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The author reports some empirical results on the strength of the quality-price relation. For many products, the relation between quality and price appears to be very weak; hence, for many products, higher prices appear to be poor signals of higher quality.

Do Higher Prices Signal Higher Quality?

In a perfectly functioning market, one might expect a strong, positive relationship between product quality and price. Before we report some empirical results on the strength of the quality-price relation, it is useful to discuss market situations in which the positive relationship might be eroded or even eliminated.

Consumers often are unable to make clear quality comparisons among brands. Quality is seldom detectable at a glance and several studies have shown that consumers engage in relatively little information search, even when the financial commitment involved is substantial (Newman and Staelin 1972 and their references).

One alternative for consumers is to follow market signals of quality. Examples of such indicators are advertising (Nelson 1974; Schmalensee 1978; Wiggins and Lane 1983), brand popularity (Smallwood and Conlisk 1979), and price (Farrell 1980; Gabor and Granger 1966; Leavitt 1954; Scitovsky 1944; Spence 1974). Because some consumers are searching for information and others are following market signals, it is unlikely that signals reveal all the information; if they did, no consumers would have incentives to search (Grossman and Stiglitz 1980). In what market situations is a market signal more likely to convey accurate information about quality? The following discussion focuses on the price signal.

Price can convey demand-related quality information or supply-related quality information. A high price may reflect either a high demand for superior quality or the high production costs associated with high quality. Leavitt (1954), Tull, Boring, and Gonsior (1964), Gabor and Granger (1966), and McConnell (1968) found that consumers indeed believe that high prices are indicators of better quality, a belief that "you get what you pay for."

Consumer expectations of higher quality at higher prices can be self-fulfilled only if sellers do not find it profitable to "cheat" by conveying false market signals—charging higher prices for lower quality.

Two reasons why sellers might refrain from cheating are desire for repeat sales and the presence of informed consumers (Farrell 1980). In contrast, reasons why sellers might be motivated to cheat include risk, brand loyalty, packaging, and advertising. A consumer who tries a given brand and finds it satisfactory may continue to purchase it, either to avoid the risk involved in trying a new brand (Wiggins and Lane 1983) or because of a sense of brand loyalty (Jones and Zufryden 1982). Sellers sometimes use deceptive packaging or advertising claims. Some consumers appear to ignore unit-price information (price per pound, ounce, etc.), even when such information is provided on the package (McElroy and Haker 1979 and their references). With advertising, higher prices may reflect higher selling costs rather than better quality.

Previous empirical studies on the relationship between price and quality include those of Oxenfeldt (1950), Morris and Bronson (1969), Sproles (1977), Riesz (1978, 1979), and Geistfeld (1982)). All these studies concluded that quality/price relations are product-specific and weak in general. Unfortunately, the findings did not have much impact on the theoretical literature; there are almost no theories capable of explaining how a weak relation between quality and price can persist.

In the next section we report results similar to those of previous studies; the relationship between quality and price appears to be product-specific and weak in general. We then report initial investigations to explain the variations in the quality-price relation across products. Previous studies have not attempted to explain this variation.

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DATA

The data used were taken from various issues of *Buying Guide* (1980–1982), published by the Consumers Union, a nonprofit organization that provides information on consumer goods through periodic studies on the overall quality of different brands. The studies include laboratory tests, controlled-use tests, expert judgment of purchased samples, and user opinion surveys. The Consumers Union personnel involved in a given study adopt a point system for product ratings that assigns weight to product characteristics such as convenience, durability, safety, and serviceability. On the basis of these weights, brands of products are ranked in order of estimated overall quality. The exact formula used for these rankings is not disclosed in consumer reports. The *Buying Guide* reports also list prices or average market prices based on reports of shoppers employed by the Consumers Union, who obtain price quotations from department stores, specialty houses, discount houses, and the like in more than 35 states.

In our study, the *Buying Guide* rankings were used to measure relative quality, and the reported prices were viewed as the signals of brand quality. The *Buying Guide* is considered a reliable source of information by many consumers (2.7 million issues sold); however, there are limitations involved in using this information.

Consumers Union may not be a totally unbiased source of information; it may be in their interest to show that price is a poor signal of quality because such information would strengthen the demand for consumer reports. Also, the Consumers Union measures of quality are sometimes based on small samples, and hence may not be highly reliable. Furthermore, the Consumers Union quality rankings do not take into account the segmentation in a market; i.e., at best, they can be consistent only with the preferences of the average consumer. For some consumer groups, however, the quality ranking may not be satisfactory if product characteristics important to those groups are not considered important by the Consumers Union. Finally, the prices listed by Consumers Union may be different from actual transaction prices. This point is discussed further hereafter.

The data set covers 145 products, 86 nonfrequently purchased and 59 frequently purchased. It includes the products from the 1980–1982 issues for which decisive quality rankings and prices were reported. However, for some cases in which several product subtypes were reported, only product subtypes with relatively large numbers of brands were included in the data set.

IS MORE EXPENSIVE BETTER?

If high-priced brands are of higher quality, most of the sample products should show a positive correlation across brands between quality and price. Tables 1 and 2

Table 1

PRICE-QUALITY CORRELATIONS AND PRICE VARIATION ACROSS BRANDS, NONFREQUENTLY PURCHASED ITEMS

Product	*Number of brands*	*Kendall correlation*	*Significance level*	*Highest price ($)*	*Price of best brand ($)*[a]	*Average price ($)*	*S. D. ($)*
Aerosol paints	18	.15	.20	4.95	2.98	3.31	0.79
Air conditioners[b]	7	.39	.12	338.00	338.00	268.42	31.20
Air conditioners[c]	10	.20	.12	420.00	420.00	364.60	36.67
Clock radios	21	.38	.01	80.00	80.00	53.00	11.05
Coffee makers	23	.18	.12	80.00	80.00	42.56	14.27
Bicycle locks[d]	7	.05	.44	10.00	6.00	6.71	2.29
Bicycle locks[e]	14	.72	.00	52.00	24.00	20.07	13.58
Bicycle locks[f]	7	.49	.06	28.00	28.00	20.00	5.20
Binoculars	47	.47	.00	424.00	350.00	153.00	103.95
Black & white TV sets	14	.39	.03	120.00	110.00	105.07	8.47
Blow dryers	26	.37	.01	30.00	15.00	19.88	6.48
Refrigerators	10	.29	.14	748.00	570.00	605.90	58.37
Broiler ovens	10	−.22	.79	170.00	53.00	83.80	38.88
Dishwashers	18	.35	.02	530.00	489.00	404.05	87.51
Burglar alarms[g]	15	.02	.46	237.00	150.00	130.93	65.75
Burglar alarms[h]	4	.55	.14	120.00	120.00	107.50	9.57
Burglar alarms[i]	5	.00	.50	350.00	280.00	252.00	74.21
Camera tripods	29	.38	.00	130.00	95.00	55.86	22.50
Radio/cassette	26	.15	.15	335.00	190.00	203.31	55.70
Tape decks	20	−.04	.60	430.00	350.00	378.35	35.68
Book packs	23	.33	.01	28.00	11.00	12.78	7.65
Clothes dryers, elec.	16	.05	.40	440.00	361.00	358.00	34.91
Clothes dryers, gas	10	.12	.32	478.00	478.00	405.70	38.41
Coffee grinders	12	−.11	.69	60.00	55.00	34.83	14.74
Color console TV sets	17	.24	.09	1,150.00	1,150.00	813.30	117.10
Compact stereos	16	.56	.00	440.00	410.00	379.62	51.40
Corn poppers[j]	3	−.33	.70	48.00	45.00	46.67	1.53

Table 1—(Continued)

Product	Number of brands	Kendall correlations	Significance levels	Highest price ($)	Price of best brand ($)[a]	Average price ($)	S. D. ($)
Corn poppers[k]	8	.04	.45	46.00	46.00	24.75	9.82
Curling irons	19	.22	.13	28.00	11.00	14.58	5.33
Electric drills	17	.51	.00	90.00	90.00	50.18	20.73
Hedge trimmers	13	−.08	.65	72.00	44.00	45.15	13.40
Vaporizers[l]	15	−.05	.62	33.00	33.00	21.73	6.18
Vaporizers[m]	8	.33	.13	18.00	14.00	12.50	3.30
Exercise bikes	18	.37	.01	385.00	360.00	179.67	90.76
Food processors	23	.34	.01	175.00	150.00	106.83	38.65
Freezers, chest	10	.18	.23	471.00	437.00	407.70	29.82
Freezers, upright	9	.52	.03	521.00	461.00	442.00	35.26
Gas heaters	12	−.15	.75	383.00	230.00	283.00	52.48
Hammers	5	−.36	.80	17.00	15.00	16.40	.89
Kerosene heaters[n]	4	.33	.25	298.00	290.00	277.50	24.32
Kerosene heaters[o]	9	.65	.01	285.00	285.00	224.67	39.00
Frying pans	9	.22	.20	70.00	49.00	46.89	14.76
Trenchcoats	14	.30	.06	675.00	200.00	193.36	162.60
Manual typewriters	33	.63	.00	278.00	278.00	140.06	48.45
Microwave ovens	23	.36	.02	660.00	480.00	508.48	67.51
Microwave ovens[n]	4	−.66	.91	900.00	640.00	805.00	113.87
Stereo receivers	29	.01	.47	420.00	399.00	386.10	22.57
Ministereos	6	.73	.02	1,390.00	1,020.00	945.83	281.65
Miniloudspeakers	4	.66	.08	1,310.00	1,310.00	915.00	305.34
Mini TV/radio	11	−.17	.76	360.00	245.00	284.91	45.98
Phono cartridges	28	.11	.22	200.00	135.00	133.50	39.15
Large playpens	17	.01	.48	80.00	45.00	60.06	10.07
Small playpens	9	.00	.50	70.00	58.00	54.11	9.77
Cassette recorders	16	.08	.34	130.00	49.00	55.56	20.90
Portable fans	17	.20	.16	70.00	70.00	36.65	14.20
Food mixers	14	.44	.02	33.00	33.00	23.93	6.56
Pressure cookers	12	.26	.13	72.00	38.00	48.08	11.97
Printing calculators	21	.22	.08	189.00	130.00	114.19	35.50
Radio/cassette, mono	15	.31	.06	110.00	100.00	89.20	17.26
Radio/cassette, stereo	6	.47	.09	210.00	180.00	185.00	18.71
Lawnmowers	13	.68	.00	468.00	468.00	362.00	65.50
Frying pans	3	.00	.50	52.00	42.00	45.33	5.77
12″ black & white TV sets	16	.14	.23	130.00	120.00	107.75	12.36
Small color TV sets	18	.05	.38	480.00	370.00	398.33	47.28
Smoke detectors	4	−.23	.68	55.00	25.00	38.25	13.50
Solar water heaters	5	.60	.07	3,500.00	3,500.00	2,734.40	440.90
Stereo headphones	9	.18	.26	175.00	85.00	97.22	48.61
String trimmers	14	.07	.37	65.00	60.00	52.50	9.35
Teleconverter lenses	26	.60	.00	248.00	240.00	107.19	68.77
Toaster ovens	13	−.20	.81	110.00	110.00	69.84	18.95
Refrigerators[p]	13	.14	.26	672.00	569.00	584.07	46.36
Turntables	19	.33	.03	220.00	169.00	170.84	19.69
Vacuum cleaners	16	−.06	.63	459.00	188.00	172.69	100.30
Videotape-recorders[q]	5	−.11	.60	1,500.00	1,350.00	1,378.00	76.86
Videotape-recorders[r]	3	−1.00	.94	1,800.00	1,200.00	1,450.00	312.25
Washing machines	12	.21	.19	521.00	521.00	431.25	48.70
Washing machines[s]	12	.42	.04	549.00	549.00	447.41	51.42
Electric water heaters	11	.26	.13	382.00	373.00	284.00	54.25
Gas water heaters	12	−.08	.64	424.00	230.00	289.00	71.58
Whole-house fans	8	.00	.50	396.00	396.00	294.00	66.92
Woks	5	.11	.40	70.00	70.00	59.00	10.64
Women's trenchcoats	10	.47	.03	575.00	175.00	212.50	163.64
Zoom lenses	16	.43	.01	798.00	210.00	490.94	169.34
19″ color TV sets	19	.06	.39	750.00	590.00	665.21	56.70
35mm cameras	27	.16	.11	1,085.00	608.00	561.30	218.45
Camera lenses	25	−.38	.99	380.00	200.00	173.52	66.88

[a]Least expensive when more than one.
[b]5000–5300 Btu/hr.
[c]6800–7500 Btu/hr.
[d]Chain and combination.
[e]Chain and key padlock.
[f]Oversized.
[g]Motion detector.
[h]Wired system.
[i]Wireless system.
[j]Hot air.
[k]Oil.
[l]Cool mist.
[m]Steam.
[n]Convective.
[o]Radiant.
[p]Upright/frost-free.
[q]Console.
[r]Portable.
[s]Top-loading.

Table 2
PRICE-QUALITY CORRELATIONS AND PRICE VARIATION ACROSS BRANDS, FREQUENTLY PURCHASED ITEMS[a]

Product	No. of brands	Kendall correlations	Significance levels	Highest price ($)	Price of best brand ($)	Average price ($)	S. D. ($)
Liquid cleaners	16	−.03	.55	.29	.12	.15	.05
Powder cleaners	6	.28	.22	1.10	.06	.25	.41
Spray cleaners	9	−.36	.92	1.24	.23	.61	.29
Sliced bacon	27	−.10	.73	2.39	1.64	1.78	.31
Sliced bacon[b]	7	.12	.36	2.20	1.71	1.87	.31
Hot dogs	22	.25	.06	3.34	1.67	1.88	.53
Hot dogs[c]	18	.15	.20	2.01	1.74	1.60	.29
Beef stews	12	.04	.44	1.16	.47	.54	.21
Bottled water	9	−.12	.67	.08	.01	.05	.02
Rye breads	7	.20	.27	1.04	.99	.92	.12
Wheat breads	10	−.13	.70	1.05	.89	.86	.14
White breads	10	.43	.04	.86	.79	.69	.18
Baked beans	9	.04	.45	.21	.11	.15	.03
Baked beans[c]	22	.10	.28	.19	.08	.10	.03
Canned salmon	31	.24	.04	1.24	.72	.77	.24
Bean soup	11	−.18	.76	.64	.13	.31	.21
Chicken soup	8	−.56	.96	.37	.09	.17	.12
Tomato soup	9	−.18	.72	.49	.08	.16	.14
Vegetable soup	9	.04	.44	.36	.36	.18	.10
Vegetable soup[d]	8	−.22	.75	.12	.09	.10	.01
Vegetarian soup	7	.00	.50	.49	.09	.18	.15
Chicken hot dogs	7	.00	.50	1.31	.90	1.15	.13
Ice cream[e]	27	.31	.02	.41	.09	.16	.07
Ice cream[f]	28	.42	.00	.41	.27	.15	.08
Ice milk[e]	3	.00	.50	.12	.06	.08	.03
Ice milk	3	.00	.50	.09	.09	.09	.00
Dishwasher detergents	22	.12	.21	4.56	1.17	1.63	.74
Dishwashing liquids	16	.64	.00	1.70	1.59	1.47	.21
Floor polishers	18	.03	.44	1.86	.67	1.25	.42
Floor polishers[g]	7	.00	.50	2.00	.79	1.30	.38
Frozen fish[h]	22	.00	.50	.55	.27	.41	.08
Frozen fish[i]	10	.20	.25	.44	.28	.37	.04
Frozen fish[j]	6	.08	.42	.46	.36	.38	.06
Frozen french fries	16	−.48	.98	.21	.15	.16	.03
Fried chicken[k]	10	.31	.11	.19	.09	.14	.03
Fried chicken[l]	6	−.50	.91	.21	.15	.18	.03
Fried chicken[m]	6	.15	.34	.21	.16	.15	.03
Fried chicken[n]	5	−.11	.61	.15	.14	.14	.02
Grape drinks	6	.41	.13	.14	.12	.08	.04
Orange drinks	7	−.49	.94	.50	.07	.17	.15
Garbage trashbags[o]	14	.59	.00	.26	.26	.18	.05
Garbage trashbags[p]	8	.43	.07	.45	.28	.29	.08
Garbage trashbags[q]	5	−.10	.60	.18	.18	.14	.03
Garbage trashbags[r]	11	−.07	.63	.14	.09	.09	.02
Garbage trashbags[s]	6	−.23	.73	.08	.06	.07	.01
Laundry detergents	11	−.73	1.00	.35	.03	.21	.10
Space insecticides	24	−.05	.64	.27	.07	.15	.04
Surface insecticides	13	−.47	.98	.23	.12	.14	.04
Laundry boosters	15	−.11	.71	.35	.06	.10	.10
Milk flavorings	12	.20	.19	.13	.10	.08	.03
Oven cleaners	12	−.37	.95	3.95	1.42	1.74	.75
Paper towels	30	.66	.00	1.76	1.76	.65	.27
Peanut butter	18	.23	.09	4.17	2.10	2.03	.66
Rug shampoos	25	−.12	.78	4.40	2.19	2.54	.75
Sparkling water	15	.00	.50	.36	.26	.24	.06
Turkey breasts	8	−.44	.90	.67	.50	.58	.07
Turkey roasts	16	−.29	.09	.66	.64	.55	.08
Whole turkeys	18	.12	.27	.51	.35	.36	.05
Vegetarian meats	10	−.13	.70	.74	.23	.50	.18

[a]Some of the prices are per-unit measure (price per pound, ounce, serving, etc.).
[b]Thick-sliced.
[c]With pork.
[d]With stock.
[e]Chocolate.
[f]Vanilla.
[g]Wood.
[h]Batter-coated.
[i]Breaded.
[j]In sauce.
[k]Assorted pieces.
[l]Breasts.
[m]Legs.
[n]Wings.
[o]Large.
[p]Lawn.
[q]Small.
[r]Tall kitchen.
[s]Wastebasket.

report the Kendall rank correlation coefficients; the Spearman correlations are little different. The tables also report the significance levels for a one-tailed test of the null hypothesis that the correlation between brand quality and price is zero. The remaining columns give for each product the highest price, the price of the best brand, the average price, and the standard deviation of price.

The proportion of products for which the null hypothesis can be rejected at the .05 significance level is very low, 28% for Table 1 and 12% for Table 2. These relatively low proportions suggest that for many products higher prices do not signal higher quality. The other columns further illustrate this finding. The number of cases in which the best quality brand is the most expensive is relatively small, 27% for Table 1 and 17% for Table 2, and the number of cases in which the price of the best brand is below the average price is surprisingly high, 36% for Table 1 and 68% for Table 2. The weak positive relationship between quality and price is further illustrated by the low average correlation across all products, .19 for Table 1 and .01 for Table 2.

Products having relatively strong positive correlations include bicycle locks, binoculars, black and white TV sets, compact stereos, electric drills, upright freezers, kerosene heaters, manual typewriters, ministereos, miniloudspeakers, food mixers, lawnmowers, solar water heaters, teleconverter lenses, and women's trenchcoats (Table 1); white breads, ice creams, dishwashing liquids, large garbage trashbags, and paper towels (Table 2).

None of this information is of much interest if quality and price do not vary much across brands. It turns out, however, that price variation for most products is substantial, as indicated by the standard deviations in the last column of the tables. Also, for many of the products tested, brand performance ranges from excellent to poor or unacceptable.

Given the nature of these findings, it is tempting to

Table 3
REGRESSION ESTIMATES AND PRICE-QUALITY CORRELATIONS

Product	*Number of brands*	*Quality coefficient*	*Size coefficient*	*Kendall partial correlation*	*Kendall nonpartial correlation*
Liquid cleaners	16	−.00	.00	−.22	.03
Powder cleaners	6	.05	−.01	.32	.28
Spray cleaners	9	−.06	−.01	−.38	−.36
Hot dogs	22	.09	−.09	.12	.25
Hot dogs[b]	18	.03	−.16[a]	.17	.15
Beef stews	12	−.40	−.01	.00	.21
Bottled water	9	−.00	−.00[a]	−.09	−.12
Rye breads	7	.02	.07	.19	.20
Wheat breads	10	−.02	−.03[a]	−.25	−.13
White breads	10	.02[a]	−.03[a]	.35	.43
Canned salmon	31	.07[a]	−.04[a]	.18	.24
Chicken hot dogs	7	.02	−.08	.31	.00
Dishwasher detergents	22	.00	−.00	.03	.12
Floor polishers	18	−.00	−.01	.08	.03
Floor polishers	7	.02	−.01	.06	.00
Frozen fish[d]	22	.02	−.01[a]	.07	.00
Frozen fish[e]	10	.01	.00	.18	.20
Frozen fish[f]	6	.02[a]	−.07[a]	.15	.08
Fried chicken[g]	10	.00	−.00	.33	.31
Fried chicken[h]	6	−.01	−.00	−.39	−.50
Fried chicken[i]	6	.00	−.01	.33	.15
Fried chicken[j]	5	−.00	.00	−.57	−.11
Garbage trashbags[k]	14	.01[a]	−.00[a]	.48	.59
Garbage trashbags[l]	8	.01	.00	.41	.43
Garbage trashbags[m]	5	.06	−.00	−.08	−.10
Garbage trashbags[n]	11	.00	−.00	.16	−.07
Garbage trashbags[o]	6	−.00	−.00	−.29	−.23
Laundry detergents	11	−.02	−.00	−.71	−.73
Milk flavorings	12	.00	−.00	.18	.20
Paper towels	30	.01[a]	−.01[a]	.49	.66
Peanut butter	18	−.00	−.00	−.02	.23
Rug shampoos	25	−.03	−.01[a]	−.11	−.12
Sparkling water	15	.00	.00[a]	.01	.00
Vegetarian meats	10	−.01	.00	−.12	−.13

[a]Significant at the .05 level.
[b]With pork.
[c]Wood.
[d]Batter-coated.
[e]Breaded.
[f]In sauce.
[g]Assorted pieces.
[h]Breasts.
[i]Legs.
[j]Wings.
[k]Large.
[l]Lawn.
[m]Small.
[n]Tall kitchen.
[o]Wastebasket.

try to explain the variation in the price-quality correlations across products. Why is the correlation highly positive for some products such as binoculars, whereas for other products, such as liquid cleaners, there is no correlation at all? The information given in the *Buying Guide* issues is insufficient for a thorough investigation; however, some initial investigations have been attempted.

The first hypothesis is that frequently purchased items (Table 2) should show better price-quality relationships than nonfrequently purchased items (Table 1) because in the former group, sellers are more dependent on repeat sales and hence might refrain from supplying lower quality at higher price. To test this hypothesis, the following regression was computed.

$$\rho = \underset{(.032)}{.187} - \underset{(.050)}{.180}D \quad (1)$$

where ρ denotes the correlation coefficients in Tables 1 and 2 and D is a dummy variable equal to zero for items in Table 1 and one for items in Table 2. The standard error of the dummy coefficient indicates that the correlations in Table 1 are significantly higher on average than those in Table 2, which is not consistent with the hypothesis. In trying to understand this result, two other hypotheses come to mind.

First, the difference could occur because nonfrequently purchased items are also usually more expensive and big-ticket markets are more likely to behave because the financial commitment of customers is substantial. To test this hypothesis, we replaced the dummy variable in equation 1 with the variable P, defined to be the average price of the product class measured in tens of dollars. Computing this regression, we obtained

$$\rho = \underset{(.030)}{.068} + \underset{(.002)}{.005}P. \quad (2)$$

The price coefficient is positive and significant, an indication that the better price-quality relationship for nonfrequently purchased items could be due to these items being more expensive.[1]

Second, the difference could occur because, for many products in Table 2, different brands have different sizes. For products in Table 1, however, size variation across brands is not significant. The presence of different sizes makes price-quantity and price-quality comparisons more difficult and, when information gathering is more costly to consumers, a weak relation between quality and price is more likely to persist.

For 34 products in Table 2 for which brand size was reported, prices per unit size were used to compute the correlations. To control for size variation, a regression analysis was performed for the 34 products with price per unit size as the dependent variable and quality rankings and package size as the independent variables.

Table 3 reports the estimated coefficients of the independent variables. Partial and nonpartial correlation coefficients between price and quality also are reported. As indicated, the quality coefficient is positive and significant for only five products (15%). The weak positive relationship between quality and price is also reflected by the low values of the partial correlation coefficients. The size coefficient, however, is negative and significant for 11 products (33%). This finding indicates that in cases in which size variation across brands is significant, higher unit price may reflect non-economical packages rather than higher quality.

CONCLUSION

The findings indicate that for many products the relation between quality and price is weak; hence, for many products, higher prices appear to be poor signals of higher quality. The findings also indicate that quality-price relations are product-specific, with frequently purchased items displaying weaker relations than nonfrequently purchased items.

Two explanations for these findings are suggested. First, the weaker relationship for frequently purchased products could be attributed to the fact that nonfrequently purchased items usually are more expensive and big-ticket markets are more likely to behave because the financial commitment of customers is substantial. It has been shown that products with higher ticket prices display stronger price-quality relationship than do frequently purchased items.

Second, the weaker price-quality relationship could be caused by size variations across brands, which make price-quantity and price-quality comparisons more difficult. It has been shown that higher unit prices may signal non-economical packages rather than higher quality.

The limitations of the study raised in the Data section suggest that future research should focus on factors that will minimize the effects of these limitations. Surely, the biggest limitation pertains to the quality indicator. Another limitation is the fact that the price information used may be different from actual transaction prices. In preliminary research, Geistfeld (1982) reported price-quality correlations based on price data collected from two specific markets for 14 products (primarily appliances). He concluded that the relation between price and quality was weak.

Finally, more research should be devoted to explaining variations in the quality-price relation across products. Some of the hypotheses that can be tested in the future follow.

1. Price-quality relationships may be better for product classes for which quality is more easily observed, because cheating would be more difficult.

[1]Alternatively, regressing P and D on ρ yields

$$\rho = \underset{(.044)}{.145} + \underset{(.002)}{.003}P - \underset{(.059)}{.138}D$$

The price coefficient is still positive but not significant at the .05 level, perhaps because P and D are highly correlated.

2. Price-quality relationships may be better for product classes about which word-of-mouth information is more likely to be generated or used, because a seller who cheats is likely to have a bad reputation.
3. Price-quality relationships may be better for product classes for which customers are likely to have homogeneous preference structures. For these product classes, consumers might be more likely to agree on quality ratings and, hence, a unidimensional quality measure could better describe the quality concept.

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