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John C. Hilke

and

Philip B. Nelson

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A Note on the Economies of Network Television Advertising

John C. Hilke and Philip B. Nelson[1]

Introduction

Economists have long recognized that if there are economies of geographic scope in advertising,[2] entry (into markets where advertising is important) by at least some firms may be deterred.[3] More specifically, some economists have argued that potential entrants are not able to enter regionally because they cannot effectively use spot advertising in a limited area to counter less expensive network advertising by established national firms.[4] And even if a disparity in the cost of network and spot advertising doesn't bar entry, economists realize that a sizeable difference will affect firm strategies and market outcomes. For example, regional firms, because advertising is relatively more expensive for them, may enter niches in the market where advertising is a relatively less important competitive tool.

Despite continued interest in the question of economies in network advertising, the relationship between network television advertising costs and spot advertising costs remains in question.[5] On the one hand, Porter argues that network advertising rates are from 10% to 70% of equivalent average spot rates.[6] On the other hand, Peterman reports that once differences in the sizes of the audiences are accounted for, most of the difference in rates disappear.[7] Although Peterman's review of Porter's analysis correctly points out that Porter misinterpreted the data he used, Peterman's analysis is also somewhat problematical, since he

relies on published rates which may be quite different from actual transaction prices.[8]

Although transaction prices obviously are preferable to published rates, researchers typically face formidable hurdles in obtaining such information. One context in which transaction level data may appear, however, is in litigation that includes consideration of marketing generally and advertising in particular. If economies of national network advertising are substantial, one would expect that they would be reflected in the advertising and general marketing documents of firms. This might be expected to be particularly true of industries in which some firms distribute nationally, while others are primarily regional firms. The purpose of this note is to review the information about economies of network television contained in publicly available documents from a recently completed case, In the Matter of General Foods (FTC Docket 9085), which dealt with the sales of ground coffee.[9]

Description of the Industry

The pattern of sales of ground coffee during the 1970s, the focal period for the case, was ideal for raising the issue of network versus spot advertising costs. At the beginning of the period, General Foods' regular Maxwell House brand (RMH) was the only major brand of ground coffee being distributed nationally. The remaining ground coffee roasters all had distribution patterns that excluded large portions of the country. Table 1, below, lists the principal roasters and their market shares in various areas of the country. As Table 1 indicates, none of the

TABLE 1

YEARLY BRAND MARKET SHARES BASED ON NIELSEN 12 lb. UNIT VOLUME SALES

FISCAL YEAR ENDING MARCH 1971

(APRIL 1970 - MARCH 1971)

	BRAND'S MARKET SHARES (%)						
Sales Districts	Maxwell House	Total General Foods	Hills Bros.	Folgers	Chase & Sandborn	Savarin	MJB
Boston	40.1	44.2	10.2	*	10.2	*	*
New York	29.8	35.2	4.9	*	2.5	13.7	*
Philadelphia	45.1	49.6	9.7	*	9.5	2.5	*
Syracuse	36.4	41.3	17.1	*	16.4	*	*
Washington	48.2	53.1	2.7	*	9.8	*	*
Charlotte	41.3	47.7	*	1.1	14.1	*	*
Atlanta	32.9	37.5	*	1.6	15.0	*	*
Jacksonville	41.5	44.3	*	20.8	8.7	*	*
Memphis	26.4	28.7	*	37.8	1.4	*	*
New Orleans	27.5	29.4	*	10.7	4.9	*	*
Detroit	38.8	44.5	25.7	*	11.8	*	*
Indianapolis	32.4	37.3	8.2	27.6	7.9	*	*
Chicago	10.6	16.2	30.8	25.5	2.7	*	*
Youngstown	42.0	46.4	15.8	*	9.3	*	*
Cincinnati	37.5	41.1	*	24.7	5.2	*	*
Minneapolis	4.4	7.8	6.6	34.8	*	*	1.1
Kansas City	9.5	12.5	0.5	53.2	*	*	*
Dallas	10.9	15.5	*	44.9	*	*	*
Houston	8.3	10.7	*	35.8	*	*	*
St. Louis	11.8	19.0	*	30.5	2.6	*	*
Portland	6.1	12.1	9.4	31.6	*	*	22.9
San Francisco	8.8	18.9	14.7	32.4	1.2	*	14.7
Los Angeles	8.0	23.2	15.4	28.8	*	*	13.4
Denver	4.7	9.3	13.8	35.6	*	*	16.2
Phoenix	8.5	12.5	13.3	49.0	*	*	6.6
TOTAL UNITED STATES	24.0	29.8	10.2	19.1	5.1	1.3	3.0

* = Market share less than 0.5%
(Source: CX 1072)

roasters other than General Foods had even a low level presence in all areas of the country. As a result, none of the other roasters would be expected to be able to make economical use of network advertising, since a large proportion of any network advertising would be wasted on consumers in areas where they could not find the product on the shelves of local grocery stores.

General Foods, although it had national distribution, was not equally popular in all areas of the country. It had a much larger share in the mid-West and East than it did in other parts of the country. Consequently it pursued a mixed strategy of network and spot advertising. A base level of network advertising was provided in all areas and then supplemental spot coverage was purchased.[10] This pattern in itself is consistent with the proposition that network advertising has some cost advantage. However, either differences in audience composition or very small cost differences could generate this type of pattern, so it is not definitive evidence of a sizeable cost disparity between network and spot television.

Documentary Evidence on Network and Spot Advertising Costs

During the course of the General Foods investigation, marketing documents were subpoenaed principally from General Foods, but also from other roasters. Since the focus of the case was on events surrounding Folgers' expansion into the eastern part of the country, most of the materials from General Foods' files focus on relative costs for General Foods' Maxwell House brand and

for Folgers.

These General Foods documents make numerous references to economies of network purchases ("buys").[11] As mentioned earlier, General Foods bought base levels of network advertising which were supplemented with spot advertising. In general, General Foods' documents reported that Maxwell House had a cost advantage relative to Folgers on this basis. Typical are these statements from documents CX449 and CX450 prepared by Maxwell House's advertising agency:

> In addition, because of RMH's national distribution and Folger's regional development, RMH is in a position to take greater advantage of the efficiency of network. (CX449-C)
>
> Spot vs. Network: ..., (nationally) RMH makes more use of network television than Folger's. RMH places 40% of its weight in network, Folger's 16%. The major reason for this is because RMH has a national distribution and Folger's does not. RMH, therefore, can reap the advantages of the economics of scale afforded by network television. (CX449-D)
>
> Spot vs. Network: RMH has the opportunity to take advantage of heavier use of network: 36% vs. 2% for Folger's. (CX450-F)
>
> RMH gained competitive leverage through its ability to use dollar efficient daytime network television. (CX450-M)

In addition to these general descriptions of the cost efficiency of network TV, General Foods' documents made quantitative comparisons of costs, using women gross rating points (WGRPs).[12] The advertising delivery and cost comparisons in Table 2, for example, are also taken from CX450 titled "Folger's: Round II Defense Market Media Analysis".

TABLE 2

COMPARATIVE COSTS AND ADVERTISING DELIVERY*

Area and Date		Regular Maxwell House (National and Spot) Mean WGRPs	Expenditures (000s)	Exp./Mo. WGRPs
Cleveland	11-12/71	255	$ 140	275
Cleveland	01-03/72	320	211	220
Cleveland	04-06/72	160	126	263
Cleveland	07-09/72	120	84	233
** Philadelphia	3/73-2/74	200	1166	486
** Pittsburgh	3/73-3/74	205	400	150
** Johnstown	3/73-3/74	235	144	47
** Wheeling	3/73-3/74	195	74	29

Area and Date		Folger's (Spot) Mean WGRPs	Expenditures (000s)	Exp./Mo. WGRPs
Cleveland	11-12/71	160	137	$ 428
Cleveland	01-03/72	150	107	238
Cleveland	04-06/72	105	105	333
Cleveland	07-09/72	130	105	269
** Philadelphia	3/73-2/74	155	1067	574
** Pittsburgh	3/73-3/74	155+	324	174
** Johnstown	3/73-3/74	155+	104	56
** Wheeling	3/73-3/74	155+	60	32

Area and Date		Price of WGRPs for RMH / Price of WGRPs for Folger
Cleveland	11-12/71	.64
Cleveland	01-03/72	.92
Cleveland	04-06/72	.79
Cleveland	07-09/72	.87
** Philadelphia	3/73-2/74	.85
** Pittsburgh	3/73-3/74	.86
** Johnstown	3/73-3/74	.84
** Wheeling	3/73-3/74	.91

* WGRPs are women gross rating points-- a measure of audience size among women. Expenditures per monthly WGRPs is the price of a month's worth of 1 WGRP. For example, in Cleveland during the two months of November and December 1971, the mean level of WGRPs was 255 or 2 x 255 = 510 monthly WGRPs. The price for these 510 monthly WGRPs was $140,000 or $275 per monthly WGRP.

** Projected by Ogilvy & Mather

\+ Starts 4/73.

Source: CX 450

In describing the figures for Cleveland, Ogilvy and Mather concluded that, although RMH had "out-delivered" Folger's by 53%, RMH had outspent Folger's by only 24% (CX 450). The difference in costs per rating point were attributed in part to RMH's use of network advertising. O & M specifically noted that the Cleveland comparisons between RMH and Folger advertising expenditures were not marred by major differences in the day parts being used or by message length differences (CX 450-M and N). Both firms used predominately fringe time and 60 second messages.[13] Since a relatively small portion of RMH's total advertising in this area came from network advertising, the Ogilvy and Mather analysis implies that network rates were considerably lower than spot rates.[14]

Another comparison of the rates was done in RMH's 1971 Media Plan (CX 441). Table 3 presents the basic data used in the analysis. Based on this data, Ogilvy & Mather concluded:

> Daytime network is an efficient means of providing national support. The chart below (Table 3) demonstrates that day spot in the top 178 markets is 45 percent more costly while covering fewer households. (CX 441-G)

The conclusion that network advertising is less costly than spot advertising of comparable quality was also found in the submissions of other coffee roasters. An explicit evaluation of the issue appeared in a 1976 Hills Brothers document entitled "Network vs. Spot Cost Comparison" (CCX 867). In this document, Hills Brothers' staff evaluated the advisability of replacing its 4th quarter 1976 spot purchases with network buys. This Hills Brother's analysis concluded that a network program for this

TABLE 3

RELATIVE COSTS OF NETWORK AND SPOT FOR REGULAR MAXWELL HOUSE IN FISCAL 1971

	Cost (10 GRPs)	% US TV HH
Day Network	$5,450	100
Day Spot (178 Mkts.)	$7,900	99

Source: CX 441-H

period would have cost $3,053,500 compared to spot costs for the same period, the same GRPs, and the same day parts of $3,987,750. The spot purchases in this comparison are more than 30% higher than the network costs.[15] Hills indicated that the prices per weekly GRP were $975 for network daytime and, $2,300 for network prime time vs. $1,415 for daytime spot and $2,950 for prime spot covering Hills distribution areas. The spot daytime figure is 45% higher than the network figure. The spot prime time figure is 28% higher than the network figure.

Caveats To The Preceding Analysis

The documents described in the previous section appear to support the view that there were cost savings associated with using network rather than spot TV during the 1970s. The size of these savings appears to have varied from five to forty-five percent. However, these results should not be interpreted too broadly. Not only is the documentary evidence limited to one industry, but it is not always clear what factors are held constant in the comparisons of spot and network advertising costs. While we have no reason to believe that invalid comparisons were made by the media planners who wrote the documents we cite, we suspect that appropriate ceteris paribus comparisons are difficult to make. When either spot or network TV is not available for certain shows which attract the particular demographic group the manufacturer wishes to reach, comparison of "effective" rates will be impossible. This type of problem may arise frequently since spot and network television

shows differ and the positioning of the ads differs. These do not appear to be trivial points since the closeness of an ad to the purchase decision varies across shows and the positioning of ads within a show alters an audience's recall of the ad.16 For example, in CX 441-I, Olgilvy and Mather indicated its belief that night network TV provides a "favorable commercial environment" relative to other classes of TV advertising due to:

- somewhat less commercialization during prime time
- greater viewer involvement (Attentiveness scores suggest higher viewer interest)
- in-show positioning.

When comparisons can be successfully standardized in terms of particular audience attributes, such as age, sex, and income, it appears likely that spot and network costs will vary both absolutely and in comparison to each other for the different demographic groups. After all, the price of network and spot tv is a function of both supply and demand forces, which vary for different shows, since the costs of producing shows and the demand for access to the audiences attracted by shows differ.

Tables 4 and 5 illustrate the variation in charges for network and spot tv. Table 4 suggests that the cost effectiveness of advertising on particular television shows will differ depending on what demographic group one is trying to reach. For example, if one is trying to reach women, daytime network is over 100% more cost effective than nighttime network television. However, the cost effectiveness of daytime network

TABLE 4
COST PER THOUSAND ADVERTISING EXPOSURES

	Day Net :30	Night Net :30
Total Women	$1.04	$2.28
Women 18-49 yrs. of age	1.90	3.67
$5,000-$9,000 households	4.20	5.08
$10,000+ households	5.00	5.30
$5,000+ households	1.32	2.54
Total Households	.83	1.83

Source:CX 441

Note: Fringe time represents the time between late afternoon and prime evening time and an exposure represents a person being present when an ad is shown on television.

is much less for the other demographic groups shown in the table.

Table 5, which is for cereal rather than coffee advertising, reports figures that suggest that the cost effectiveness of network television may vary relative to the cost effectiveness of spot television over time. While the chart focuses on seasonal differences in the relative costs, showing that network charges (per thousand households per commercial minute) are closer to spot charges in the winter than they are in the summer,[17] similar variations may also be present for different times of day and television shows (types of audiences). For example, General Foods found it advantageous to spread its advertising across network and spot advertising at different times of the day to reach the various demographic groups it felt it needed to reach. (CX 441-G, H, I, J) This behavior does not appear to be limited to coffee. Many of the leading food advertisers use spot and network TV.[18] However, the use of network TV does appear to be more concentrated among the largest advertisers than is the use of spot TV.[19]

Conclusion

The evidence presented above supports the view that there can be sizeable cost savings associated with the use of network rather than spot TV. However, it is also apparent that this general statement may have to be tempered for particular products which appeal to different demographic groups than coffee does and, perhaps for different time periods.[20] Furthermore, while spot TV advertising does appear to be more expensive, the difference in cost between spot and network TV rates does not appear to be as

TABLE 5

SEASONAL VARIATION IN ADVERTISING RATES CHARGED

TO GENERAL MILLS' CHERRIO'S BRAND

JUNE 1963 - MAY 1964

Season	Time of Day	Network/Spot	Cost per Thousand Households per Commercial Minute
Summer	M-F/Various AM	Spot	1.43
	M-F/Average AM	CBS	1.00
Winter	M-F/Various AM	Spot	1.08
	M-F/Average AM	CBS	1.05

Source: CX GMI-555

large as Porter believed.[21] The cost disadvantage of spot, identified in case documents, was approximately half that reported by Porter.

[1] The authors are staff economists at the F.T.C. The opinions expressed in the paper are the authors' and are not intended to represent those of the F.T.C. or any Commissioner. We would like to thank John Peterman and Pauline Ippolito for helpful comments.

[2] We focus on the empirical issue of whether there appear to be different charges for network and spot advertising slots that provide access to similar audiences. As a result, the "economies" we focus on are those that potential ad buyers face. We do not try to identify in detail the demand, or supply characteristics that generate any observed differences between spot and network charges. Data on the costs of contracting and providing network and spot ad time would be needed for this analysis, which were not available to us. Similarly, data on the market power of the relevant actors was unavailable. However, it seems logical that network buyers are likely to be in a better position to negotiate price reductions and that the transaction costs associated with selling network time will be lower per audience size.

[3] Joe Bain, Barriers to New Competition, Harvard University Press, Cambridge, 1956; James Ferguson, Advertising And Competition: Theory, Measurement, Fact, Ballinger, Cambridge, 1974; George Stigler, The Organization of Industry, Irwin, Homewood, Ill.; and 1968 Commonor and Wilson Advertising and Market Power, Harvard University Press, Cambridge, 1974. Antitrust proceedings have typically focused on volume discounts, rather than spot vs. network rate differentials. Perhaps the classic cases that involve economies of scale due to volume discounts are: Procter and Gamble (Clorox acquisition) and General Foods (S.O.S. acquisition). See Proctor and Gamble Co. 3 Trade Reg. Rep. (1963-1965) Transfer Binder Par. 16673 (FTC 1963) and General Foods Corp., 3 Trade Reg. Rep. (1963-1965) Transfer Binder Par. 17161 (FTC 1964).

[4] Michael Porter, "Intrabrand Choice, Media Mix and Market Performance," American Economic Review 66 (May, 1976): 398-406.

[5] We focus on the difference in the costs of spot and network television. Obviously, if other forms of advertising, such as print or radio, are good substitutes for television, the relative costs of these alternative media should also be considered. However, for many products, television appears to be more cost effective, given the revealed preference for this form of advertising. Over 50% of all advertising is television advertising and roughly half of this is network television time. (L. L. Mather, "Advertising and Mergers in the Food Manufacturing Industries," N.C. Project 117, unpublished working paper, July 1979, p. 10). Food and tobacco manufacturers rely on television more than others and use spot television relatively more frequently than network television. (Loys Mather, p. 12) More specifically, General Mills concluded in 1969 that, "Total's media level ($2.9MM) does not justify a multimedia plan, and therefore, TV will continue to be the single medium used..." (CX-GMI-567B), which suggests that television dominates other forms

of advertising for this consumer product. Indeed, in 1971 over 90% of all advertising dollars by cereal manufacturers appear to have been spent on spot or network television. Leading National Advertisers, Inc. Competitive Brand Quarterly, 1971 Quarter, New York, 1971.

[6] Michael Porter (1976). Before the 1960's, there clearly were substantial volume discounts. See Harlan Blake and Jack Blum, "Network Television Rate Practices: A Case Study in the Failure of Social Control of Price Discrimination," Yale Law Journal 74, (July, 1965): 1339-1401. While volume discounts no longer appear in list prices, Levmore found discounts in negotiated prices. See, Saul Levmore, "Small Firm Disadvantages In Television Advertising," unpublished Ph.D. disertation, Yale University, December 1978. Others who have recognized that at least some prices for advertising vary with the size of the buyer include: David Blank, "Television Advertising: the Great Discount Illusion, or Tony Pandy Revisited," Journal of Business. 41 (January, 1968): 10-38; John Peterman, "The Clorox Case and the Television Rate Structure," Journal of Law and Economics " (October, 1968): 321-422; William Comanor and Thomas Wilson, Advertising and Market Power (Cambridge, Mass: Harvard University Press, 1968); and John Peterman and Michael Carney, "A Comment on Network Television Price Discrimination, Journal of Business 51 (April, 1978): 343-352.

Another related source of information, which focuses on the availability of "quality" time to localized advertisers, is by Willard F. Mueller, "Competitive Significance for the Beer Industry of Exclusive Advertising Rights Granted National Brewers in Major Network Sports Events," unpublished public paper submitted to the Department of Justice and Federal Trade Commission, January 15, 1979. See also James Scala, "Advertising and Shared Monopoly in Consumer Goods Industries," Columbia Journal of Law and Social Problems, 9 (1973): 241-278.

[7] John L. Peterman, "Differences between the Levels of Spot and Network Television Advertising Rates," Journal of Business 52 (October 1979): 549-561. Johan Arndt and Julian Simon ("Advertising and Economies of Scale: Critical Comments on the Evidence," Journal of Industrial Economics, Vol. 32, No. 2 (December 1983) pp. 229-242) find Peterman's methodology superior and conclude that economies of network advertising are present but of unknown size.

[8] For a discussion of the difference between list prices and transaction prices, including results from interviews with advertising executives on this point, see Saul Levmore (1979).

[9] Documents from Commission cases are numbered in the format used at trial. The "CX" before the document number indicates that the document is a Commission Exhibit. We not only include references to documents taken from the cofee case, but we also include some footnotes which reference public documents obtained

in the FTC's cereal case. (FTC v. Kellog et. al., D-8883) These documents are distinguished from the coffee costs documents by the letters that follow the CX, which indicate the cereal company that supplied the data. For example, GMI indicates that the document came from General Mills.

10 Cereal manufacturers appear to follow a similar approach. For example, a marketing plan for Total indicates: "Fringe spot television is purchased in order to bring the brand's media weight in line with per capita deliveries and share." (CX-GMI-570-Z1).

11 Cereal producers also appear to have recognized these economies. Kellogg uses network television to provide "efficient national weight" and spot television to efficiently provide additional weight in high potential local markets. (CX-KI-6045)

12 A WGRP is a measure of audience size which focuses on the number of women in the audience. Gross rating points (GRPs) are also used as a measure in some comparisons when the sex and age of the audience is unimportant. In both cases, a rating point equals one percent of the potential audience group under consideration.

13 If the comparison focused on households (rather than women), the relative costs could change. Also, if the companies paid different prices for spot tv (which may have been true here) because of different timing of their buys, the results would be effected. However, as noted in the text, Ogilvy and Mather felt this was a fair comparison.

14 In an analysis of proposed 1975-1976 advertising levels, Olgilvy and Mather also showed that switching $517,000 of their RMH advertising budget from spot to network television would increase gross impressions among women by over 13,720 impressions (CX 456-Z36).

15 This comparison directly addresses the issue of how much more a regional competitor pays relative to what a national competitor pays due to their differential ability to use network ads. However, if one compared the use of spot to cover the entire nation to the cost of network to cover the same area, the cost differential would be larger.

16 The view that audience recall varies with the time of day was pointed out by Benton & Bowles in an analysis prepared for General Foods. They argue that prime time network TV has a 25-30% higher commercial recall than spot Tv. (CX 779-C) Another General Foods document emphasizes the advantage of advertising early in the day on the Today Show since consumers are more receptive in the morning prior to and during breakfast. The ads have more appetite appeal at this time and consumers are more likely to shop shortly after seeing the ad. (CX 456-Z10) More generally, advertising in the middle of a network show (network

time), rather than between network shows (spot time) is likely to be more effective since audiences are more likely to pay attention to the ads. This is the "In-show positioning" to which the Olgilvy and Mather document refers.

In their article "The Audience-revenue Relationship for Local Television Stations," Franklin Fisher, John McGowan, and David Evans present econometric evidence that television station revenues are closely related to audience size and characteristics. (Bell Journal of Economics, 11, 2 (Autumn 1980) pp. 694-708.

17 Our tables attempt to control for changes in the sizes of audiences at different times of day and seasons of the year. This is important, since audience size varies seasonally and with the time of day. As John Peterman points out, "The proportion of homes using television at any particular time between noon and midnight remains relatively stable from late September to about mid-April at which time the proportions fall again, but primarily for programs broadcast between 6:00 and 11:00 p.m., and remain consistently at these levels through June, July, and August.

18 L. L. Mather, pp. 22-23.

19 In 1976, the top 12 network advertisers made 57% of the expenditures on network TV ads, while the top 12 spot advertisers made only 37% of the expenditures on spot television. (L. L. Mather, pp. 22-23.)

20 In addition to the differences associated with time which are mentioned above, one must also be concerned that the relative prices of spot and network television may be experiencing different long-run inflation rates. Indeed, it appears that, while the inflation rates were similar for the 1965-1975 period, in 1976-1977 network television prices may have increased much more rapidly (15%) than spot TV prices (6%). However, confirming data based on transaction prices is not available. If this type of sizeable structural change took place, it could modify the relationships described above.

21 As John Peterman points out, Porter's estimates appear to have actually compared one network rate with another, (Peterman, p. 554) since Porter assumed the networks' base rates are the stations' spot rates.