THE IMPACT OF ADVERTISING ON THE EFFICIENCY OF THE FOOD DISTRIBUTION SYSTEM

by
Loys L. Mather and Joe T. Davis
Department of Agricultural Economics
University of Kentucky

Advertising plays a key role in our economy and, in particular in the food system. Many articles have appeared in both the academic and the business press regarding the benefits of advertising and promotion to the individual firm. This paper will take a more macro approach in discussing the impact of advertising on the efficiency of the food manufacturing sector since much of the current activity in food advertising can be attributed to these firms. Implications of advertising on the competitive environment and on other firms in the food distribution system will be discussed.

Food manufacturers spent an estimated $4 billion on advertising and promotion in 1977. By comparison with other industries, the food manufacturing industries are perennial leaders, accounting for 25 percent of the total advertising expenditures by all manufacturing industries (Table 1). While various methods are used in advertising and promoting food products, including point of purchase, direct mail, etc., the most widely used method is media advertising.[1] Over one-half of the total advertising budgets of manufacturers have normally been set aside for media advertising.

The various media are not necessarily perfect substitutes, however, as television apparently is regarded as the most effective media. For the food industries as a whole, the share of media expenditures devoted to television ranged from 53 to 58 percent in recent years. Large firms, however, rely more heavily on television than do smaller firms. Of the 100 leading advertisers of 1977 identified by Advertising Age, 48 were food manufacturers.[2] If one looks at the 25 largest advertisers who were also food manufacturers (and excluding those whose major products are forbidden from television advertisements) the share of advertising devoted to television ranges from 43 to 98 percent with a median of 83 percent (Table 2).

Food advertising is not uniformly distributed among firms by either size or type of firm. Large firms, especially those with over $250 million in assets, accounted for over 60 percent of the advertising in 1971 (6). Not only is a large share of food advertising attributed to the larger firms, but they also devote a larger share of their sales dollars to advertising, 3.7 percent, compared to the 2.3 percent industry average. This is somewhat surprising in view of economies of size considerations. Spending nearly four percent of the sales dollar on advertising may at first seem to be an insignificant expenditure, but the expenditure takes an added significance, however, in relation to the earnings/sales ratio of 4.7 for the 25 leading food advertisers (2).

The preceding suggested that advertising expenditures are concentrated among the larger firms. Closer examination reveals that a few large companies account for a large share of the food

Table 1. Total Advertising Expenditures of Selected Manufacturing Industries, 1963, 1967, 1972

	1963	1967	1972
		- millions -	
Total manufacturing	$5,993	$8,286	$10,474
Food and Kindred products	1,637	2,031	2,532
Tobacco	317	363	398
Apparel and other fabricated textiles	126	170	207
Furniture and fixtures	62	72	105
Chemicals and allied products	1,350	1,929	2,476
Petroleum	222	321	392
Primary metals	106	140	143
Motor vehicles	205	520	567

Source: Statistics of Income, Corporation Income Tax Returns, Department of Treasury, Internal Revenue Service.

Table 2. Measured Media Food and Nonfood Advertising Expenditures of 25 Leading Food Manufacturers, 1977

Firm	Measured Media Expenditures	Measured Media as Percent of Total Advertising	Television as Percent of Measured Media
	---$1000's---		
Proctor & Gamble	355,558	77.3	92.7
General Foods	252,717	84.3	85.2
Warner-Lambert	89,720	44.6	94.7
Philip Morris	168,322	91.5	25.1
American Home Prod.	158,965	92.9	91.5
R. J. Reynolds	162,236	98.5	6.2
General Mills	151,919	94.6	83.4
Unilever	115,344	79.5	90.4
Norton-Simon	66,068	51.9	63.5
Pepsi Cola Co.	83,676	67.5	90.1
RCA Corp.	59,258	47.7	46.0
Beatrice Foods	25,581	23.2	65.8
McDonald's Corp.	98,567	80.6	97.1
Heublein	68,492	64.2	59.7
Int'l. Tel. & Tel.	51,275	48.9	83.3
Gulf & Western Ind.	21,039	20.8	73.7
Kraft, Inc.	77,364	78.1	63.9

(Continued)

Table 2. (Continued)

Firm	Measured Media Expenditures	Measured Media as Percent of Total Advertising	Television as Percent of Measured Media
	---$1000's---		
Nabisco, Inc.	86,745	85.8	90.8
B.A.T., Inc.	76,254	83.5	8.2
Coca-Cola Co.	58,982	66.1	76.9
Pillsbury Co.	62,868	73.2	88.1
American Brands	68,111	81.1	12.1
Ralston Purina	78,476	97.1	78.6
Seagram Co.	43,862	56.2	2.7
Anheuser-Busch	58,687	77.7	72.2

industry's advertising. Four large food manufacturers accounted for over one-fifth of the measured media advertising of food products in 1976 (Table 3) with the eight largest totaling one-third. The largest advertiser of food, General Foods, alone accounts for 10 percent of all measured media food advertising. If one looks at the concentration of food advertising in network television, the results are even more dramatic. Four firms did one-third of the network television of food advertising in 1976, and twelve firms did nearly 60 percent (Table 4). Again, General Foods lead the group with 16 percent of the network television expenditures for food. All of the leading advertisers in Tables 3 and 4 are diversified firms. One conclusion from these data is that the concentration levels remained virtually unchanged from 1967 to 1976, but this is overshadowed by the very large share of advertising which is consistently held by the leading food advertisers.

Regarding type of firm, several advantages could be postulated which a conglomerate, diversified firm would have in its advertising program over a specialized firm (6). For example, a large diversified firm may well have an advantage in acquiring large blocks of prime-time network television which can be spread over several different products or brands. Of the 46 firms manufacturing or distributing food found on the Advertising Age list of 100 leading advertisers, all but seven are diversified firms (Table 5).[3] In 1973, the median advertising/sales ratio for these 46 firms was 4.4 percent and the unweighted mean was 5.4 percent. This compares with the industry mean of 2.3 percent in 1971 (1,16).

Implications to Competitive Environment

Economic theory suggests that the efficiency of a firm or market is related to the level of competition. The merger-diversification-advertising trend may carry implications relative to competition and market power within the food manufacturing and distribution system. First, it is possible for a smaller, non-diversified firm to be at a competitive disadvantage when competing with a large diversified firm--where both are competing as buyers or as sellers or where one is a buyer and the other a seller. In

Table 3. The Eight Largest Media Advertisers of Manufactured Food Products, 1967, 1972, 1976[1]

1967			1972			1976		
Company	Expenditures (thousands)	Share %	Company	Expenditures (thousands)	Share %	Company	Expenditures (thousands)	Share %
General Foods	89,200	8.67	General Foods	94,118	8.60	General Foods	184,044	10.05
Coca-Cola	46,532	4.52	General Mills	45,637	4.17	General Mills	82,490	4.5
General Mills	43,355	4.21	Kellogg	35,905	3.29	PepsiCo	59,763	3.26
Kellogg	40,203	3.91	Kraftco	35,792	3.29	Kraft	57,534	3.14
Top 4 totals	219,290	21.31	Top 4 totals	211,532	19.33	Top 4 totals	383,831	20.96
Kraftco	28,277	2.75	Coca-Cola	33,578	3.07	Procter & Gamble	55,017	3.00
PepsiCo	26,217	2.55	PepsiCo	33,144	3.03	Coca-Cola	51,733	2.82
Campbell Soup	25,633	2.49	Heublein	28,865	2.64	Kellogg	51,277	2.80
Wrigley	23,235	2.26	Procter & Gamble	28,028	2.56	Nestle	50,759	2.77
Second 4 totals	103,362	10.05	Second 4 totals	123,615	11.30	Second 4 totals	208,786	11.39
Top 8 totals	322,652	31.36	Top 8 totals	335,147	30.63	Top 8 totals	592,617	32.35
Industry totals	1,029,047	100.0	Industry totals	1,094,320	100.0	Industry totals	1,831,480	100.0

[1]Advertising expenditures in network and spot television, magazines, and newspaper supplements.

Sources: Michael C. Varner, Advertising and Conglomeration in the Food Processing Industries, Ph.D. Dissertation, Department of Agricultural Economics, Cornell University, September 1976 and Company/Brand $, Leading National Advertisers, 1976.

Table 4. Concentration of Network Television Advertising of Food by Leading Food Manufacturers, 1967 and 1976

Firm	Expenditures	Share	Firm	Expenditures	Share
	(thousands)	(%)		(thousands)	(%)
General Foods	$43,153	13.13	General Foods	$107,064	16.04
General Mills	26,715	8.13	General Mills	44,932	6.73
Kellogg	24,285	7.39	Kellogg	32,343	4.84
Carnation	13,340	4.06	Nestle	32,091	4.81
Top 4 totals	106,493	32.71	Top 4 totals	216,430	32.42
Kraft Co	12,887	3.92	J. Schlitz Brew.	28,551	4.28
Pepsi Co	11,677	3.55	Pepsi Co	24,032	3.60
Procter & Gamble	11,150	3.39	Nabisco	20,340	3.04
Campbell Soup	9,644	2.93	Campbell Soup	19,483	2.92
Second 4 totals	45,358	13.79	Second 4 totals	92,406	13.84
Top 8 totals	151,851	46.50	Top 8 totals	308,836	46.26
Quaker Oats	9,580	2.91	Pillsbury	19,097	2.86
Nabisco	9,346	2.84	Kraft Co	17,871	2.68
Standard Brands	7,604	2.31	Coca-Cola	17,745	2.66
Lever Bros.	7,540	2.29	Norton Simon	16,637	2.49
Third 4 totals	34,070	10.35	Third 4 totals	71,350	10.69
Top 12 totals	185,921	56.85	Top 12 totals	380,186	56.95

Source: Leading National Advertisers

Table 5. Total Advertising of Food and Nonfood Products as a Percent of Sales for Leading Food Manufacturers, 1973-1977

	Advertising as Percent of Sales				
	1973	1974	1975	1976	1977
			- Percent -		
Procter & Gamble	6.3	7.3	7.9	8.4	5.7
General Foods	8.1	6.9	6.8	7.6	5.6
Warner-Lambert Co.	14.6	14.3	13.9	15.3	7.9
Philip Morris, Inc.	2.7	2.7	2.7	3.5	3.5
American Home Products	9.9	8.8	5.7	8.8	8.7
R. J. Reynolds	2.6	2.3	2.3	2.4	2.6
General Mills	3.7	3.1	3.6	4.5	4.9
Unilever	-	-	-	10.7	10.7
Norton Simon, Inc.	5.1	5.4	6.6	6.8	7.2
Pepsi Cola, Inc.	4.4	3.3	3.9	3.1	3.5
RCA Corp.	1.9	1.8	1.8	1.9	2.4
Beatrice Foods Co.	-	1.6	1.7	1.5	1.9

(Continued)

Table 5. (Continued)

Firm	Advertising as Percent of Sales 1973	1974	1975	1976	1977
	- Percent -				
McDonald's Corp.	3.1	3.0	0.3	3.4	3.8
Heublein, Inc.	5.9	6.4	6.2	8.3	6.6
Int'l Tel. & Tel. Corp.	1.9	1.8	0.6	0.7	0.6
Gulf & Western Ind.	-	-	2.2	2.6	2.8
Kraft, Inc.	2.4	2.0	1.9	2.0	1.9
Nabisco, Inc.	6.8	5.7	4.1	4.4	4.6
B.A.T. Inc.	-	-	-	4.0	6.2
Coca Cola Co.	3.5	3.0	0.3	3.0	2.5
Pillsbury Co.	5.0	4.1	4.6	5.1	5.0
American Brands	1.9	2.0	1.8	2.1	1.8
Ralston Purina Co.	1.6	2.1	0.2	2.6	2.1
Seagram Co.	3.9	3.9	3.3	3.2	3.6
Anheuser-Busch	2.5	1.8	0.2	2.7	3.4
Nestle Ent.	4.5	3.9	4.3	5.0	5.7
Kellogg Co.	5.4	4.9	5.0	4.9	4.6
Liggett Group	4.9	5.5	6.5	6.2	7.2
Chesebrough-Pond's	12.6	10.8	10.5	8.0	8.3
Lowes Corp.	5.8	6.1	2.2	2.2	2.0
H. J. Heinz Co.	1.8	2.2	1.8	2.5	3.1
Esmark, Inc.	-	-	0.8	1.0	1.2
Quaker Oats Co.	2.6	3.4	2.6	2.8	3.9
Campbell Soup Co.	3.7	2.9	3.7	4.2	3.4
Borden, Inc.	-	0.9	1.6	1.7	1.7
Jos. Schlitz Brewing	3.9	3.5	3.8	4.2	5.2
CPC Int.	4.0	2.8	3.7	4.2	4.5
Mars, Inc.	12.3	11.5	13.9	5.6	6.5
Standard Brands 1	4.5	3.1	0.4	3.9	2.4
Greyhound Corp.	1.1	1.3	1.4	1.4	1.3
Clorox Co.	6.6	5.2	3.7	5.1	5.5
Miles Lab.	19.2	16.2	16.1	15.5	9.7
Squibb Corp.	-	-	1.8	2.2	2.8
Morton-Norwich	7.4	7.7	7.2	6.5	5.9
Carnation Co.	1.4	1.8	1.5	1.5	1.4
Wm. Wrigley, Jr. Co.	12.1	8.8	6.9	8.8	7.8

particular, where both are sellers, the smaller rival may well face a competitive disadvantage with respect to financing a large advertising budget or gaining favored media time or space (e.g., prime time network television). While this opportunity may not be closed in all cases, the competitive advantage may be with the diversified advertiser. Additional data on both advertising and production or consumption would be required in order to determine whether such advantage exists. This is usually not possible on a cross-sectional basis, but is possible more often as a case study. One such example, combining both the role of a diversified, merger active firm and the influence of advertising is the brewing industry. In this industry, the forces of diversification, merger, and advertising have converged and will likely result in a dramatic restructuring of the industry.

Until recently, the brewing industry was noted as an industry comprised of specialized, independently owned firms. The acquisition of the Miller Brewing Company, the seventh largest brewer, first by W. R. Grace and later by Philip Morris introduced a new competitive dimension into the industry. Philip Morris, with its large resource base and marketing expertise has used advertising as the major device for bringing Miller into industry prominence (9,12,13). Media advertising expenditures increased from $10.9 million in 1970 to over $43 million in 1977 (11). Unit costs of advertising reached a peak of $2.59 per barrel in 1971, far ahead of that of the industry leaders, Anheuser-Busch and Schlitz, at $0.98 and $1.03 respectively (1). The costs have been high, and could only be afforded by having a diversified parent firm to cross-subsidize the firm through the advertising budget (5,13).

In six years, Miller has climbed from the seventh to the second largest brewer. Consumption of Miller products increased 370 percent from 1970 through 1977 while consumption of the remaining twelve largest brewers increased by only 46 percent (1,3).

The gains to Miller have not been without costs to the industry. While all changes in the structure of the industry should not be attributed solely to Miller, the nature and level of competition instituted by Miller seems to be largely responsible. First, if the present trend continued, it is quite likely that the industry will be restructured quite dramatically, with the four leading brewers increasing market share from 51 percent in 1972 to 71 percent by 1980 (Table 6). Those firms who have the resource base have countered the Miller challenge with additional advertising. But most projections suggest that (other than Miller) only Anheuser-Busch will reach 1980 with an increased market share. Schlitz and Pabst, at best, may be able to maintain their current market shares. This is quite the opposite result from that predicted in a study of the industry in the mid 1960's:

> "...it appears unlikely that concentration in the brewing industry at least with regard to the leading five firms, will increase to any great extent in the near future, though we might anticipate that concentration for the leading 25 firms will enjoy appreciable gains"(10).

Second, additional restructuring is likely, particularly through the acquisition of other leading brewers by diversified firms. Some leading brewers have already indicated their interest in finding a diversified, parent firm to provide them the financial resources to ward off further inroads by Miller. Third, the product differentiation-advertising strategy pursued by Philip Morris/Miller has most likely increased the industry's marketing costs. In response to the Miller challenge, 12 of the 14 largest brewers increased their media advertising

Table 6. Market Shares of Leading Brewers; 1972, 1980

Firms	1972 (Actual)	1980 (Projected)
Four largest	51%	71%
Fifth through twelfth largest	39%	27%
All others	10%	2%

Source: Sanford C. Bernstein & Company, Brewing Industry Review, December 1977, p. 30 and Willard F. Mueller, Testimony before Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate.

expenditures in 1977. As a group (and excluding Miller) their 1977 advertising expenditures increased 34 percent over 1976, yet production levels increased only 7 percent. Advertising cost per barrel consequently increased from $0.94 to $1.34, a 43 percent increase (3). The increased marketing costs of these firms in all likelihood represents an increase in total costs to the firms since most of these firms are of sufficient size that production economies are only slight or have already been exhausted (7,13). Fourth, it would be a myopic view to conclude that what has happened in the brewing industry has no relevance to the rest of the food manufacturing industries. The recent acquisitions of Green Giant by Pillsbury and of Del Monte by R. J. Reynolds, added to the Hunt Foods consolidated into Norton-Simon a few years ago and the acquisition of Libby by the Nestle Enterprises is another example of an industry previously dominated by specialized firms coming under the control of conglomerate enterprise.

Implications to Food Distributors

Implications of the trends in mergers, diversification, and advertising to food wholesalers and retailers should be noted. First, will the trends result in an added marketing cost to the system? As in the case with trading stamps, there are short-run advantages to the initiator of a new method of competition, but the advantage can disappear in the long run. With trading stamps, the first few that initiated the practice could expect an increase in sales sufficiently large to offset the added cost of issuing the stamps. But as most other firms in the market duplicate the action, the initiator's advantage disappears into an added cost to the market system. Will this also be the end result in those industries where a diversified firm enters through merger and attempts to gain added market share through an advertising cross-subsidy? The Philip Morris-Miller example and others suggest this may be true, and if so, confirming the hypotheses of conglomerate growth suggested by both Edwards (6) and Narver (14). Preliminary research results at the University of Kentucky on 68 acquisitions of food manufacturers between 1965 and 1972 tentatively suggest that the cross-subsidization hypothesis is valid. There are several brands which, following acquisition, have become a leading advertised brand and, in some cases, a leading consumed brand.

Second, what will be the effect on consumer choice and on consumer sovereignty? Regarding the former, one goal of the food manufacturer appears to be in gaining market share through intense advertising which develops a "demand-pull" for their products on the part of consumers. This could be a response by manufacturers to private labeling by retailers and to the struggle for shelf space. Thus consumers, who previously may have been price conscious, or at least somewhat indifferent regarding brands, may develop a preference for a given advertised brand. Implications to a retailer, especially one promoting private labels, are obvious.

Regarding the latter, Galbraith suggested that the large expenditures on advertising by firms selling to consumers may be influencing consumer buying decisions to such an extent that it is the producer, and not the consumer, who is sovereign (8). Whether there have been shifts in consumption due to advertising expenditures is speculative at this point. Clearly, the most highly processed food products receive a significantly larger share of media advertising dollars than do the more basic commodity foods (15). The present data based, however, is not sufficient to test for actual shifts in consumption except in special cases (e.g., brewing) where consumption data are available by brand.

Finally, what are the possible implications of the trends noted above regarding the relative market power of manufacturers and retailers? To a few, large national chains, who themselves are integrated into manufacturing, the implications may be quite limited. Regional and local chains, however, may find themselves at a competitive disadvantage as they face fewer sellers who are also selling a larger share of the food products needed by the retailer. The market power implications were probably best summarized by Mueller in reference to the Philip Morris-Miller merger when he stated that the end result of the merger is "the inexorable trend toward shared monopoly in which price competition is replaced by escalating promotional competition and ultimately higher prices; an environment in which survival and success is dictated by market power, not efficiency; the demise of most regional and local brewers and the weakening of some major brewers as effective competitors" (12).

FOOTNOTES

[1]Media advertising includes network and spot television, network and spot radio, newspapers and newspaper supplements, magazines, and outdoor.

[2]A firm was defined to be a food manufacturer if it had annual sales of food products of at least $200 million and with the food sales accounting for a minimum of 10 percent of firm sales.

[3]A firm was classified as diversified if less than 70 percent of its sales came from a single 3 digit SIC industry group based on firm diversification data found in Connor and Mather (4). If more than 70 percent came from a single 3-digit industry, it was classified as a specialized firm.

REFERENCES

1. Advertising Age, November 3, 1975.

2. Advertising Age, August 28, 1978.

3. Advertising Age, November 9, 1978.

4. John M. Connor and Loys L. Mather, Directory of the 200 Largest U.S. Food and Tobacco Processing Firms 1975 (joint publication: ESCS-US Department of Agriculture and North Central Regional Project NC-117) July 1978.

5. William Coors, quoted in Beer Marketers Insights, June 1, 1976.

6. Corwin D. Edwards, "Conglomerate Bigness as a Source of Power" in Business Concentration and Price Policy, Conference Proceedings of the National Bureau of Economic Research (Princeton: Princeton University Press, 1955).

7. Kenneth G. Elzinga, "The Beer Industry," in Adams (Ed.), The Structure of American Industry (New York: McMillan Publishing Company, Inc.) 1977.

8. J. K. Galbraith, "Economics as a System of Belief," American Economic Review, May 1970.

9. M. G. Hofkin, A Perspective Piece on the Major Brews, Robert W. Baird & Company, March 1976.

10. Ira Horowitz and Ann R. Horowitz, "Firms in a Declining Market: The Brewing Case," Journal of Industrial Economics, March 1965.

11. Leading National Advertisers, Inc. Company/Brand $, December 1977, Vol. 4, No. 4.

12. Miller Times, Vol. 2, Issue 2, April-June 1976.

13. Willard F. Mueller, Testimony before Hearings on Conglomerate Mergers, Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U.S. Senate, May 12, 1978.

14. John C. Narver, Conglomerate Mergers and Market Competition (Berkeley: University of California Press, 1969).

15. Mark Reese, The Influence of Advertising on Consumption of Selected Food Products, M.S. Degree Thesis (in process) University of Kentucky.

16. Sourcebook, Statistics of Income, Corporation Income Tax Returns, U.S. Treasury Department, Internal Revenue Service.