

Price-Quality Relationships of Nondurable Consumer Products: A European and United States Perspective

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Abstract. The objective of this paper is to analyze the relationship between the price and quality of frequently purchased nondurable consumer products in the United States and in four European countries: Belgium, France, Germany, and the Netherlands. The study focuses specifically on three product categories--Food and Beverages, Health and Beauty Aids, and Household Items. The findings extend the boundaries of the stream of research in the price-quality literature to an international environment. The results of the investigation indicate that the correlation between the price and quality of frequently purchased nondurable consumer products is relatively low and that this relationship prevails in four contiguous European countries and extends across two continents. The price-quality correlations demonstrate characteristics similar to those reported in investigations conducted within the United States.

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Keywords: Price-Quality Competition; Nondurable Products; Consumer Policy.

1. Introduction

The objective of this investigation was to determine the relationship between price and quality for nearly 15,400 brands categorized as Food and Beverages, Health and Beauty Aids, and Household Items in five developed countries--Belgium, France, Germany, the Netherlands, and the United States--over a 21-year period. This objective has a four-part rationale.

First, during the past several decades, studies conducted in the United States have indicated that nondurable products, particularly frequently purchased consumer packaged goods, exhibit a consistently weak

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relationship between price and quality. Although the findings of these studies are useful, they are based on data from within the United States and, for the most part, from one source--*Consumer Reports*. The present study extends both the size of the data sample and the geographical range from which it is drawn. It also employs a methodology similar to that adopted in previous investigations. Therefore, the results of this investigation can be compared and contrasted with the results obtained in the earlier U.S.-based price-quality studies.

The second rationale for the study is that evidence indicates that nondurables (Food and Beverages) comprise the single largest expenditure category for households in three of the five countries included in the investigation (see Table 1). It is therefore important to consider the fact that consumers in these countries may receive less value than they should for frequently purchased items that comprise a large part of their household budget.

Table 1: Final Consumption by Households, 1997^a

Country	Food and Beverages	Clothing and Footwear	Furniture	Medical care	Transportation	Recreation
Belgium	17,3	5,9	10,7	10,6	11,7	5,2
France	17	5,2	8,2	10,5	13,9	5,9
Germany ^b	15,5	4,7	9,4	3,3	13,6	8,9
Netherlands	12,6	5,2	8,1	12,2	11,4	10,1
United States	10,4	5,7	6,3	12,3	20,7	11

Source: National Accounts ESA, Consumer Expenditure Survey 1997; Interview Survey.

a All figures in percentages.

b Includes data for Federal Republic of Germany.

A third rationale for the investigation pertains to the impact of price-quality correlations on international marketing strategies for multinational corporations (Kotler, Fahey, & Jatusripitak, 1985). The three product categories investigated-- Food and Beverages, Health and Beauty Aids, and Household Items--represent some of the most highly competitive product-markets in Europe and the United States (*Market Share Reporter*, 1996). Companies competing for market share in these countries can use the results of the study to develop marketing strategies based on price and quality.

Finally, the relationship between price and quality has been a central focus of the consumer movement in the United States and Europe (Committee on Consumer Policy, 1983). Several prominent researchers have identified the need for additional studies focusing on the nature and scope of the price-quality relationship of nondurable consumer products in other developed countries (Cunningham & Green, 1984; Faulds, 1986; Faulds, Grunewald, & Johnson, 1994; Monroe & Dodds, 1988). Although academicians and consumer policy makers have long considered this to be a vital consumer policy issue, for four of the five countries included in this study, no research focusing on this issue has been reported in the literature. Thus, this study offers policy makers and academicians a better understanding of the price-quality relationship for nondurables in the United States and other developed countries.

The price-quality literature is reviewed in the next section of the paper. This material provides a background for the methodology section, which is followed by a discussion of the results of the investigation. The paper concludes with a section on the implications of the findings for international marketing and consumer policy makers.

2. Literature Review

The evidence reported in the literature indicates that in the United States nondurables, particularly frequently purchased consumer packaged goods, display a weak and often negative relationship between price and "objective" quality.¹ In addition, these products consistently demonstrate a higher proportion of negative correlation coefficients and, therefore, a weaker relationship than less frequently purchased durable goods.

Table 2 summarizes the results of previous research conducted on the price-quality relationship for nondurable products. Chase and Schlink (1927), in the first study to appear in the literature, found virtually no correspondence between the price and quality for food products and concluded that "the highest price does not necessarily secure the best quality" (p. 77). Subsequent research produced low, and often statistically

¹ "Objective quality" is defined as an "unbiased measurement of quality based on characteristics such as design, durability, performance, and safety" (Riesz, 1978, p.19).

significant, correlations between the price and quality of nondurable consumer products.

Table 2: Summary of the Results of Previous Studies Dealing with the Relationship between Price and Objective Quality for Nondurable Products

Reference	Source of Data	Analysis Period	Country	Number of Product Tests	Mean of Correlation Coefficients	Range of Correlation Coefficients
Chase & Schlink, 1927	Government Reports	1900-1915	USA	NA	No Correspondence between price and quality	NA
Oxenfeldt, 1950	Consumer Reports	1939-1949	USA	35 ^a	0,25	-0.81 to 0.82
Friedman, 1967	Consumer Reports	1961-1965	USA	29 ^b	0,15	-0.59 to 0.78
Riesz, 1978	Consumer Reports	1961-1975	USA	685 ^c	0,26	NA
Riesz, 1979	Consumer Reports	1961-1975	USA	40 ^d	0,09	-0.65 to 0.88
Gerstner, 1985	Buying Guide	1980-1982	USA	145 ^c	0.01 ^h	-0.56 to 0.66
Bodell et al., 1986	Canadian Consumer	1978-1985	Canada	91 ^c	0.11 ⁱ 0.12 ^j	-0.47 to 0.83 -0.19 to 0.77
Faulds, 1986	Twelve Consumer Testing Organization	1968-1983	Ten ^{e,f}	7000	NA	0.03 to 0.167 ^o
Faulds & Grunewald, 1993	Consumer Reports	1986-1989	USA	32	-0.10 ^{i,k} 0.18 ^l 0.09 ^{k,k} 0.24 ^l	0.63 to 0.52 -0.54 to 0.83 -0.65 to 0.91 -0.49 to 0.81

a Product categories were durables, clothing, and food products.

b Cleaning and maintenance, clothing, and food products.

c Broad range of product categories.

d Packaged food products only.

e Toilet articles, cosmetics, clothing.

f Australia, Belgium, Canada, Denmark, France, Germany, New Zealand, Norway, the Netherlands, United Kingdom, and the United States.

g Range in mean country correlations.

j Food and Beverages.

h Kendall correlation.

k National brands.

i Household items.

l Private label.

In another early price-quality study, Oxenfeldt (1950) reported an average Spearman Rank Order correlation coefficient of 0.250 across 35 nondurable consumer product lines evaluated by *Consumer Reports*. The average correlation for the 10 food products was 0.125, and the correlation coefficients ranged from 0.810 to 0.490. Eighty percent of the food products reported negative correlation coefficients.

Other U.S.-based studies listed in Table 2 reported low, and often negative, price-quality correlation coefficients for nondurable consumer products. Friedman (1967) attributed the low correspondence between price and quality to the pricing policies used by retailers and concluded that "consumer goods may be influenced by the manner in which the products are displayed in the marketplace" (p. 38), i.e., whether they permit evaluation by the consumer at the point-of-purchase or after the product has been purchased and consumed. This observation prompted other researchers to investigate the nature of the price-quality relationship across a variety of nondurable product categories.

In one such investigation, Riesz (1979) observed a weak price-quality relationship for 679 brands of food products investigated by *Consumer Reports* between 1961 and 1975. A mean correlation of 0.092 and a range of 0.646 to 0.878 led Riesz to conclude "that the market for packaged food products," particularly convenience foods, "is performing quite imperfectly" (p. 243).

In the most comprehensive study to appear in the literature, Faulds (1986) found that the price-quality relationships for nondurable products in 10 developed nations varied significantly from country to country, with the mean correlation coefficients ranging from .034 to .167. However, because this study did not analyze the price-quality relationships by individual product categories and product lines, direct cross-national comparisons among similar types of products were not feasible.

The present study is the first to investigate the price-quality relationship for Food and Beverages, Health and Beauty Aids, and Household Items in four European countries--Belgium, France, Germany, and the Netherlands--and it is the only study to compare the price-quality correlations in those four countries and the United States.

3. Methodology

The Consumer Product Testing Organizations

To address the primary objective of the investigation, four consumer product testing organizations located in Europe and one consumer product testing organization located in the United States were requested to provide data on the three product categories included in this study.² The five testing organizations provided data on the objective quality ratings and retail prices for nearly 15,400 individual brands evaluated in approximately 600 comparative product reports (see Table 3 for a summary of the important characteristics of the testing organizations).

Table 3: Testing Organizations and Data Used in the Analysis

Country	Test Organizations ^a	Date Founded	Name of Publication	Number of Brands	Number of Comparative Product Test Studies
Belgium	Association Des Consommaterus	1957	<i>Test Achats</i>	3,419	157
France	Union Federale Des Consommateurs	1960	<i>Que Choisir</i>	2,334	115
Germany	Stiftung Warentest	1964	<i>Test</i>	3,123	154
Netherlands	Consumentenbond	1953	<i>Consumenten-gids</i>	1,261	43
United Sates	Consumers' Union	1936	<i>Consumer Reports</i>	5,241	147

^a All five testing organizations are associate members of the International Organization of Consumer Unions (IOCU)

In 1960, the five organizations founded the International Organization of Consumer Unions (IOCU), a nongovernmental, not-for-profit foundation. As associate members, the five testing organizations represented in this study promote the use of international standards for evaluating the quality of

² The data provided by the testing organization spanned more than two decades—from the 1970s into the 1990s.

consumer products. The IOCU now has 112 member associations located in 46 countries.

The member organizations must maintain strict independence from political parties and commercial firms. They accept no advertising or endorsement fees, nor do they engage in any other activities that would jeopardize their status as consumer advocates. Their income is generated solely through the sale of publications and other sources such as nonrestrictive, noncommercial contributions, grants, and fees.

Bodell, Kerton, and Schuster (1986), Curry and Faulds (1986), Geistfeld (1986), Gerstner (1985), Maynes (1976), Riesz (1978, 1979), and Sproles (1986) have all discussed the advantages of using data from IOCU member organizations to study the price-quality relationship. The primary advantages of such data lie in the IOCU members' integrity, impartiality, reputation, and experience in evaluating the quality of consumer products.

In determining what products to purchase and test at a given time, the organizations consider a number of elements, including patterns of consumer expenditures, expressions of reader interest, the extent of a product's availability in the marketplace, and the special nature of a new product or a significantly altered existing product. Although these organizations exercise meticulous care to ensure accuracy in their reports, errors may occur. Quality may vary within brands (Hjorth-Andersen, 1988), and products may change over time.

Ratings of products are based on estimated overall quality without regard to price and are derived from laboratory tests, controlled-use tests, and expert judgments. For all five testing organizations, the quality scores for non-food items are based on a 5-point scale ranging from best to worst. As such, the rating system has limitations. First, product appearance, advertising, customer services, warranties, and convenience of location are not considered. Second, people may judge quality differently, especially for food products, based upon their own preference functions. Finally, Hjorth-Andersen (1984) indicated that the respective testing organizations may employ differing attribute weights when evaluating similar products. Differences in attribute weights assigned by testing organizations, however, do not appreciably affect the overall quality rankings (Curry and Faulds, 1986).

Statistical Procedures

To allow for direct comparisons across the countries and product categories included in the study, Spearman's Rho correlation coefficients were calculated. This statistical procedure has been used in previous price-quality studies (see Table 2); therefore, individual country comparisons can be made with the results reported by earlier investigators.

The previous studies reported in the literature, and summarized in Table 2, depart from economic theory in that price appears to be a relatively weak indicator of quality. The past research, however, is based on data primarily from the United States and does not afford the opportunity to examine and contrast the strength of the price-quality relationship by country, product category, and product-line. The Bonferonni-t statistic was used to contrast the country pair wise price-quality correlations and examine potential differences between each of the countries.³

Cross-National Comparisons

The four European nations and the United States were chosen because of the comparability of the data reported by the testing organizations in the respective countries. Additionally, several investigators have reported close similarities among the countries in regard to measures of cultural and socioeconomic characteristics, stage of economic development, literacy rates, and types of products available (see, for example, Morris, 1971; Sethi, 1971; Liander, Terpstra, Yoshino, & Sherbini, 1967; Hofstede, 1980; and Ronen & Shenkar, 1985). The close geographical proximity of the four European nations provides a "natural homogeneity," as most experienced travelers would attest, and given the membership of these countries in the European Union, they enjoy a free flow of consumer products across their respective borders. In fact, multinational corporations have introduced global brands in many of the product-lines included in this study. Thus, the product-lines as well as most individual brands available to the consumer are becoming increasingly more common in all five countries included in the study.

³ The country pair wise contrasts were also performed using Tukey's, Scheffe's, and Duncan's multiple range tests. All three methods produced results similar to those obtained using Bonferonni t-statistics.

4. Results

The Average Price-Quality Correlations by Country

The mean price-quality correlations for each country are given in Table 4. The correlation means among the five countries are very low, yet statistically significant, varying only by 0.077. Three countries--Germany, the Netherlands, and the United States--have virtually identical price-quality relationships, approximately 0.120, whereas Belgium and France have somewhat lower correlations, 0.052 and 0.061, respectively. In pair wise contrasts, Belgium and France differed significantly from the other three countries in the strength of the price-quality relationship.

Table 4: The Spearman Correlation for Price and Quality by Product Category and Country

Product Category	BEL	FRC	GER	NTH	USA	Range in Product Category Rank Correlations ^a
Food and Beverages	0.065 ^c (2,453)*	0.046 ^d (1,699)	0.203 ^a (864)	0.068 ^d (537)	0.130 ^a (3,148)	0.046 to 0.203
Health and Beauty Aids	0.052 ^d (713)	0.131 ^c (524)	0.053 ^d (1,246)	0.062 ^d (402)	0.051 ^d (852)	0.051 to 0.131
Household Items	0.033 ^d (253)	0.131 ^d (111)	0.100 ^c (1,013)	0.237 ^b (322)	0.164 ^c (1,241)	-0.033 to 0.237
Total Country Mean Correlation	0.052 ^c (3,419)	0.0612 ^c (2,334)	1.112 ^a (3,124)	0.122 ^a (1,261)	0.129 ^a (5,241)	0.052 to 0.129

* Number in parentheses is the number of brands on which the correlation is based.

a Mean = 0, Prob > |T|, Significant at $p < 0.0001$.

b Mean = 0, Prob > |T|, Significant at $p < 0.001$.

c Mean = 0, Prob > |T|, Significant at $p < 0.01$.

d Not significant, Mean = 0, Prob > |T|, Significant at $p > 0.10$.

The overall country price-quality correlations given in Table 4 bear a striking resemblance to those reported in the U.S. based studies as summarized in Table 2. On an international level the results also confirm

Riesz's observation that nondurables "exhibit the poorest correspondence between price and quality" (Riesz, 1979, p. 236).

The Product Category and Product-Line Correlations

With a few exceptions the individual product categories also reveal consistent patterns in that the mean price-quality correlations are very similar across countries (see Table 4). In four of the five countries, the Health and Beauty Aids product category displayed virtually no association between price and quality. Only France maintains a statistically significant level of correlation between price and quality for Health and Beauty Aids.

The results reported for Health and Beauty Aids are almost identical to those found by Riesz (1979) for Health and Beauty Aids in the United States. In that investigation Riesz found that 7 of 18 product lines, or 38.9 percent of the sample, exhibited negative correlations between price and quality. This percentage is relatively high and indicates a very weak relationship between price and product quality.

In the other two product categories, France had statistically nonsignificant correlation coefficients between price and quality; and Belgium had a negative, yet statistically nonsignificant, correlation for Household Items.

The individual product-line correlations for the four European countries and the United States are shown in Table 5. The pattern of results is very similar to the results reported in U.S.-based studies, which are summarized in Table 2.

An alarming finding reported in Table 5 is the proportion of negative price-quality correlation coefficients for the individual-product lines. For all five countries, the number of negative correlation coefficients exceeded 25 percent of the total product lines investigated; and for two countries, Belgium and France, the number of negative correlation coefficients exceeded 40 percent. These results support Steenkamp's (1989) conclusion that the "price-quality relationships are product specific and weak in general" (p. 225).

Table 5: Price-Quality Correlations by Country and Product Line

Product Categories	BEL	FRC	GER	NTH	USA
<i><u>Food and Beverages:</u></i>					
Alcoholic Beverages	0,168	0,215	0,269	0,075	0,206
Breads	-----	-0,131	0,222	0,120	-0,393
Cereals	0,408	-0,065	-----	-----	-----
Coffee	0,103	-0,055	-----	-----	0,208
Condiments	0,111	-0,046	-----	-----	0,177
Confectionary	0,591	0,077	0,053	-----	-----
Dairy Products	-0,026	-0,012	0,083	0,107	-0,023
Frozen Dinners	0,193	-0,106	-----	-----	305,000
Honey and Molasses	0,391	-----	0,658	-----	-----
Juices	-0,142	0,131	0,260	0,213	-0,033
Meat Products	0,149	0,047	0,026	0,020	0,258
Mineral Water	0,093	0,116	0,102	0,402	0,201
Pasta	-0,287	-----	0,460	-----	0,119
Peanut Butter	-----	-----	-----	-0,023	0,086
Pet Foods	-0,366	0,013	-----	-----	-----
Pizzas	-----	0,432	0,427	0,329	0,222
Powdered Mixes	-----	-0,395	0,138	-----	0,207
Preserves	-0,049	0,539	0,099	-----	0,241
Rices	0,271	-----	0,329	-----	-----
Salad and Cooking Oil	-0,070	-----	0,345	-0,231	-0,318
Sauces	-0,069	0,026	-----	-----	0,374
Sea Foods	0,009	-0,108	-----	-----	0,192
Snack Foods	0,148	-0,138	-0,165	-----	0,171
Soft Drinks	0,113	-0,143	0,219	-----	0,207
Soups	0,113	-0,140	0,161	-----	-0,075
Tea	0,097	-----	-----	-----	0,207
Vegetables	-0,057	0,117	0,105	-----	-0,113
<i><u>Summary:</u></i>					
Number of Product Lines	23	21	18	9	22
Proportion of Negative Correlation Coefficients	34,7%	52,3%	5,6%	22,2%	27,3%
Range of Rank Correlation Coefficients	-0.366 to 0.591	-0.395 to 0.539	-0.165 to 0.658	-0.231 to 0.402	-0.393 to 0.374
<i><u>Health and Beauty Aids:</u></i>					
After Shave Lotion	0,014	-0,103	-----	-----	-----
Bath Soaps	-0,344	-0,091	0,279	-----	-0,423
Bubble Bath	0,324	0,198	-----	-----	-----

Table5 (Contd...)					
Product Categories	BEL	FRC	GER	NTH	USA
Contact Lens Fluid	0,154	-----	-----	0,017	-----
Contraceptives	-0,518	0,075	-0,295	-0,011	0,056
Curlers	-----	-----	0,690	-----	-0,067
Denture Cleaners	-----	-----	0,544	-----	-0,067
Deodorants	-0,353	-0,006	0,066	-----	---
Facial Masks	-0,492	-----	0,019	-0,103	----
Facial Tissues	0,784	0,072	-----	-----	0,696
Feminine Hygiene Products	0,330	0,626	0,132	-----	-----
First Aid Kits	-----	-----	-0,377	-0,013	----
Hair Cream	----	-----	-0,228	-----	-0,014
Hair Removers	-0,370	-----	-----	-----	0,206
Hair Sprays	0,421	-0,123	0,105	-----	----
Lip Stick	0,218	-----	0,422	0,165	----
Makeup Removers	-----	0,372	-----	-----	-0,237
Mascaras	-----	-----	0,274	-----	0,172
Moisturizers	-0,205	-0,595	-0,229	-----	-0,025
Nail Potish	-0,335	-----	0,357	-----	-----
Razors	-----	0,608	0,164	-----	0,319
Shampoos	0,362	0,208	0,107	-----	-0,417
Shaving Creams	0,028	0,210	0,283	-----	----
Sun Glasses	0,544	0,457	-----	-----	-----
Suntan Lotions	-0,064	0,340	-0,125	0,177	0,159
Tanning Lamps	0,163	-----	-0,053	0,047	-----
Tooth Brushes	-0,122	-0,157	-0,213	-0,088	0,429
Tooth Pastes	0,078	0,498	0,016	-----	-0,253
<i>Summary:</i>					
Number of Product Lines	21	17	21	8	15
Proportion of Negative Correlation Coefficients	38,1%	35,3%	33,3%	50,0%	53,3%
Range of Rank Correlation Coefficients	-0.518 to 0.784	-0.595 to 0.626	-0.377 to 0.690	-0.103 to 0.177	-0.423 to 0.696
<i>Household Items:</i>					
Bathroom Cleaners	-----	-----	-0,175	-----	0,546
Bleaches	-----	-----	0,038	-----	-0,482
Carpet Cleaning Products	0,381	0,271	0,447	-----	-0,047
Detergents	0,473	-----	0,084	0,197	0,109
Dish Washing Liquids	-----	-0,303	-0,063	-----	0,836
Drain Cleaners	-----	-----	-0,072	-----	-0,271

Table 5 (contd....)					
Product Categories	BEL	FRC	GER	NTH	USA
Floor Polishes	0,091	-----	0,294	0,158	0,050
Glues	-0,116	0,623	0,096	0,105	-0,037
Light Bulbs	-0,340	-----	-0,083	561,000	----
Oven Cleaners	0,566	-----	0,286	-----	0,485
Paper Towels	-----	-----	0,294	-----	0,803
Rubber Gloves	-0,112	-----	-----	-----	0,571
Sponges	-----	-0,305	-----	-----	0,438
Stain Removers	-0,233	-----	-0,027	-----	0,256
Toilet Tissues	-0,006	-0,063	-0,189	-----	0,537
Water Softening Products	-0,258	-0,408	0,464	-----	0,098
<i>Summary:</i>					
Number of Product Lines	10	6	14	4	15
Proportion of Negative Correlation Coefficients	60,0%	66,7%	42,8%	0,0%	26,6%
Range of Rank Correlation Coefficients	-0.340 to 0.566	-0.408 to 0.623	-0.189 to 0.464	0.105 to 0.561	-0.482 to 0.836
<i>Grand Summary:</i>					
Number of Product Lines	54	44	53	21	52
Proportion of Negative Correlation Coefficients	40,7%	47,7%	26,4%	28,6%	34,6%
Range of Rank Correlation Coefficients	-0.518 to 0.784	-0.595 to 0.626	-0.377 to 0.690	-0.231 to 0.561	-0.432 to 0.836

5. Implications for International Marketing

The results of this investigation offer marketing managers and consumer policy makers several interrelated insights on the nature of the price-quality relationship in the five countries and three product categories included in the study. First, the price-quality relationship in one country does not necessarily mirror that found in other geographically, economically, and culturally similar nations. Given the unique nature of the price-quality correlations, a careful analysis of this relationship must be made in each country before marketing strategies or consumer policies are developed.

Another implication of the results is that the nature of the price-quality relationship across product categories in each of the four European countries and the United States varies significantly. The results support Kotler's (1997) observation that companies follow different marketing-mix strategies

based on various levels of price and quality.⁴ The Spearman correlations reported for the three product categories and the individual product lines comprising these categories indicate substantial variation among the countries included in the study.

Third, the low, yet statistically significant correlations between price and quality may suggest that consumers in these countries do not receive a level of quality equal to the retail price charged for the types of frequently purchased nondurable consumer goods included in the study. This in turn may indicate that consumers in each country are inefficiently allocating their financial resources.

Finally, the low price-quality correlations suggest that consumers may be using cues other than retail price to judge product quality. Therefore, international marketing managers should incorporate cues such as brand name, advertising and promotion, and retailer reputation, to communicate product quality. These factors apparently provide the consumer with important information beyond that communicated by retail price alone.

6. Concluding Remarks

In this study the prices of various consumer nondurable products (Food and Beverages, Health and Beauty Aids, and Household Items) were correlated with the quality ratings given by testing agencies in Belgium, France, Germany, the Netherlands, and the United States. A very wide difference in the proportion of negative correlation coefficients, ranging from 26.4 percent (Germany) to 47.7 percent (France), was found. However, the mean value of the correlation coefficients over the entire product sample was positive and ranged from 0.052 (Belgium) to 0.129 (United States).

Perhaps the most significant contribution of the study is that the results derived from data generated in four European countries revealed a high degree of similarity with the results from the studies conducted during the past several decades in the United States. Thus, the lack of a strong price-quality relationship appears to be an international phenomenon. The

⁴ Kotler (1997) identifies nine marketing-mix strategies based on various levels of price and quality. The nine strategies are defined by a 3 X 3 matrix with price and quality forming the columns and rows. Both price and quality are manipulated at three levels --high, medium, and low.

relatively low, yet statistically significant, correlations found in all five countries might indicate to some consumer advocates that a high degree of market inefficiency exists. As Geistfeldt (1986) states in his review of the price-quality literature, "If the relationship between price and quality is poor [low], markets are not working well and consumers are not making efficient use of their resources" (p. 144). This observation has guided consumer policy in all five countries and has led consumer advocates to call for the establishment of information programs to provide consumers with low-cost information on the quality of products (Committee on Consumer Policy, 1983).

However, one need not ascribe to the idea that markets are operating inefficiently because it is possible that there are other explanations for low price-quality correlations in the market. Testing organizations provide useful information with respect to technical quality, but consumers base their product purchases on style and taste as well as other attributes, including store loyalty, availability, and vendor location. Because testing organizations do not report these attributes, important factors in the consumers' decision-making process are not measured.

Finally, this may be a situation in which the market is working quite well, and the low price-quality correlations are providing firms with an incentive to introduce new and improved products. Hjorth-Andersen (1988) and Grunewald, Faulds, and McNulty (1993) have shown that markets for nondurable consumer products cluster around average and high-quality levels. This occurs because price competition among high-quality products eventually reduces prices, thus gradually eliminating low-quality products from the marketplace. This pattern will occur as long as the unit variable cost associated with quality improvement does not exceed the consumers' willingness to pay for quality improvements (Abbott, 1955). Therefore, new products enter the market at high-quality levels, and as their prices drop over time, the price-quality correlation drops as well (Curry and Riesz, 1988). The result is that inferior products are driven from the marketplace.

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