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AN ANALYSIS OF EXPOSURE TO NON-NETWORK TELEVISION  
ADVERTISING

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November 21, 1978

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## QUALIFICATIONS

I am a staff Economist with the FTC. I received my Ph.D. in economics from the University of Chicago in June, 1978. My dissertation, "The Distribution of Advertising Within An Industry", was written under the supervision of Lester Telser. It examined the determinants of household purchases of advertised brands in four industries. The study required the use of trade sources of advertising data to construct measures of household exposure to advertising. The study used simultaneous equation techniques to separate household demand for and firm supply of advertising messages.

## Summary

This study analyzes the patterns of exposure to spot television advertising of children and adults. The study matches data on spot advertising aired over approximately 260 local stations, both independents and network affiliates, with data on the station's audience during the period when the advertisement was broadcast. Using this data, it is possible to construct a measure of exposure to advertising which takes into account both the length of the ad and the number of people who saw it. This measure is gross impressions, or minutes of advertising times the number of people in the audience.

Using the gross impressions measure, the study analyzes the distribution of children's advertising exposure across different product classes. May is analyzed as a typical month, but data for the other months studied (February, July, and November) support the same conclusions. All data are for 1977. The study focuses on advertising to all children 2 to 11, since the data indicate differences in advertising exposure of younger and older children are insignificant.

Most of the advertising seen by children is advertising for a wide variety of products grouped in "other" categories. However, certain individual products clearly stand out in the extent to which their advertising is directed to children.

In particular, advertising for toys and presweetened cereals accounts for 11.2% of children's exposure to advertising in May. Toy advertising predominates; children's exposure to spot toy advertising is roughly twice their exposure to presweetened cereals. The concentration of advertising for these products on child audiences is even more apparent when attention is restricted to times when children constitute a relatively large fraction of the audience. The share of total exposure to advertising accounted for these products rises steadily as the fraction of children in the audience increases, reaching 30.4% when children constitute at least 50% of the viewing audience.

Other highly sugared products also constitute a significant fraction of children's total exposure to advertising --10.3% in May. However, children are significantly exposed to advertising for many of these products only because they are generally heavily advertised products, and not because they are particularly heavily advertised to children. As the percentage of children in the viewing audience increases, the share of total exposure accounted for by other highly sugared products increases only slightly at best, and in several cases, declines.

The study also demonstrates that much of children's exposure to advertising occurs during times when children

constitute a relatively large fraction of the audience. When children are at least 20% of the actual viewing audience (compared with 15.5% of the potential viewing audience in the markets analyzed), they receive 57.8% of their total exposure to advertising; when they are at least 30% of the audience, they receive 47% of their total exposure; and when they are at least half the audience, they receive 23% of their total exposure to advertising. By contrast, the vast majority of adult exposure to advertising occurs during times when children are less than 20% of the audience--86.7% in May. Adult exposure to advertising when children are at least half the audience constitutes only 2.33% of total adult exposure to advertising.

The study also analyzes differences and similarities in the patterns of exposure of children and adults to advertising of different product classes. Apart from the large "other" classes, there are substantial differences. However, most of the differences is due to differences in their exposure to advertising for toys and presweetened cereals. Knowledge of the distribution of advertising exposures of adults is sufficient to explain only 54% of the variation in children's exposure to spot television advertising in the 22 individual product classes considered, but it is sufficient to explain 92% of the variation in the 20 classes other than toys and

presweetened cereals. There is weaker evidence that exposure patterns for candy and cakes, pies and pastries may also differ for children and adults.

Examining differences in advertising exposure of children and adults within a product class leads to the same conclusion. While total exposure of adults is greater than exposure of children in every product class, toys and presweetened cereals direct a distinctly larger fraction (46% and 43%, respectively) of their total advertising impressions to children than do other products. Since children are only 15.5% of the potential viewing audience, the concentration of these products on children is apparent. Bicycles and candy deliver over 30% of their total exposures to children, while sugared gum and cakes, pies, and pastries complete the list of products delivering over 20% of their total impressions to children.

Overall, combining the four months, 15.4% of total spot advertising impressions are impressions to children. Thus, children are not, on the average, more heavily exposed to spot advertising than are adults. However, certain products do direct relatively more of their advertising to children than adults.

I. GENERAL DESCRIPTION 1/

A. The data base.

To analyze non-network advertising seen by children, I obtained 1977 data on advertising aired on different stations and the audience of those stations. Advertising data were obtained from Broadcast Advertiser's Reports, Inc. From this data, estimated expenditures and length of advertisements were calculated for each of approximately 267 television stations located in 75 of the largest U.S. television markets. According to Arbitron Television estimates, there are 159,928,100 persons 2+ in television households in these markets, and 24,798,200 children 2-11. Thus, children are 15.51% of the potential audience in these cities.2/

Advertising data were accumulated separately for each of 17 dayparts (specified periods of time on specified days). For each daypart on each station we, therefore, have estimates of total advertising expenditures, and total minutes of advertising for each of 26 different product classes. Product class definitions were provided by the Federal Trade Commission, Bureau of Consumer Protection. The data include only spot advertising--advertising sold by and aired only on a local station (either a network affiliate or an independent), as distinct from advertising sold by the network and aired on all stations carrying the network program. Calculations.

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were made separately for four months--February, May, July, and November. The data are based on monitoring of each station for one week out of the month. All of the tables in this report will, therefore, report the total for one week out of each month, for 1977.

For eleven of the dayparts for each station, advertising data could be matched with data on the average quarter hour audience of the station. It is assumed that the average quarter hour audience actually saw each ad, regardless of when the ad ran within a daypart. On the average, this assumption is of course true, but there may be considerable variation within a daypart. In each of the months, audience estimates were unavailable for some of the dayparts; advertising in these dayparts accounts for approximately 16% of total advertising minutes, and 15% of total advertising expenditures. In omitting these dayparts from the analysis of viewing advertising, we implicitly assume that the distribution of exposure to advertising is the same as in all other dayparts combined.3/

It is important to emphasize the special meaning of a daypart in this study. A daypart is a specified period of time, on a specified day of the week, on a specified station. Thus, in a city in which five stations are monitored from 8:30 a.m. to 1:00 p.m. on Saturday, there would be five

dayparts (one for each station). Dayparts are thus close to a concept of programs, except that a daypart on a station will typically include several different programs (since more than one program may be shown in the specified time period). Appendix A shows the standard time periods which are used by Arbitron; for example, 8:30 a.m. to 1:00 p.m. is the daypart for Saturday morning.

Where we discuss certain audience characteristics-- e.g., an audience composed on 50% or more children--it may be that one station's daypart may qualify, while another station daypart for the same time period may not. Thus, in selecting samples based on audience composition, each station's audience data for each daypart was treated separately.

B. Gross impressions as a measure of exposure to advertising.

To examine children's exposure to advertising, we need a measure which takes into account both the amount of advertising time and the size of the audience at the time the ad was broadcast. One such measure is gross impressions, defined as minutes of advertising times the number of people in the audience. Thus, two thirty seconds ads seen by 1,000 children produce 1,000 gross impressions of children. Note that gross impressions take no account of the difference between reach (the number of people who see an ad at least once) and frequency (the number of times an ad is seen by the average person). Thus, one thousand gross impressions could be one

minute of advertising seen by one thousand people, or it could be 500 minutes of advertising seen only by two people. However, the question of reach and frequency is not central to our present concerns. Gross impressions do allow comparison across product classes of the relative emphasis on different population groups and on the intensity of advertising campaigns. This is the manner in which gross impressions will be used throughout this analysis. Gross impressions were computed separately for persons aged twelve and older, children 2 to 11, children 2 to 5, and children 6 to 11.

II. THE DISTRIBUTION OF ADVERTISING SEEN BY CHILDREN ACROSS PRODUCT CLASSES.

A. Children's exposure to advertising in all dayparts

Every advertisement will produce at least some gross impressions to children, because nearly any audience includes at least a few children. In order to determine what product advertising is disproportionately directed to children, it is necessary to consider the distribution of gross impressions to children across product classes. Estimates of this distribution for children 2 to 11 during May, 1977 are presented in Table 1. Table entries give the gross impressions to children for each product class as a percentage of all gross impressions of children. The data for May are fairly typical of the data for other months. I shall discuss only May in detail, noting how the other months differ where it is

