | 38                                | 40%                  |                                |
| <b>Long Beach</b>                  |                         |                                  |                     |                          |                                   |                      |                                |
| 4163                               | 12                      | 0                                | 12                  |                          | 2                                 | 17%                  |                                |
| 4164                               | 12                      | 0                                | 12                  |                          | 1                                 | 8                    |                                |
| 4165                               | 18                      | 1                                | 17                  |                          | 8                                 | 47                   |                                |
| 4166                               | 13                      | 0                                | 13                  |                          | 8                                 | 61                   |                                |
| 4167                               | 27                      | 0                                | 27                  |                          | 12                                | 44                   |                                |
| 4168                               | <u>39</u>               | <u>0</u>                         | <u>39</u>           |                          | <u>19</u>                         | <u>50</u>            |                                |
| <b>Total Long Beach</b>            | 121                     | 1                                | 120                 |                          | 50                                | 42%                  |                                |
| <b>Total (Roslyn + Long Beach)</b> | 225                     | 11                               | 214                 |                          | 88                                | 41%                  |                                |

TABLE 6

CHI-SQUARE ANALYSIS OF RELATIONSHIP  
BETWEEN SPECIFIC SELF-CONFIDENCE AND MEDIAN HOME VALUE  
Observed and Expected Frequencies

| <u>Median Home Value</u> | <u>Specific Self-Confidence</u> |             |               |             |             |             | <u>Total</u> | <u>Percent</u> |
|--------------------------|---------------------------------|-------------|---------------|-------------|-------------|-------------|--------------|----------------|
|                          | <u>Low</u>                      |             | <u>Medium</u> |             | <u>High</u> |             |              |                |
|                          | fo                              | (fe)        | fo            | (fe)        | fo          | (fe)        |              |                |
| Low                      | 13                              | (11)        | 11            | (16)        | 14          | (11)        | 38           | 44%            |
| Medium                   | 4                               | ( 5)        | 11            | ( 7)        | 3           | ( 6)        | 18           | 21             |
| High                     | <u>7</u>                        | <u>( 8)</u> | <u>14</u>     | <u>(13)</u> | <u>9</u>    | <u>( 9)</u> | <u>30</u>    | <u>35</u>      |
| Total                    | 24                              | (24)        | 36            | (36)        | 26          | (26)        | 86           | 100%           |

Calculated chi-square value = 6.92

Degrees of freedom = 4

Significant at .15

TABLE 7

CHI-SQUARE ANALYSIS OF RELATIONSHIP  
BETWEEN PERCEIVED RISK AND SPECIFIC SELF-CONFIDENCE  
Observed and Expected Frequencies

| <u>Specific<br/>Self-Confidence</u> | <u>Perceived Risk</u>          |                                   |                                 | <u>Total</u> | <u>Percent</u> |
|-------------------------------------|--------------------------------|-----------------------------------|---------------------------------|--------------|----------------|
|                                     | <u>Low</u><br>10-16<br>fo (fe) | <u>Medium</u><br>4-6.5<br>fo (fe) | <u>High</u><br>1-2.5<br>fo (fe) |              |                |
| Low (<12)                           | 4 (8)                          | 11 (11)                           | 9 (5)                           | 24           | 28%            |
| Medium<br>(between 12 and 15)       | 11 (12)                        | 19 (16)                           | 6 (7)                           | 36           | 42             |
| High (>15)                          | <u>14 (9)</u>                  | <u>9 (12)</u>                     | <u>2 (5)</u>                    | <u>25</u>    | <u>30</u>      |
| Total                               | 29 (29)                        | 39 (39)                           | 17 (17)                         | 85           | 100%           |

Calculated chi-square value = 8.31

Degrees of freedom = 4

Significant at .10

TABLE 8

CHI-SQUARE ANALYSIS OF RELATIONSHIP  
BETWEEN PERCEIVED RISK AND EDUCATION  
Observed and Expected Frequencies

| <u>Education</u> | <u>Perceived Risk</u> |             |               |             |             |             |              |                |
|------------------|-----------------------|-------------|---------------|-------------|-------------|-------------|--------------|----------------|
|                  | <u>Low</u>            |             | <u>Medium</u> |             | <u>High</u> |             | <u>Total</u> | <u>Percent</u> |
|                  | 10-16<br>fo           | (fe)        | 4-6.5<br>fo   | (fe)        | 1.25<br>fo  | (fe)        |              |                |
| High School      | 16                    | (12)        | 15            | (16)        | 5           | ( 7)        | 36           | 42%            |
| College          | 9                     | (11)        | 18            | (15)        | 6           | ( 7)        | 33           | 39             |
| Graduate School  | <u>4</u>              | <u>( 6)</u> | <u>6</u>      | <u>( 8)</u> | <u>6</u>    | <u>( 3)</u> | <u>16</u>    | <u>19</u>      |
| Total            | 29                    | (29)        | 39            | (39)        | 17          | (17)        | 85           | 100%           |

Calculated chi-square value = 7.23

Degrees of freedom = 4

Significant at .15

TABLE 9

PRICE GENERALLY PAID FOR PANTY HOSE BY PLACE OF RESIDENCE<sup>(a)</sup>

| <u>Price<br/>Generally Paid</u> | <u>Roslyn<br/>frequency</u> | <u>%</u>            | <u>Long Beach<br/>frequency</u> | <u>%</u>            | <u>Total<br/>frequency</u> | <u>%</u>             |
|---------------------------------|-----------------------------|---------------------|---------------------------------|---------------------|----------------------------|----------------------|
| \$ .79                          | 2                           | .035                | 8                               | .104                | 10                         | .075                 |
| \$ .79 - \$1.00                 | 7                           | .124                | 19                              | .245                | 26                         | .196                 |
| \$1.01 - \$1.50                 | 9                           | .160                | 12                              | .156                | 21                         | .158                 |
| \$1.51 - \$2.00                 | 14                          | .250                | 21                              | .273                | 35                         | .263                 |
| \$2.01 - \$2.50                 | 9                           | .160                | 6                               | .078                | 15                         | .113                 |
| \$2.51 - \$3.00                 | 8                           | .142                | 7                               | .091                | 15                         | .113                 |
| \$3.01 - \$3.50                 | 4                           | .071                | 3                               | .039                | 7                          | .055                 |
| > \$3.51                        | <u>3</u>                    | <u>.053</u>         | <u>1</u>                        | <u>.013</u>         | <u>4</u>                   | <u>.030</u>          |
| Total                           | 56                          | .995 <sup>(b)</sup> | 77                              | .999 <sup>(b)</sup> | 133                        | 100.3 <sup>(b)</sup> |

119

(a) Includes multiple responses

(b) Totals do not equal 100%, due to rounding errors

TABLE 10

RELATIONSHIP BETWEEN PRICE GENERALLY PAID  
FOR PANTY HOSE AND MEDIAN HOME VALUE  
Observed and Expected Frequencies

| <u>Median<br/>Home Value</u> | <u>Price Generally Paid</u> |             |                |             |                       |             | <u>Total</u> | <u>Percent</u> |
|------------------------------|-----------------------------|-------------|----------------|-------------|-----------------------|-------------|--------------|----------------|
|                              | <u>\$1.00 or less</u>       |             | <u>Between</u> |             | <u>\$2.00 or more</u> |             |              |                |
|                              | <u>fo</u>                   | <u>(fe)</u> | <u>fo</u>      | <u>(fe)</u> | <u>fo</u>             | <u>(fe)</u> |              |                |
| Low                          | 20                          | (17)        | 29             | (26)        | 13                    | (19)        | 62           | 46%            |
| Medium                       | 9                           | ( 7)        | 11             | (11)        | 6                     | ( 8)        | 27           | 20             |
| High                         | <u>7</u>                    | <u>(13)</u> | <u>16</u>      | <u>(19)</u> | <u>22</u>             | <u>(14)</u> | <u>45</u>    | <u>34</u>      |
| Total                        | 37                          | (37)        | 56             | (56)        | 41                    | (41)        | 134          | 100%           |

Calculated chi-square value = 12.93

Degrees of freedom = 4

Significant at .005 level

TABLE 11

RELATIONSHIP BETWEEN PRICE GENERALLY PAID  
FOR PANTY HOSE AND PLACE OF RESIDENCE  
Observed and Expected Frequencies

| <u>Place of Residence</u> | <u>Price Generally Paid</u> |             |                |             |                       |             | <u>Total</u> | <u>Percent</u> |
|---------------------------|-----------------------------|-------------|----------------|-------------|-----------------------|-------------|--------------|----------------|
|                           | <u>\$1.00 or less</u>       |             | <u>Between</u> |             | <u>\$2.00 or more</u> |             |              |                |
|                           | <u>fo</u>                   | <u>(fe)</u> | <u>fo</u>      | <u>(fe)</u> | <u>fo</u>             | <u>(fe)</u> |              |                |
| Roslyn                    | 10                          | (16)        | 23             | (24)        | 24                    | (18)        | 57           | 43%            |
| Long Beach                | <u>27</u>                   | <u>(21)</u> | <u>33</u>      | <u>(32)</u> | <u>17</u>             | <u>(23)</u> | <u>77</u>    | <u>57</u>      |
| Total                     | 37                          | (37)        | 56             | (56)        | 41                    | (41)        | 134          | 100%           |

Calculated chi-square value = 7.61

Degrees of freedom = 2

Significant at .025 level

TABLE 12

RELATIONSHIP BETWEEN PRICE ASCRIBED TO UNPRICED PANTY HOSE  
SAMPLE "M" AND PLACE OF RESIDENCE  
Observed and Expected Frequencies

| <u>Place of Residence</u> | <u>Price Interval Ascribed</u> |             |                                    |             |                       |             | <u>Total</u> | <u>Percent</u> |
|---------------------------|--------------------------------|-------------|------------------------------------|-------------|-----------------------|-------------|--------------|----------------|
|                           | <u>\$1.00 or less</u>          |             | <u>Between \$1.01 &amp; \$1.50</u> |             | <u>\$1.51 or more</u> |             |              |                |
|                           | <u>fo</u>                      | <u>(fe)</u> | <u>fo</u>                          | <u>(fe)</u> | <u>fo</u>             | <u>(fe)</u> |              |                |
| Roslyn                    | 12                             | (13)        | 5                                  | ( 8)        | 19                    | (14)        | 36           | 43%            |
| Long Beach                | <u>19</u>                      | <u>(18)</u> | <u>14</u>                          | <u>(11)</u> | <u>14</u>             | <u>(19)</u> | <u>47</u>    | <u>57</u>      |
| Total                     | 31                             | (31)        | 19                                 | (19)        | 33                    | (33)        | 83           | 100%           |

Calculated chi-square value = 5.50

Degrees of freedom = 2

Significant at .10 level

TABLE 13

RELATIONSHIP BETWEEN PRICE ASCRIBED TO UNPRICED PANTY HOSE

SAMPLE "M" AND PRICE GENERALLY PAID FOR PANTY HOSE

Observed and Expected Frequencies

| <u>Price Ascribed<br/>to "M"</u> | <u>Price Generally Paid</u> |             |                |             |                       |             | <u>Total</u> | <u>Percent</u> |
|----------------------------------|-----------------------------|-------------|----------------|-------------|-----------------------|-------------|--------------|----------------|
|                                  | <u>\$1.00 or less</u>       |             | <u>Between</u> |             | <u>\$2.00 or more</u> |             |              |                |
|                                  | <u>fo</u>                   | <u>(fe)</u> | <u>fo</u>      | <u>(fe)</u> | <u>fo</u>             | <u>(fe)</u> |              |                |
| \$1.00 or less                   | 19                          | (13)        | 16             | (20)        | 14                    | (15)        | 49           | 38%            |
| Between \$1.01<br>and \$1.50     | 7                           | (9)         | 20             | (14)        | 7                     | (11)        | 34           | 26             |
| \$1.51 or more                   | <u>9</u>                    | <u>(13)</u> | <u>17</u>      | <u>(19)</u> | <u>20</u>             | <u>(15)</u> | <u>46</u>    | <u>36</u>      |
| Total                            | 35                          | (35)        | 53             | (53)        | 41                    | (41)        | 129          | 100%           |

Calculated chi-square value = 11.22

Degrees of freedom = 4

Significant at .025 level

TABLE 14

MEAN QUALITY RATINGS OF PANTY HOSE SAMPLES  
BY PLACE OF RESIDENCE

| <u>Place of Residence</u> | <u>Sample Size</u> | <u>Mean Rating</u>          |                             |                               |
|---------------------------|--------------------|-----------------------------|-----------------------------|-------------------------------|
|                           |                    | <u>R</u><br><u>(\$1.00)</u> | <u>N</u><br><u>(\$2.00)</u> | <u>M</u><br><u>(no price)</u> |
| Long Beach                | 50                 | 5.58                        | 6.68                        | 6.02                          |
| Roslyn                    | 37                 | 5.14                        | 5.64                        | 4.89                          |
| Total Respondents         | 87                 | 5.39                        | 6.24                        | 5.54                          |

TABLE 15

ANALYSIS OF VARIANCE FOR PRICE-QUALITY RELATIONSHIP  
(PANTY HOSE SAMPLES R, N AND M)  
Total Respondents      n = 87

| <u>Source of Variation</u> | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> |
|----------------------------|-----------------------|---------------------------|--------------------|
| Between means              | 35.888                | 2                         | 17.944             |
| Within treatments          | 683.449               | 172                       | 3.974              |

F ratio =  $\frac{17.944}{3.974} = 4.52$ ,  $n_1 = 2$ ,  $n_2 = 172$

Significant at .05 level

TABLE 16

ANALYSIS OF VARIANCE FOR PRICE-QUALITY RELATIONSHIP  
(PANTY HOSE SAMPLES R, N AND M)  
Roslyn Respondents                      n = 37

| <u>Source of Variation</u> | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> |
|----------------------------|-----------------------|---------------------------|--------------------|
| Between means              | 11.044                | 2                         | 5.522              |
| Within treatments          | 180.289               | 72                        | 2.504              |

F ratio =  $\frac{5.522}{2.504} = 2.21$ ,  $n_1 = 2$ ,  $n_2 = 72$

Significant at .15 level

TABLE 17

ANALYSIS OF VARIANCE FOR PRICE-QUALITY RELATIONSHIP  
(PANTY HOSE SAMPLES R, N AND M)  
Long Beach Respondents      n = 50

| <u>Source of Variation</u> | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> |
|----------------------------|-----------------------|---------------------------|--------------------|
| Between means              | 30.656                | 2                         | 15.328             |
| Within treatments          | 497.348               | 98                        | 5.075              |

F ratio =  $\frac{15.328}{5.075} = 3.02, n_1 = 2, n_2 = 98$

Significant at .10 level

TABLE 18

R, N, M QUALITY ATTRIBUTE SHIFT  
ONE-WAY ANALYSIS OF VARIANCE  
Roslyn, Long Beach, Total

|                      | <u>Between mean<br/>square</u> | <u>Within treatment<br/>mean square</u> | <u>df between/<br/>df within</u> | <u>F<br/>ratio</u> |
|----------------------|--------------------------------|---|----------------------------------|--------------------|
| <u>Dependability</u> |                                |   |                                  |                    |
| Roslyn               | 5.719                          | 1.697                                   | 2/62                             | 3.34 <sup>c</sup>  |
| Long Beach           | 9.073                          | 4.458                                   | 2/90                             | 2.04               |
| Total                | 14.442                         | 3.293                                   | 2/154                            | 4.39 <sup>b</sup>  |
| <u>Durability</u>    |                                |   |                                  |                    |
| Roslyn               | 12.952                         | 2.113                                   | 2/66                             | 6.13 <sup>a</sup>  |
| Long Beach           | 3.717                          | 3.791                                   | 2/90                             | 1.24               |
| Total                | 15.888                         | 3.065                                   | 2/158                            | 5.18 <sup>a</sup>  |
| <u>Feel</u>          |                                |   |                                  |                    |
| Roslyn               | 7.166                          | 3.545                                   | 2/74                             | 2.02               |
| Long Beach           | .979                           | 5.528                                   | 2/96                             | .18                |
| Total                | 1.391                          | 4.689                                   | 2/172                            | .30                |

<sup>a</sup> significant at .01 level

<sup>b</sup> significant at .025 level

<sup>c</sup> significant at .05 level

<sup>d</sup> significant at .10 level

TABLE 18  
(continued)

|                       | <u>Between mean square</u> | <u>Within treatment mean square</u> | <u>df between/df within</u> | <u>F ratio</u>    |
|-----------------------|----------------------------|-------------------------------------|-----------------------------|-------------------|
| <u>Color</u>          |                            |                                     |                             |                   |
| Roslyn                | .983                       | 3.307                               | 2/74                        | .30               |
| Long Beach            | 1.194                      | 4.218                               | 2/96                        | .28               |
| Total                 | 2.103                      | 3.778                               | 2/172                       | .56               |
| <u>Sheerness</u>      |                            |                                     |                             |                   |
| Roslyn                | 6.985                      | 3.469                               | 2/74                        | 2.01              |
| Long Beach            | 1.901                      | 5.495                               | 2/96                        | .35               |
| Total                 | 6.032                      | 4.593                               | 2/172                       | 1.31              |
| <u>Versatility</u>    |                            |                                     |                             |                   |
| Roslyn                | 9.633                      | 3.649                               | 2/72                        | 2.64 <sup>d</sup> |
| Long Beach            | 5.987                      | 3.232                               | 2/92                        | 1.85              |
| Total                 | 6.545                      | 3.484                               | 2/166                       | 1.88              |
| <u>Attractiveness</u> |                            |                                     |                             |                   |
| Roslyn                | 2.693                      | 4.657                               | 2/74                        | .58               |
| Long Beach            | 7.755                      | 4.105                               | 2/94                        | 4.11 <sup>b</sup> |
| Total                 | 4.100                      | 4.371                               | 2/170                       | .94               |

<sup>a</sup> significant at .01 level

<sup>b</sup> significant at .025 level

<sup>c</sup> significant at .05 level

<sup>d</sup> significant at .10 level

TABLE 18  
(continued)

|            | <u>Between mean square</u> | <u>Within treatment mean square</u> | <u>df between/df within</u> | <u>F ratio</u>    |
|------------|----------------------------|-------------------------------------|-----------------------------|-------------------|
| <u>Fit</u> |                            |                                     |                             |                   |
| Roslyn     | 12.646                     | 1.938                               | 2/64                        | 6.53 <sup>a</sup> |
| Long Beach | 2.429                      | 3.863                               | 2/84                        | .63               |
| Total      | 12.120                     | 3.030                               | 2/150                       | 4.00 <sup>b</sup> |

<sup>a</sup> significant at .01 level

<sup>b</sup> significant at .025 level

<sup>c</sup> significant at .05 level

<sup>d</sup> significant at .10 level

TABLE 19

R, N, M QUALITY ATTRIBUTE MEANS  
ROSLYN, LONG BEACH, TOTAL RESPONDENTS  
QUALITY COMPONENT MEANS

|                      | <u>R</u><br><u>(\$1.00</u><br><u>priced</u><br><u>sample)</u> | <u>N</u><br><u>(\$2.00</u><br><u>priced</u><br><u>sample)</u> | <u>M</u><br><u>(non-</u><br><u>priced</u><br><u>sample)</u> |
|----------------------|---|---|---|
| <u>Dependability</u> |   |   |   |
| Roslyn               | 5.531   | 6.375   | 6.000   |
| Long Beach           | 5.870   | 6.696   | 6.565   |
| Total                | 5.731   | 6.565   | 6.333   |
| <u>Durability</u>    |   |   |   |
| Roslyn               | 5.382   | 6.559   | 6.294   |
| Long Beach           | 6.174   | 6.804   | 6.587   |
| Total                | 5.837   | 6.700   | 6.462   |
| <u>Feel</u>          |   |   |   |
| Roslyn               | 4.474   | 5.342   | 4.895   |
| Long Beach           | 6.388   | 6.143   | 6.388   |
| Total                | 5.552   | 5.793   | 5.736   |
| <u>Color</u>         |   |   |   |
| Roslyn               | 6.579   | 6.689   | 6.474   |
| Long Beach           | 6.265   | 6.367   | 6.061   |
| Total                | 6.402   | 6.552   | 6.241   |
| <u>Sheerness</u>     |   |   |   |
| Roslyn               | 5.237   | 5.921   | 5.132   |
| Long Beach           | 6.061   | 6.429   | 6.367   |
| Total                | 5.701   | 6.207   | 5.828   |
| <u>Versatility</u>   |   |   |   |
| Roslyn               | 5.514   | 6.514   | 5.838   |
| Long Beach           | 6.404   | 6.447   | 7.043   |
| Total                | 6.012   | 6.476   | 6.512   |

TABLE 19  
(continued)

|                       | <u>R</u><br><u>(\$1.00</u><br><u>priced</u><br><u>sample)</u> | <u>N</u><br><u>(\$2.00</u><br><u>priced</u><br><u>sample)</u> | <u>M</u><br><u>(non-</u><br><u>priced</u><br><u>sample)</u> |
|-----------------------|---|---|---|
| <u>Attractiveness</u> |   |   |   |
| Roslyn                | 5.421   | 5.447   | 4.974   |
| Long Beach            | 6.042   | 6.792   | 6.667   |
| Total                 | 5.767   | 6.198   | 5.919   |
| <u>Fit</u>            |   |   |   |
| Roslyn                | 4.394   | 5.364   | 5.545   |
| Long Beach            | 5.860   | 6.302   | 6.233   |
| Total                 | 5.224   | 5.894   | 5.934   |

TABLE 20

CHOICE OF PANTY HOSE SAMPLES BY AREA

ROSLYN vs. LONG BEACH

Observed and Expected Frequencies

| <u>Choice</u>                   | <u>Roslyn</u> |             | <u>Long Beach</u> |             | <u>Total</u> | <u>Percent</u> |
|---------------------------------|---------------|-------------|-------------------|-------------|--------------|----------------|
|                                 | fo            | (fe)        | fo                | (fe)        |              |                |
| \$1.00 Panty Hose               | 10            | (15)        | 24                | (19)        | 34           | 38%            |
| \$2.00 Panty Hose               | 17            | (12)        | 11                | (16)        | 28           | 32             |
| \$1.00 and \$2.00<br>Panty Hose | <u>11</u>     | <u>(11)</u> | <u>15</u>         | <u>(15)</u> | <u>26</u>    | <u>30</u>      |
| Total                           | 38            | (38)        | 50                | (50)        | 88           | 100%           |

Calculated chi-square value = 6.62

Degrees of freedom = 2

Significant at .05 level

TABLE 21

RELATIONSHIP BETWEEN CHOICE OF PANTY HOSE  
AND PRICE GENERALLY PURCHASED<sup>(a)</sup>

| <u>Price Generally Purchased</u> | <u>Choice Behavior</u>   |                          |   |              |                |  |
|----------------------------------|--------------------------|--------------------------|---|--------------|----------------|--|
|                                  | <u>\$1.00</u><br>fo (fe) | <u>\$2.00</u><br>fo (fe) | <u>\$1.00 and</u><br><u>\$2.00</u><br>fo (fe) | <u>Total</u> | <u>Percent</u> |  |
| \$1.00 or less                   | 23 (13)                  | 5 (13)                   | 9 (10)  | 37           | 27%            |  |
| Between \$1.01<br>and \$2.00     | 17 (21)                  | 20 (19)                  | 19 (16)                                       | 56           | 42             |  |
| \$2.01 or more                   | <u>10 (16)</u>           | <u>21 (14)</u>           | <u>10 (12)</u>                                | <u>41</u>    | <u>31</u>      |  |
| Total                            | 50 (50)                  | 46 (46)                  | 38 (38)                                       | 134          | 100%           |  |

(a) Total is greater than 87 because of multiple responses; i.e, individuals generally buying more than one price line of panty hose.

Calculated chi-square value = 21.21

Degrees of freedom = 4

Significant at .001 level

TABLE 22

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
SPECIFIC SELF-CONFIDENCE CLASSIFICATIONS  
N-R SHIFT

|                    |                                 | <u>Mean Quality Shift</u> |
|--------------------|---------------------------------|---------------------------|
| Low Self-Esteem    | Low Specific Self-Confidence    | -.80                      |
| Low Self-Esteem    | Medium Specific Self-Confidence | .57                       |
| Low Self-Esteem    | High Specific Self-Confidence   | (a)                       |
| Medium Self-Esteem | Low Specific Self-Confidence    | .17                       |
| Medium Self-Esteem | Medium Specific Self-Confidence | 2.41                      |
| Medium Self-Esteem | High Specific Self-Confidence   | .65                       |
| High Self-Esteem   | Low Specific Self-Confidence    | .17                       |
| High Self-Esteem   | Medium Specific Self-Confidence | 2.50                      |
| High Self-Esteem   | High Specific Self-Confidence   | .63                       |

(a) Sample size too small to make mean shifts meaningful

TABLE 23

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
SPECIFIC SELF-CONFIDENCE CLASSIFICATIONS  
M-R SHIFT

|                    |                                 | <u>Mean Quality Shift</u> |
|--------------------|---------------------------------|---------------------------|
| Low Self-Esteem    | Low Specific Self-Confidence    | 1.00                      |
| Low Self-Esteem    | Medium Specific Self-Confidence | .88                       |
| Low Self-Esteem    | High Specific Self-Confidence   | 0 <sup>(a)</sup>          |
| Medium Self-Esteem | Low Specific Self-Confidence    | .55                       |
| Medium Self-Esteem | Medium Specific Self-Confidence | .83                       |
| Medium Self-Esteem | High Specific Self-Confidence   | .76                       |
| High Self-Esteem   | Low Specific Self-Confidence    | 0                         |
| High Self-Esteem   | Medium Specific Self-Confidence | 2.00                      |
| High Self-Esteem   | High Specific Self-Confidence   | .56                       |

(a) Sample size too small to make mean shifts meaningful

TABLE 24

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
SPECIFIC SELF-CONFIDENCE CLASSIFICATIONS  
N-M- SHIFT

|                    |                                 | <u>Mean Quality Shift</u> |
|--------------------|---------------------------------|---------------------------|
| Low Self-Esteem    | Low Specific Self-Confidence    | 1.                        |
| Low Self-Esteem    | Medium Specific Self-Confidence | .875                      |
| Low Self-Esteem    | High Specific Self-Confidence   | 0 <sup>(a)</sup>          |
| Medium Self-Esteem | Low Specific Self-Confidence    | .55                       |
| Medium Self-Esteem | Medium Specific Self-Confidence | .83                       |
| Medium Self-Esteem | High Specific Self-Confidence   | .76                       |
| High Self-Esteem   | Low Specific Self-Confidence    | 0                         |
| High Self-Esteem   | Medium Specific Self-Confidence | 2.                        |
| High Self-Esteem   | High Specific Self-Confidence   | .56                       |

(a) Sample size too small to make mean shifts meaningful

TABLE 25

N-R SHIFTANALYSIS OF VARIANCE TABLEN-R SHIFT BY SELF-ESTEEM AND SPECIFIC SELF-CONFIDENCE LEVEL

| <u>Source</u>               | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Squares</u> | <u>F Ratio</u>       |
|-----------------------------|-----------------------|---------------------------|---------------------|----------------------|
| Self-Esteem                 | 13.254                | 2.0                       | 6.627               | .909                 |
| Specific<br>Self-Confidence | 30.595                | 2.0                       | 15.298              | 2.097 <sup>(a)</sup> |
| Interaction                 | 2.752                 | 4.0                       | .688                | .094                 |
| Error                       | 576.189               | 79.                       | 7.294               |                      |

(a) Significant at .15 level

TABLE 26

CHOICE BEHAVIOR BY SELF-ESTEEM LEVELS  
Observed and Expected Frequencies

| <u>Choice</u>     | <u>Low</u><br><u>Self-Esteem</u> |             | <u>Medium</u><br><u>Self-Esteem</u> |             | <u>High</u><br><u>Self-Esteem</u> |             | <u>Total</u> | <u>Percent</u> |
|-------------------|----------------------------------|-------------|-------------------------------------|-------------|-----------------------------------|-------------|--------------|----------------|
|                   | <u>fo</u>                        | <u>(fe)</u> | <u>fo</u>                           | <u>(fe)</u> | <u>fo</u>                         | <u>(fe)</u> |              |                |
| \$1.00            | 6                                | ( 7)        | 16                                  | (18)        | 11                                | ( 9)        | 33           | 38%            |
| \$2.00            | 5                                | ( 5)        | 17                                  | (15)        | 6                                 | ( 7)        | 28           | 32             |
| \$1.00 and \$2.00 | <u>6</u>                         | <u>( 5)</u> | <u>14</u>                           | <u>(14)</u> | <u>6</u>                          | <u>( 7)</u> | <u>26</u>    | <u>30</u>      |
| Total             | 17                               | (17)        | 47                                  | (47)        | 23                                | (23)        | 87           | 100%           |

Calculated chi-square value = 1.55

Degrees of Freedom = 4

Not Significant

TABLE 27

CHOICE BY SPECIFIC SELF-CONFIDENCE  
Observed and Expected Frequencies

| <u>Choice</u>     | <u>Specific Self-Confidence Level (Total Respondents)</u> |             |   |             |                                     |             | <u>Total</u> | <u>Percent</u> |
|-------------------|---|-------------|---|-------------|-------------------------------------|-------------|--------------|----------------|
|                   | <u>Low</u><br><u>&lt; 12</u><br>fo                        | (fe)        | <u>Medium</u><br><u>between 12 &amp; 15</u><br>fo | (fe)        | <u>High</u><br><u>&gt; 15</u><br>fo | (fe)        |              |                |
| \$1.00            | 12  | ( 9)        | 8   | (13)        | 12                                  | (10)        | 32           | 37%            |
| \$2.00            | 3   | ( 8)        | 13  | (12)        | 12                                  | ( 8)        | 28           | 33             |
| \$1.00 and \$2.00 | <u>9</u>  | <u>( 7)</u> | <u>15</u>   | <u>(11)</u> | <u>2</u>                            | <u>( 8)</u> | <u>26</u>    | <u>30</u>      |
| Total             | 24  | (24)        | 36  | (36)        | 26                                  | (26)        | 86           | 100%           |

Calculated chi-square value = 14.94

Degrees of freedom = 4

Significant at .025 level

TABLE 28

RELATIONSHIP BETWEEN CERTAINTY OF QUALITY JUDGEMENT  
AND SPECIFIC SELF-CONFIDENCE

SAMPLE N

Observed and Expected Frequencies

| <u>Specific</u><br><u>Self-Confidence</u> | <u>Certainty in Appraisal of Sample "N"</u> |              |                               |             |                              |              | <u>Total</u> | <u>Percent</u> |
|---|---|--------------|-------------------------------|-------------|------------------------------|--------------|--------------|----------------|
|   | <u>Low</u><br><u>(1-3)</u>                  |              | <u>Medium</u><br><u>(4-7)</u> |             | <u>High</u><br><u>(8-10)</u> |              |              |                |
|   | <u>fo</u>                                   | <u>(fe)</u>  | <u>fo</u>                     | <u>(fe)</u> | <u>fo</u>                    | <u>(fe)</u>  |              |                |
| Low                                       | 9   | ( 7 )        | 12                            | ( 9 )       | 3                            | ( 8 )        | 24           | 28%            |
| Medium                                    | 13  | (10)         | 10                            | (13)        | 13                           | (12)         | 36           | 42             |
| High                                      | <u>3</u>                                    | <u>( 8 )</u> | <u>10</u>                     | <u>(10)</u> | <u>13</u>                    | <u>( 9 )</u> | <u>26</u>    | <u>39</u>      |
| Total                                     | 25  | (25)         | 32                            | (32)        | 29                           | (29)         | 86           | 100%           |

Calculated chi-square value = 11.26

Degrees of freedom = 4

Significant at .025 level

TABLE 29

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
PERCEIVED RISK CLASSIFICATIONS  
N-R SHIFT

|                    |                       | <u>Mean Quality Shift</u> |
|--------------------|-----------------------|---------------------------|
| Low Self-Esteem    | Low Perceived Risk    | .43                       |
| Low Self-Esteem    | Medium Perceived Risk | 0                         |
| Low Self-Esteem    | High Perceived Risk   | -.20                      |
| Medium Self-Esteem | Low Perceived Risk    | 1.30                      |
| Medium Self-Esteem | Medium Perceived Risk | .86                       |
| Medium Self-Esteem | High Perceived Risk   | 2.2                       |
| High Self-Esteem   | Low Perceived Risk    | 2.00                      |
| High Self-Esteem   | Medium Perceived Risk | 1.22                      |
| High Self-Esteem   | High Perceived Risk   | 1.33                      |

TABLE 30

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
PERCEIVED RISK CLASSIFICATIONS  
M-R SHIFT

|                    |                       | <u>Mean Quality Shift</u> |
|--------------------|-----------------------|---------------------------|
| Low Self-Esteem    | Low Perceived Risk    | .33                       |
| Low Self-Esteem    | Medium Perceived Risk | -1.00                     |
| Low Self-Esteem    | High Perceived Risk   | -2.50                     |
| Medium Self-Esteem | Low Perceived Risk    | .53                       |
| Medium Self-Esteem | Medium Perceived Risk | - .023                    |
| Medium Self-Esteem | High Perceived Risk   | 1.00                      |
| High Self-Esteem   | Low Perceived Risk    | 1.25                      |
| High Self-Esteem   | Medium Perceived Risk | 1.00                      |
| High Self-Esteem   | High Perceived Risk   | -1.50                     |

TABLE 31

MEAN QUALITY SHIFT RATING BY SELF-ESTEEM AND  
PERCEIVED RISK CLASSIFICATIONS

N-M SHIFT

|                    |                       | <u>Mean Quality Shift</u> |
|--------------------|-----------------------|---------------------------|
| Low Self-Esteem    | Low Perceived Risk    | - .50                     |
| Low Self-Esteem    | Medium Perceived Risk | 1.71                      |
| Low Self-Esteem    | High Perceived Risk   | -1.17                     |
| Medium Self-Esteem | Low Perceived Risk    | .50                       |
| Medium Self-Esteem | Medium Perceived Risk | 1.00                      |
| Medium Self-Esteem | High Perceived Risk   | .44                       |
| High Self-Esteem   | Low Perceived Risk    | .83                       |
| High Self-Esteem   | Medium Perceived Risk | .90                       |
| High Self-Esteem   | High Perceived Risk   | 1.38                      |

TABLE 32

N-R SHIFTANALYSIS OF VARIANCE TABLEN-R SHIFT BY SELF-ESTEEM AND PERCEIVED RISK

| <u>Source</u>  | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> | <u>F Ratio</u>       |
|----------------|-----------------------|---------------------------|--------------------|----------------------|
| Self-Esteem    | 22.403                | 2.0                       | 11.201             | 1.413 <sup>(a)</sup> |
| Perceived Risk | 6.335                 | 2.0                       | 3.168              | .400 <sup>(a)</sup>  |
| Interaction    | 22.857                | 4.0                       | 5.714              | .721 <sup>(a)</sup>  |
| Error          | <u>594.544</u>        | <u>75.</u>                | <u>7.927</u>       |                      |
| Total          | 646.139               | 83                        |                    |                      |

(a) Not Significant at .05 level

TABLE 33

M-R SHIFTANALYSIS OF VARIANCE TABLEM-R SHIFT BY SELF-ESTEEM AND PERCEIVED RISK

| <u>Source</u>  | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> | <u>F Ratio</u>       |
|----------------|-----------------------|---------------------------|--------------------|----------------------|
| Self-Esteem    | 29.291                | 2.0                       | 14.645             | 1.515 <sup>(a)</sup> |
| Perceived Risk | 32.336                | 2.0                       | 16.168             | 1.623 <sup>(a)</sup> |
| Interaction    | 37.244                | 4.0                       | 9.311              | .963 <sup>(a)</sup>  |
| Error          | <u>724.930</u>        | <u>75.</u>                | <u>9.666</u>       |                      |
| Total          | 823.801               | 83                        |                    |                      |

(a) Not Significant at .05 level

TABLE 34

M-R SHIFTANALYSIS OF VARIANCE TABLEN-M SHIFT BY SELF-ESTEEM AND PERCEIVED RISK

| <u>Source</u>  | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> | <u>F Ratio</u>       |
|----------------|-----------------------|---------------------------|--------------------|----------------------|
| Self-Esteem    | 12.063                | 2.0                       | 6.032              | 1.259 <sup>(a)</sup> |
| Perceived Risk | 13.977                | 2.0                       | 6.988              | 1.459 <sup>(a)</sup> |
| Interaction    | 23.302                | 4.0                       | 5.825              | 1.216 <sup>(a)</sup> |
| Error          | <u>368.808</u>        | <u>77.</u>                | <u>4.79</u>        |                      |
| Total          | 418.150               | 85                        |                    |                      |

(a) Not Significant at .05 level

TABLE 35

RESPONDENTS' CHOICE BEHAVIOR OF PANTY HOSE  
BY PERCEIVED RISK LEVEL  
Observed and Expected Frequencies

| <u>Choice</u>   | <u>Perceived Risk</u> |            |                         |             |                      |            | <u>Total</u> | <u>Percent</u> |
|-----------------|-----------------------|------------|-------------------------|-------------|----------------------|------------|--------------|----------------|
|                 | <u>Low</u><br>10-16   |            | <u>Medium</u><br>4-6.25 |             | <u>High</u><br>1-2.5 |            |              |                |
|                 | fo                    | (fe)       | fo                      | (fe)        | fo                   | (fe)       |              |                |
| \$1.00          | 10                    | (11)       | 13                      | (15)        | 9                    | (6)        | 32           | 37%            |
| \$2.00          | 14                    | (9)        | 11                      | (12)        | 2                    | (6)        | 27           | 32             |
| \$1.00 & \$2.00 | <u>5</u>              | <u>(9)</u> | <u>15</u>               | <u>(12)</u> | <u>6</u>             | <u>(5)</u> | <u>26</u>    | <u>31</u>      |
| Total           | 29                    | (29)       | 39                      | (39)        | 17                   | (17)       | 85           | 100%           |

Calculated chi-square value = 10.10

Degrees of freedom = 4

Significant at .05 level

TABLE 36

N-R SHIFT  
ANALYSIS OF VARIANCE TABLE  
N-R SHIFT BY SPECIFIC SELF-CONFIDENCE  
AND PERCEIVED RISK CLASSIFICATIONS

| <u>Source</u>               | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> | <u>F Ratio</u>       |
|-----------------------------|-----------------------|---------------------------|--------------------|----------------------|
| Specific<br>Self-Confidence | 17.886                | 2.0                       | 8.943              | 1.191 <sup>(a)</sup> |
| Perceived Risk              | 3.351                 | 2.0                       | 1.675              | .223                 |
| Interaction                 | 14.723                | 4.0                       | 3.681              | .476                 |
| Error                       | <u>563.030</u>        | <u>75.0</u>               | 7.507              |                      |
| Total                       | 598.990               | 83.0                      |                    |                      |

(a) Significant at the .20 level

TABLE 37

RELATIONSHIP BETWEEN OCCUPATION OF SPOUSE  
AND MEDIAN HOME VALUE

| <u>Occupation<br/>of Spouse</u> | <u>Median Home Value</u> |      |                          |      |                        |      |              |                |
|---------------------------------|--------------------------|------|--------------------------|------|------------------------|------|--------------|----------------|
|                                 | <u>Low</u><br>fo (fe)    |      | <u>Medium</u><br>fo (fe) |      | <u>High</u><br>fo (fe) |      | <u>Total</u> | <u>Percent</u> |
| Professional/<br>Managerial     | 7                        | (13) | 6                        | ( 7) | 19                     | (12) | 32           | 50%            |
| Non-Professional/<br>Managerial | <u>18</u>                | (12) | <u>8</u>                 | ( 7) | <u>5</u>               | (12) | <u>31</u>    | <u>49</u>      |
| Total<br>Classifiable           | 25                       | (25) | 14                       | (14) | 24                     | (24) | 63           | 100%           |

Calculated chi-square value = 14.21

Degrees of freedom = 2

Significant at .001 level

TABLE 38

N-R SHIFTANALYSIS OF VARIANCE TABLEN-R SHIFT BY EDUCATION AND MEDIAN HOME VALUE

| <u>Source</u>        | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> | <u>F Ratio</u> |
|----------------------|-----------------------|---------------------------|--------------------|----------------|
| Education            | 31.122                | 2.0                       | 15.561             | 1.941(a)       |
| Median<br>Home Value | 4.524                 | 2.0                       | 2.262              | .282(a)        |
| Interaction          | 3.603                 | 4.0                       | .901               | .112(a)        |
| Error                | <u>625.270</u>        | <u>78.0</u>               | 8.016              |                |
| Total                | 664.519               | 86                        |                    |                |

(a) Not Significant at .05 level

TABLE 39

MEAN QUALITY SHIFT RATING BY EDUCATION AND  
MEDIAN HOME VALUE CLASSIFICATIONS  
N-R SHIFT

|                 |                          | <u>Mean Quality Shift</u> |
|-----------------|--------------------------|---------------------------|
| High School     | Low Median Home Value    | 1.1500                    |
| High School     | Medium Median Home Value | 1.6250                    |
| High School     | High Median Home Value   | 1.0000                    |
| College         | Low Median Home Value    | 1.4000                    |
| College         | Medium Median Home Value | 1.5714                    |
| College         | High Median Home Value   | .4615                     |
| Graduate School | Low Median Home Value    | - .8000                   |
| Graduate School | Medium Median Home Value | .0000                     |
| Graduate School | High Median Home Value   | - .2500                   |

TABLE 40

CHOICE BY MEDIAN HOME VALUE

| <u>Choice</u>   | <u>Median Home Value</u> |             |                     |             |                   |             | <u>Total</u> | <u>Percent</u> |
|-----------------|--------------------------|-------------|---------------------|-------------|-------------------|-------------|--------------|----------------|
|                 | <u>Low</u><br>Fo         | (fe)        | <u>Medium</u><br>fo | (fe)        | <u>High</u><br>fo | (fe)        |              |                |
| \$1.00          | 21                       | (15)        | 6                   | ( 7)        | 7                 | (12)        | 34           | 39%            |
| \$2.00          | 8                        | (13)        | 5                   | ( 6)        | 15                | (10)        | 28           | 32             |
| \$1.00 & \$2.00 | <u>11</u>                | <u>(12)</u> | <u>7</u>            | <u>( 5)</u> | <u>8</u>          | <u>( 8)</u> | <u>26</u>    | <u>29</u>      |
| Total           | 40                       | (40)        | 18                  | (18)        | 30                | (30)        | 88           | 100%           |

Calculated chi-square value = 10.10

Degrees of freedom = 2

Significant at .01 level

TABLE 41

RELATIONSHIP BETWEEN CHOICE OF PANTY HOSE AND  
PRICE LEVEL GENERALLY PURCHASED  
Observed and Expected Frequencies

| <u>Price Generally Purchased</u> | <u>Choice Behavior</u>   |                          |   |  |  |  | <u>Total</u> | <u>Percent</u> |
|----------------------------------|--------------------------|--------------------------|---|--|--|--|--------------|----------------|
|                                  | <u>\$1.00</u><br>fo (fe) | <u>\$2.00</u><br>fo (fe) | <u>\$1.00 and</u><br><u>\$2.00</u><br>fo (fe) |  |  |  |              |                |
| \$1.00 or less                   | 23 (13)                  | 5 (13)                   | 9 (10)  |  |  |  | 37           | 27%            |
| between \$1.00<br>and \$2.00     | 17 (21)                  | 20 (19)                  | 19 (16)                                       |  |  |  | 56           | 42             |
| \$2.01 or more                   | <u>10 (16)</u>           | <u>21 (41)</u>           | <u>10 (12)</u>                                |  |  |  | <u>41</u>    | <u>31</u>      |
| Total                            | 50 (50)                  | 46 (73)                  | 38 (38)                                       |  |  |  | 134          | 100%           |

Calculated chi-square value = 21.21

Degrees of freedom = 4

Significant at .001 level

TABLE 42

OCCASIONS ON WHICH RESPONDENTS WOULD GENERALLY WEAR  
PANTY HOSE SAMPLES R, N AND M (IN NUMBER OF MENTIONS)

TOTAL RESPONDENTS

Observed and Expected Frequencies

| <u>Occasion</u>           | <u>R</u>                  |             | <u>N</u>                  |             | <u>M</u>                  |             | <u>Total</u> | <u>Percent</u> |
|---------------------------|---------------------------|-------------|---------------------------|-------------|---------------------------|-------------|--------------|----------------|
|                           | <u>(\$1 priced)</u><br>fo | <u>(fe)</u> | <u>(\$2 priced)</u><br>fo | <u>(fe)</u> | <u>(non-priced)</u><br>fo | <u>(fe)</u> |              |                |
| Around house              | 43                        | (40)        | 39                        | (42)        | 40                        | (40)        | 122          | .1428          |
| Clothing shopping         | 55                        | (56)        | 59                        | (58)        | 55                        | (55)        | 269          | .196           |
| Formal occasion           | 15                        | (19)        | 21                        | (20)        | 21                        | (18)        | 57           | .066           |
| Grocery shopping          | 57                        | (51)        | 51                        | (53)        | 46                        | (50)        | 154          | .178           |
| Informal social gathering | 51                        | (53)        | 59                        | (56)        | 62                        | (53)        | 162          | .188           |
| To work                   | <u>63</u>                 | <u>(65)</u> | <u>69</u>                 | <u>(69)</u> | <u>66</u>                 | <u>(64)</u> | <u>198</u>   | <u>.230</u>    |
| Total                     | 284                       | (284)       | 298                       | (298)       | 280                       | (280)       | 862          | 1.000          |

Calculated chi-square value = 3.15

Degrees of freedom = 10

Not significant at .05 level

TABLE 43

TYPE OF STORE IN WHICH RESPONDENTS FEEL THAT  
PANTY HOSE SAMPLES R, N AND M ARE SOLD (IN NUMBER OF MENTIONS)

TOTAL RESPONDENTS

Observed and Expected Frequencies

| <u>Store type</u> | <u>R</u>            |             | <u>N</u>            |             | <u>M</u>            |             | <u>Total</u> | <u>Percent</u>      |
|-------------------|---------------------|-------------|---------------------|-------------|---------------------|-------------|--------------|---------------------|
|                   | <u>(\$1 priced)</u> | <u>(fe)</u> | <u>(\$2 priced)</u> | <u>(fe)</u> | <u>(non-priced)</u> | <u>(fe)</u> |              |                     |
|                   | <u>fo</u>           |             | <u>fo</u>           |             | <u>fo</u>           |             |              |                     |
| Department store  | 65                  | (72)        | 76                  | (68)        | 66                  | (67)        | 207          | .185                |
| Discount store    | 71                  | (68)        | 62                  | (65)        | 63                  | (63)        | 196          | .175                |
| Drug store        | 58                  | (49)        | 41                  | (47)        | 43                  | (46)        | 142          | .127                |
| Hosiery store     | 53                  | (61)        | 66                  | (59)        | 58                  | (57)        | 177          | .158                |
| Sportswear store  | 30                  | (40)        | 44                  | (39)        | 42                  | (38)        | 116          | .104                |
| Supermarket       | 56                  | (50)        | 40                  | (47)        | 48                  | (46)        | 144          | .128                |
| Variety store     | <u>54</u>           | <u>(47)</u> | <u>41</u>           | <u>(45)</u> | <u>41</u>           | <u>(44)</u> | <u>136</u>   | <u>.122</u>         |
| Total             | 387                 | (387)       | 370                 | (370)       | 361                 | (361)       | 1118         | .999 <sup>(a)</sup> |

(a) may not equal 100%, due to rounding

Calculated chi-square value = 13.43

Degrees of freedom = 12

Not Significant at .05 level

TABLE 44

CERTAINTY OF QUALITY APPRAISAL FOR R, N AND M SAMPLES  
BY PLACE OF RESIDENCE

|            | <u>Mean Certainty Rating</u>                    |   |   |
|------------|---|---|---|
|            | <u>(1.00<sup>R</sup></u><br><u>priced hose)</u> | <u>(\$2.00<sup>N</sup></u><br><u>priced hose)</u> | <u>(non-<sup>M</sup></u><br><u>priced hose)</u> |
| Roslyn     | 5.5263  | 5.5789  | 5.5526  |
| Long Beach | 5.2400  | 5.3400  | 5.9000  |
| Total      | 5.3636  | 5.4432  | 5.7500  |

TABLE 45

R. N. M CERTAINTY SHIFT  
ONE-WAY ANALYSIS OF VARIANCE  
TOTAL RESPONDENTS

| <u>Source of Variation</u> | <u>Sum of Squares</u> | <u>Degrees of Freedom</u> | <u>Mean Square</u> |
|----------------------------|-----------------------|---------------------------|--------------------|
| Between means              | 7.341                 | 2                         | 3.670              |
| Within treatments          | 890.012               | 174                       | 5.115              |

$$F = \frac{3.670}{5.115} = .72 \quad n_1 = 2, n_2 = 174$$

Not significant at .05 level



# Hofstra University

HEMPSTEAD, LONG ISLAND, NEW YORK 11550

May 20, 1972

I am a Professor of Marketing at Hofstra University currently doing research on the shopping behavior of Long Island housewives. You have been scientifically chosen to be included in a marketing study and I would greatly appreciate your cooperation.

This study concerns shoppers' attitudes towards a frequently purchased product and requires less than twenty minutes of your time. Since the research requires that you examine several products, the interview cannot take place by mail or phone.

The interview will be conducted in your home by female college students who have been trained in interviewing procedures. I can assure you that all answers are to be anonymous and that this research is in no way related to any sales presentation.

In order to compensate you for your time and participation in the project, you will be given a gift whose retail value is \$4.00.

All interviews will be conducted during the time period of June 12th through June 24th. Please return the Scheduling Sheet in the enclosed envelope indicating your time preferences. If you have any questions relating to this study, please do not hesitate to call me at Hofstra University, 560-3392.

Thank you in advance for your kind cooperation.

Very truly yours,

A handwritten signature in cursive script that reads 'Barry Berman'.

Barry Berman  
Assistant Professor of Marketing

EXHIBIT 2Questionnaire

Thank you for agreeing to participate in this project!

Before the study begins, I'd like to explain its importance. I am currently studying how Long Island consumers judge product quality. To complete my research I must test my method of measuring consumers' quality judgements.

Many of the questions in this study will ask your attitude towards certain products or situations. In one kind of question, you will be asked to indicate your feelings by checking the answer which most closely resembles your feelings.

For example, if you were asked your judgement of the weather this winter and you thought it was a fairly mild winter, you should state your attitude by checking the alternative.

Perception of weather this winter:

Very mild  
 Fairly mild  
 Neither mild nor severe  
 Fairly severe  
 Very severe

In the other kind of question, you will be asked to indicate your feeling by placing an X through that place on a line which most closely resembles your feelings. For example, if you thought that the winter was fairly mild, you should indicate your feeling by placing an X through the line as follows:

Perception of weather this winter:

Very severe \_\_\_\_\_ X \_\_\_\_\_ Very mild

If you thought the winter was fairly severe, you would state this by placing an X as follows:

Perception of weather this winter:

Very severe \_\_\_\_\_ X \_\_\_\_\_ Very mild

If you felt that the winter was neither mild nor severe, you would place an X as follows:

Perception of weather this winter:

Very severe \_\_\_\_\_ X \_\_\_\_\_ Very mild

Please note that in some cases the description on both sides of the line may be reversed. The following answers are comparable in that they both indicate that you would have viewed the weather to be fairly severe.

Perception of weather this winter:

Very severe \_\_\_\_\_ X \_\_\_\_\_ Very mild

Very mild \_\_\_\_\_ X \_\_\_\_\_ Very severe

You may place an X on any one place along the line which most closely resembles your feelings.

If these instructions are not clear, please ask your interviewer to explain them.

STOP!

The nature of my study involves measuring consumers' quality judgements. In order to test this, you will be asked to judge three pair of panty hose. Panty hose will be used since it is a frequently purchased item. You are fully eligible for this study even if you do not wear panty hose.

The three pair of panty hose to be examined are of similar color and texture. (They have been produced by the same manufacturer.) For purposes of this study, the panty hose have been designated "R", "N" and "M". These designations have been made to more easily identify each pair of panty hose and in no way reflect the characteristics of the hose.

You will be asked to examine each pair of panty hose one at a time. The panty hose will be packaged as in any retail store with the exception that all labeling has been removed. You may examine each pair in its package for as long as you wish and can handle the panty hose in any manner normally allowed on retail store hosiery samples.

The panty hose will be presented individually and you will be asked to evaluate each pair with regard to its quality while examining it through the package. Once you have examined and rated a particular pair, you will not be allowed to reexamine it.

Kindly answer all of the questions and do not hesitate to ask the interviewer to explain any questions you do not fully understand.

STOP!

PANTY HOSE QUALITY EVALUATION CHECKLISTLetter  
designation R

## 1. Overall Quality Judgment

a. Please rate the overall quality of the panty hose you have just examined by placing an X through the place on the line which best represents your answer.

Poor overall quality \_\_\_\_\_ Excellent overall quality

b. How certain are you about the overall evaluation of this pair of panty hose? Place an X through the place on the line which best represents your answer.

Not very certain \_\_\_\_\_ Very certain

## 2. Panty Hose Evaluation Checklist

a. Please rate the panty hose you have just examined with respect to the following characteristics by placing an X through the place on the line which best represents your answer.

### DEPENDABILITY:

Excellent dependability \_\_\_\_\_ Poor dependability

### DURABILITY:

Excellent durability \_\_\_\_\_ Poor durability

### FEEL:

Excellent feel \_\_\_\_\_ Poor feel

### COLOR:

Poor Color \_\_\_\_\_ Excellent color

### SHEERNESS:

Poor sheerness \_\_\_\_\_ Excellent sheerness

### VERSATILITY:

Poor versatility \_\_\_\_\_ Excellent versatility

### ATTRACTIVENESS:

Excellent attractiveness \_\_\_\_\_ Poor attractiveness

### FIT:

Poor fit \_\_\_\_\_ Excellent fit

b. How certain are you about your evaluation of the above characteristics? Place an X through the place on the line which best represents your answer.

Not very certain \_\_\_\_\_ Very certain

3. In which of the following types of stores do you think these panty hose are sold? You may list as many stores as you think are applicable.

|   |   |
|---|---|
| <input type="checkbox"/> Department store       | <input type="checkbox"/> Sportswear shop        |
| <input type="checkbox"/> Discount store         | <input type="checkbox"/> Supermarket            |
| <input type="checkbox"/> Drug store             | <input type="checkbox"/> Variety                |
| <input type="checkbox"/> Hosiery Specialty shop | <input type="checkbox"/> Other (Please specify) |
|   | _____   |

4. For what occasions would you generally wear this pair of panty hose? You may list as many occasions as you think are applicable.

|  |   |
|--|---|
| <input type="checkbox"/> Around house              | <input type="checkbox"/> To work                |
| <input type="checkbox"/> Clothing shopping         | <input type="checkbox"/> Other (Please specify) |
| <input type="checkbox"/> Formal occasion           | _____   |
| <input type="checkbox"/> Grocery shopping          | <input type="checkbox"/> Any of the above       |
| <input type="checkbox"/> Informal social gathering | <input type="checkbox"/> None of the above      |

PANTY HOSE QUALITY EVALUATION CHECKLISTLetter  
designation N

## 1. Overall Quality Judgement

a. Please rate the overall quality of the panty hose you have just examined by placing an X through the place on the line which best represents your answer.

Poor  
overall  
quality

Excellent  
overall  
quality

\_\_\_\_\_

b. How certain are you about the overall evaluation of this pair of panty hose? Place an X through the place on the line which best represents your answer.

Not  
very  
certain

Very  
certain

\_\_\_\_\_

## 2. Panty Hose Evaluation Checklist

a. Please rate the panty hose you have just examined with respect to the following characteristics by placing an X through the place on the line which best represents your answer.

### DEPENDABILITY:

Excellent dependability \_\_\_\_\_ Poor dependability

### DURABILITY:

Excellent durability \_\_\_\_\_ Poor durability

### FEEL:

Excellent feel \_\_\_\_\_ Poor feel

### COLOR:

Poor color \_\_\_\_\_ Excellent color

### SHEERNESS:

Poor sheerness \_\_\_\_\_ Excellent sheerness

### VERSATILITY:

Poor versatility \_\_\_\_\_ Excellent versatility

### ATTRACTIVENESS:

Excellent attractiveness \_\_\_\_\_ Poor attractiveness

### FIT:

Poor fit \_\_\_\_\_ Excellent fit

b. How certain are you about your evaluation of the above characteristics? Place an X through the place on the line which best represents your answer.

Not  
very  
certain \_\_\_\_\_ Very  
certain

3. In which of the following types of stores do you think these panty hose are sold? You may list as many stores as you think are applicable.

|   |   |
|---|---|
| <input type="checkbox"/> Department store       | <input type="checkbox"/> Sportswear shop        |
| <input type="checkbox"/> Discount store         | <input type="checkbox"/> Supermarket            |
| <input type="checkbox"/> Drug store             | <input type="checkbox"/> Variety                |
| <input type="checkbox"/> Hosiery Specialty Shop | <input type="checkbox"/> Other (Please Specify) |
|   | _____   |

4. For what occasions would you generally wear this pair of panty hose? You may list as many occasions as you think are applicable.

|  |   |
|--|---|
| <input type="checkbox"/> Around house              | <input type="checkbox"/> To work                |
| <input type="checkbox"/> Clothing shopping         | <input type="checkbox"/> Other (Please specify) |
| <input type="checkbox"/> Formal occasion           | _____   |
| <input type="checkbox"/> Grocery shopping          | <input type="checkbox"/> Any of the above       |
| <input type="checkbox"/> Informal social gathering | <input type="checkbox"/> None of the above      |

PANTY HOSE QUALITY EVALUATION CHECKLISTLetter  
designation M

## 1. Overall Quality Judgment

a. Please rate the overall quality of the panty hose you have just examined by placing an X through the place on the line which best represents your answer.

Poor  
overall  
quality

Excellent  
overall  
quality

---

b. How certain are you about the overall evaluation of this pair of panty hose? Place an X through the place on the line which best represents your answer.

Not  
very  
certain

Very  
certain

---

## 2. Panty Hose Evaluation Checklist

a. Please rate the panty hose you have just examined with respect to the following characteristics by placing an X through the place on the line which best represents your answer.

## DEPENDABILITY:

Excellent dependability \_\_\_\_\_ Poor dependability

## DURABILITY:

Excellent durability \_\_\_\_\_ Poor durability

## FEEL:

Excellent feel \_\_\_\_\_ Poor feel

## COLOR:

Poor color \_\_\_\_\_ Excellent color

## SHEERNESS:

Poor sheerness \_\_\_\_\_ Excellent sheerness

## VERSATILITY:

Poor versatility \_\_\_\_\_ Excellent versatility

## ATTRACTIVENESS:

Excellent attractiveness \_\_\_\_\_ Poor attractiveness

## FIT:

Poor fit \_\_\_\_\_ Excellent fit



ATTITUDE QUESTIONNAIRE

This section has been designed to determine your attitude towards panty hose in general and the panty hose you have just examined.

1. Would you say that you are:

- very certain
- usually certain
- sometimes certain
- almost never certain

that a brand of panty hose you haven't tried will work as well as your present brand.

2. We all know that not all products work as well as others. Compared to other products, would you say that there is:

- a great danger
- some danger
- not much danger
- no danger

in trying a brand of panty hose you have never tried before.

3. In general, how much experience have you had in purchasing panty hose?

- very much experience
- much experience
- moderate experience
- slight experience
- no experience at all

4. Is buying panty hose an area in which you have good ability?

- very much ability
- much ability
- moderate ability
- slight ability
- no ability at all

5. How confident are you in your efforts at buying a new brand of panty hose?

- very much confident
- much confident
- moderately confident
- slightly confident
- not at all confident

6. To what extent have you not had the chance to learn about buying panty hose?

- no chance at all to learn
- slight chance to learn
- moderate chance to learn
- much of a chance to learn
- very much of a chance to learn

7. What is the retail sales price and brand names of the panty hose you generally purchase?

| Brand Name _____ | Price _____ |
|------------------|-------------|
| _____            | _____       |
| _____            | _____       |
| _____            | _____       |

8. Compare the panty hose you normally purchase with Brands R, M and N from the perspective of overall quality.

- own poorer than R
- own equal to R
- own better than R
  
- own poorer than M
- own equal to M
- own better than M
  
- own poorer than N
- own equal to N
- own better than N

9.a. Have you worked within the past three years?

- No
- Yes (If yes, please answer questions 9b, c and d.)

- b. Please categorize your work experience within the past three years as either full-time or part-time.

\_\_\_\_\_ part-time          \_\_\_\_\_ full-time (more than  
thirty hours per week)

- c. Are you currently working?

\_\_\_\_\_ not at all  
\_\_\_\_\_ part-time  
\_\_\_\_\_ full-time

- d. What occupation best characterizes your past or present work experience? \_\_\_\_\_

10. Please list the occupation of your husband.

\_\_\_\_\_

11. Which of the following most accurately describes your age?

\_\_\_\_\_ 20-35  
\_\_\_\_\_ 36-50  
\_\_\_\_\_ 51-65  
\_\_\_\_\_ 66+

12. Please indicate your educational background by checking the appropriate answer.

\_\_\_\_\_ high school  
\_\_\_\_\_ college  
\_\_\_\_\_ graduate degree(s)  
\_\_\_\_\_ other (please specify) \_\_\_\_\_

STOP!

PERSONAL OPINIONS

The following "personal opinions test" is part of a separate unrelated marketing study. Please answer all questions to the best of your ability.

Choose an answer ranging from "strongly agree" through "strongly disagree" that best characterizes your usual reactions to each of these situations.

1. I feel capable of handling myself in most social situations.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

2. I seldom fear my actions will cause others to have a low opinion of me.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

3. It doesn't bother me to have to enter a room where other people have already gathered and are talking.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

4. In group discussions I usually feel that my opinions are inferior.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

5. I don't make a favorable first impression on people.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

6. When confronted by a group of strangers, my first reaction is always one of shyness and inferiority.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

7. It is extremely uncomfortable to accidentally go to a formal party in street clothes.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

8. I don't spend much time worrying about what people think of me.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

9. When in a group, I very rarely express an opinion for fear of being thought ridiculous.

strongly agree  
 moderately agree  
 neither agree nor disagree  
 moderately disagree  
 strongly disagree

10. I am never at a loss for words when I am introduced  
to someone.

- strongly agree
- moderately agree
- neither agree nor disagree
- moderately disagree
- strongly disagree

As promised in the introductory letter, in appreciation for your time and participation in this project, you will be given a gift whose retail value is four dollars (\$4.00).

You may choose between the two pair of panty hose which are priced (brands R and N) and select four dollars worth of fresh panty hose. For instance, you may select four one dollar panty hose (brand R), two two dollar panty hose (brand N) or one two dollar panty hose (brand N) and two one dollar panty hose (brand R).

(Brand M was unobtainable by the experimenter at the time of the study.)

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