STRUCTURAL AND BEHAVIORAL ANALYSIS OF THE NEWSPAPER-BROADCAST CROSS-OWNERSHIP RULES

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Introduction and Summary

The Commission is currently reviewing its rule prohibiting the ownership by a single party of a broadcast station and a daily newspaper in the same locale.[1] The Commission suggests that the rule rests in part on the goal of promoting economic competition.[2] This paper explores structural indicators of competition in a sample of locales. There has been a considerable increase in the amount of competition since the cross-ownership rule was adopted in 1975. Although a national policy prohibiting cross-ownership may have been justified based on competition concerns in 1975, it is no longer so.

The Commission focuses on competition among newspapers, television and radio to sell advertising. Although this focus is overly narrow because it excludes other relevant competing media, it is adopted here to investigate changes in the ownership concentration of advertising in these three media in a sample of 21 Designated Market Areas (DMAs) between 1975 and 1997. Despite recent acquisitions of radio stations permitted following the passage of the Telecommunications Act of 1996, ownership concentration has decreased or remained unchanged in 20 of the 21 DMAs examined.

This structural measure suggests that eliminating cross-ownership rules would be unlikely to result in conditions conducive to anticompetitive behavior. It is also theoretically possible that cross-ownership itself could impart unilateral market power that permits a firm to raise price. However, a study

[1] *Notice of Inquiry* (NOI), In the Matter of 1998 Biennial Regulatory Review—Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996, MM Docket No. 98-35, released March 13, 1998, at ¶ 28-42.
[2] NOI, ¶ 28.

of over 1,400 daily newspapers provided no indication that cross-owned newspapers charge higher advertising prices than other newspapers, once other relevant factors are controlled for. Thus there appears to be no competitive justification for a broad prohibition on cross-ownership, especially because individual transactions are already subject to case-by-case review under the Clayton Act.

Competition in Advertising

Cross-ownership restriction could potentially affect competition by reducing the amount of economic activity that is controlled by a single party within some local area. There is general agreement among economists that, if other necessary conditions are met, a significant increase in owner concentration could raise the likelihood that coordinated anticompetitive behavior will occur. Anticompetitive conduct can cause output to decline, reducing economic welfare.

An important step in assessing the potential effect of joint ownership is to define a relevant market. For a merger or acquisition to affect either market concentration or single firm market share, it is necessary that both firms involved in the acquisition participate in the same market. Thus, for example, common ownership of a newspaper, television station or radio station with a dry cleaning firm would have no effect on either concentration or single firm market share because dry cleaning does not participate in any market in which any of the three media outlets competes.

The Commission has previously determined that there are three markets in which broadcast stations participate: the market for delivered programming, the market for advertising, and the market for program production.[3] In its NOI, the Commission restates its tentative conclusion that newspapers do not participate in the same market for delivered programming as either radio stations or television stations.[4] Likewise, the Commission has tentatively concluded that newspapers do not compete in the audio or video program pro-

[3] NOI, ¶ 5.
[4] NOI, ¶ 35.

duction markets.[5] Accordingly, this paper focuses on competition in the third market, the market for advertising.

The Commission believes that daily newspapers, radio stations and television stations compete one with another for the sale of advertising.[6] Indeed, there can be no competitive rationale for the cross-ownership rule unless the relevant product market is at least this broad. The Commission acknowledges that cable television also competes in this advertising market.[7] Newspapers other than daily newspapers, direct mail, yellow pages, and outdoor advertising are other media that compete with newspaper, radio and television advertising. This paper, however, will focus only those media that are the subject of the cross-ownership rule. Excluding other relevant media from the study makes it possible to examine structural changes in concentration among the three media that are the subject of the cross-ownership rule. Note that this narrow focus has the effect of significantly overstating the level of concentration measured in local markets.

Structural Analysis: Procedures and Findings

Competition takes place within a certain geographic context. Precisely defining the relevant geographic market in which these media compete is a task beyond the scope of this paper. For purposes of year-to-year comparisons, the relevant geographic markets are proxied by Designated Market Areas (DMAs). DMAs are defined by Nielsen for purposes of measuring television audience information, and thus are a likely candidate for the appropriate market for television advertising. Newspapers and radio stations located within the same DMA can be viewed as alternative means of reaching an advertising audience within the DMA. Since an important objective of this study was to compare concentration levels across time, a precisely correct definition of the geographic market is less important than maintaining consistent geographic market definitions across time. Accordingly, the geographic area defined to be within each DMA in 1997 was applied to 1975, even though that area differed

[5] NOI, ¶ 37.
[6] NOI, ¶ 5.
[7] NOI, ¶ 5.

in some instances from the area included in those DMAs as they were defined in 1975.

Due to the high cost of manually extracting and assembling 1975 data from printed sources, the analysis of structural change between 1975 and 1997 was limited to a sample of 21 DMAs. The 211 DMAs defined in 1997 were arrayed from largest (rank 1) to smallest (rank 211).[8] From each ten consecutively ranked DMAs, one was chosen at random to be included in the study. Thus, for instance, Chicago (rank 3) was chosen from the DMAs ranked 1-10, Phoenix (rank 17) was chosen from the DMAs ranked 11-20, etc.[9] Table 1 shows the DMAs included in the sample as well as their market ranks. Characteristics of the sample DMAs appear to match the entire population of DMAs quite well.[10]

Procedures for estimating the advertising revenues of individual newspapers, radio station and television stations were constrained by the information available both in 1997 and in 1975. In 1997, estimates were available for the advertising revenues of many individual commercial radio and television stations as well as many newspapers. The information available in 1975 was limited to the number of commercial radio stations and television stations and the number and circulation of daily newspapers.

Lacking revenue information for individual radio and television stations in 1975, it was not possible to determine how concentration of advertising reve-

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[8] These DMAs are listed by rank in *Broadcasting & Cable Yearbook 1997*, pp. C-232-5.

[9] The lowest ranked 11 DMAs were treated like a group of ten.

[10] The table below compares the average (mean) and median for variables related to DMA size and number of media. Data were taken from BIA Publications, Inc., *BIA's Master Access Version 2.0*. Two small DMAs were excluded because no data were available.

	Average		*Median*	
	Sample	All DMAs	Sample	All DMAs
Population (1996, mil.)	1,300	1,279	650	655
Effective Buying Income (1996, $ mil.)	20,090	19,893	9,584	9,480
Number of Commercial Radio Stations	49.7	48.9	37.0	42.0
Number of Commercial TV Stations	6.1	6.0	6.0	5.0
Number of Daily Newspapers	6.2	7.1	5.0	5.0

nue among these stations changed between 1975 and 1997. For these media, the main structural change that could be observed was the growth in the number of stations. The number of commercial radio stations increased in all of the sample DMAs. The median number of radio stations in the sample DMAs increased by 14, from 23 stations in 1975 to 37 stations in 1997. See Table 2. The number of commercial television stations also increased in all of the sample DMAs except one DMA in which the number was unchanged. The median number of commercial television stations increased from three in 1975 to six in 1997, an increase of three stations. An increase in the number of individually owned radio and television stations, holding other factors constant, decreases the overall concentration in the advertising market.

The increase in stations within the sample DMAs is consistent with national trends. In 1975, 7,230 commercial radio stations were broadcasting; by 1995, this had increased over 36 percent to 9,880 stations.[11] The number of commercial television stations on air increased from 706 in 1975 to 1,205 in 1997, an increase of 70 percent.[12]

Separate estimates were available from BIA for total radio and television advertising in each DMA in 1997.[13] From these totals, the average advertising revenue for each radio and television station in each sample DMA was calculated. To express the relative importance of radio stations and television stations as sellers of advertising in 1975 and 1997, the average advertising revenue for each radio station and each television station in each DMA in 1997 was applied to stations in 1975.[14] This assumption made it possible to include

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[11] *Statistical Abstract of the United States: 1997,* Table 888 and *Statistical Abstract of the United States: 1985,* Table 924.

[12] *Television & Cable Factbook: Services 1998,* Table I-45.

[13] Source for radio: BIA Publications, Inc., *BIA's Master Access Version 1.7,* data as of May 20, 1998. Source for television: BIA Publications, Inc., *BIA's Master Access Version 2.0,* data as of May 27, 1998.

[14] The underlying assumption is that the ratio of average radio station revenue to average television station revenue in each DMA was approximately the same in 1975 and in 1997. No information was available on average station revenues in each DMA in 1975, but national station averages support this assumption.

radio and television stations in the calculation of an HHI for each DMA in 1975 and 1997.[15]

As with radio and television stations, no estimate of newspaper advertising revenues was available for 1975. However, circulation information was available for both 1975 and 1997. Changes in relative circulation size among newspapers in a DMA can give some indication of the changes in their relative shares of advertising revenues. An HHI based on total weekly circulation was used to summarize newspapers' relative circulation size. The median circulation HHI in the sample DMAs decreased by about 890 points from approximately 7,310 to approximately 6,420.[16] See Table 3. Over the 21 sample DMAs, weekly circulation became less concentrated in 15 DMAs, became more concentrated in four DMAs, and was unchanged in two DMAs.

Table 3 also shows how the number of daily newspapers changed between 1975 and 1997. The number of daily newspapers increased in eight DMAs, was unchanged in eight DMAs, and fell in five DMAs. The net effect across all the sample DMAs was no change in the number of daily newspapers. This contrasts somewhat with the national trend over the same period, in which the number of daily newspapers fell by about 13 percent.[17]

Calculation of the overall concentration of advertising revenues among the three media in each DMA requires that each newspaper be assigned some revenue value, as was required for radio and television stations. The following procedure was used for 1997. Duncan's Radio Market Guide (1998) provided an estimate of newspaper advertising revenue for selected newspapers. Estimated revenue includes retail advertising, inserts, and real estate and automotive classified advertising.[18] Advertising revenue was then summed

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[15] The HHI, or Herfindahl-Hirshman Index, is calculated as the sum of the squared shares of all participants.

[16] The decrease in concentration may be overstated slightly; there were a number of newspapers in 1975 for which circulation was not available and which were treated as zeros. A similar pattern emerges looking only at the eight DMAs for which there was no missing circulation data. Among these DMAs, median circulation HHI fell by 1,230 from about 8,490 to about 7,260.

[17] *Statistical Abstract of the United States: 1997,* Table 907.

[18] Classified advertising that would be placed by an individual rather than a business is not included.

across all newspapers for which Duncan provided an estimate. This sum was divided by the total weekly circulation of the same newspapers to form an average revenue/circulation ratio. For each newspaper not among those estimated by Duncan, this ratio was multiplied by the newspaper's average weekly circulation to get an estimate of advertising revenues.

The structural changes observable among newspapers are changes in the number of newspapers and their relative circulation size. To capture the effects of the changes, the ratio of revenue to weekly circulation calculated for each newspaper in 1997 was applied in 1975.[19]

Having estimated the advertising revenues of each commercial radio and television station and each daily newspaper in each DMA, the last step before calculating HHIs was to group together stations and newspapers under common ownership. Sources used to determine ownership were BIA, Editor & Publisher International Yearbook (1998), Broadcasting & Cable Yearbook (1997), and information on newspaper-broadcast cross-ownership supplied by NAA.[20]

Using the procedures described above, HHIs were calculated for each sample DMA for 1975 and 1997. The results are shown in Table 4. Across the 21 DMAs in the sample, the median HHI decreased from 2,634 in 1975 to 1,596 in 1997, a change of 1,038. This change is very significant, as it represents a decrease in concentration of about one-third from the 1975 HHI levels. The change was mirrored by decreases in all but two of the individual DMAs. All the decreases were 375 or greater, reducing 1975 HHI levels in those DMAs by at least 20 percent. In Victoria (Texas), the smallest DMA studied, there was essentially no change.[21] The only increase was in Little Rock. Due to the closing

[19] The underlying assumption is that average advertising revenue per radio station and average advertising revenue per television station in each DMA changed in approximately the same manner as average newspaper advertising revenue per circulation between 1975 and 1997. No information was available on average station revenues or newspaper circulation per circulation in each DMA in 1975, but national averages support this assumption.

[20] BIA information from 1997 was used to determine ownership as of 1997, the year of the revenue estimates. The source databases were Version 1.6, issued February 1997 (radio) and Version 1.7, issued June 1997 (television).

[21] The measured decrease of 14 points is far less than a 1 percent change.

of the Little Rock Arkansas Gazette, Little Rock went from two newspapers of roughly equal size in 1975 to a single newspaper with roughly the combined circulation, causing concentration to increase slightly.

Expanding the sample results to the nation as a whole, it appears that with possible rare exceptions, the level of concentration of newspaper and broadcast advertising revenues has decreased markedly from the levels that prevailed in 1975.

The cross-ownership rule itself is not responsible for the dramatic decreases in concentration shown in Table 4. In seven of the 21 sample DMAs, the sale of a newspaper or broadcast station caused a pre-existing cross-ownership to be broken up. The cross-ownership rule could have had some deconcentrating effect if it is assumed that the newspaper and broadcast stations would not have been sold separately in the absence of the cross-ownership rule. In practical terms, however, the effect was mostly negligible. In these seven DMAs, a hypothetical HHI was calculated as if the previously cross-owned newspapers and broadcast stations were still cross-owned in 1997. This assumption raised HHI levels in six of the DMAs by an average of under 40 points. In only one DMA, Omaha, would the 1997 HHI have been significantly higher had the cross-ownership not been broken apart. The Omaha HHI would have been 2,132 instead of 1,614, a change of 518 points. The total drop in HHI in Omaha between 1975 and 1997 was 774 points, implying that factors other than the cross-ownership rule were also responsible for considerable deconcentration. In all other sample DMAs, the cross-ownership rule had little or no effect on concentration.

Table 4 is useful in assessing the decrease in concentration levels since 1975, but it must be emphasized strongly that it should not be used to indicate actual concentration levels typical in the United States. First, as was pointed out previously, the HHIs presented here do not take account of competition from other newspapers, cable television, direct mail, yellow pages, outdoor and other forms of advertising. For this reason, these HHIs significantly overstate the level of concentration. Previous work on a sample of DMAs showed that concentration in a newspaper-radio-television-only market is decreased by an

average of over 1,100 points when the other competing media are added.[22] Second, the sample of DMAs chosen was intended to represent the broad range of DMAs in the country by giving equal weight to all DMAs, regardless of size. In fact, most of the United States population lives in DMAs where concentration levels are relatively low.

Table 5 presents information that may be more useful as an overall picture of concentration levels among newspapers, television and radio. The first column presents HHIs from Table 4. As noted earlier, these HHIs were calculated assuming that each radio station and each television station in each DMA had the same share of advertising revenue. This assumption was necessary to make comparisons with 1975.[23] The second column presents HHIs calculated using available estimates of radio and television stations' actual advertising revenues. This may present a better picture of present concentration.[24] The next two columns show the 1996 population in each DMA and what share of population in the sample DMAs is found in each individual DMA. These shares can be used to calculate weighted average HHIs, as shown in the last two columns. By this measure, the average HHI is about 1,300 to 1,570.[25] HHIs would be significantly lower if other competing media were included in the calculation.

Behavioral Analysis: Procedures and Findings

The purpose of the behavioral analysis is to determine whether or not the advertising rates charged by cross-owned daily newspapers are any higher than the rates charged by non-cross-owned properties, controlling for other

[22] See Economists Incorporated, *An Economic Analysis of the Broadcast Television National Ownership, Local Ownership and Radio Cross-Ownership Rules*, May 17, 1995, submitted in MM Docket No. 91-221, at Table 5, p. 32.

[23] For broadcast stations, an equal shares assumption resembles a capacity-based HHI, which is often used to measure concentration when firms can rapidly increase their share of sales and sales shares are volatile.

[24] These levels are somewhat overstated because stations for which BIA provides no revenue estimate were assumed to have zero revenues; assigning some positive revenues to these stations would reduce HHIs.

[25] Concentration levels in the 21 sample DMAs are quite representative of all DMAs. Concentration levels for all DMAs were calculated using actual station revenue estimates, as in the "estimated share" HHIs reported in Table 5. For all DMAs, the median HHI was 1,666 and the population weighted average HHI was 1,448.

factors. The behavioral analysis contained here is a reduced-form regression analysis of daily newspaper advertising rates. A regression analysis is a statistical method generally designed to test a particular economic hypothesis. The regression analysis is implemented through the formulation and estimation of a model, the specification of the general relationship between a set of variables. The term "reduced-form" refers to the lack of an explicit set of underlying structural equations which separately models the demand and supply for newspaper advertising from the ground up. Instead, the price of advertising for each newspaper is taken to be the result of this underlying equilibrium relationship without specifying the details, and assumed to be related to a set of exogenous explanatory variables.

The simplicity of the reduced form approach places certain restrictions on the choice of explanatory variables, however. Variables such as circulation or total advertising revenues which are endogenous to the underlying system, i.e., jointly determined with the price of advertising, must be excluded from the estimated equation.[26]

The 1998 Editor and Publisher Yearbook contains data on circulation and advertising rates for 1,509 U.S. daily newspapers located in virtually all DMAs. These data were combined with data from BIA, U.S. Census data, and other state-level data, in addition to the HHIs described below. The regression analysis utilizes data on each of the 1,423 U.S. daily newspapers for which these other data were also available.

The equation to be estimated is of the following general form:

$$P_i = \alpha_0 + \alpha_1 * X_i + \alpha_2 * Y_j + \alpha_3 * Z_k + \alpha_5 * HHI_k + \alpha_6 * XOWN_i + \varepsilon_i$$

[26] The determination of which variables are actually exogenous with regard to the underlying system is of critical importance from an empirical perspective. For an extensive discussion of this issue in this exact context, see Bruce M. Owen, "Newspaper and Television Joint Ownership," *The Antitrust Bulletin*, Vol. 18 (1973), and especially James N. Rosse, "Credible and Incredible Economic Evidence: Reply Comments in FCC Docket 18110," Stanford University RCEG, 1971.

The following categories list the universe of variables which were considered for analysis:

P_i = The price per inch of advertising in newspaper i for the daily edition.[27]
X_i = Individual characteristics of newspaper i, such as newsstand price (daily edition), a dummy variable for papers which publish both morning and evening editions, population in the city where newspaper i is published, dummy variables for Saturday and Sunday editions, and a dummy variable for newspaper format (tabloid vs. broadsheet).
Y_j = Characteristics of the DMA market j in which newspaper i is published. Market level measures include per capita income, retail sales, number of television households, expected and historical population growth, expected and historical household growth, percentage of the population belonging to various ethnic groups, as well as variables which indicate the presence of other competing media in this market, such as number of other AM and FM radio stations, the number of UHF and VHF television stations, and cable penetration in DMA market j.
Z_k = Characteristics of the state k in which newspaper i is published, including state GDP, the average level of wages in state k, and the price per kilowatt-hour of energy in state k.[28]
HHI_j = The level of market concentration in DMA market j, where the market here is defined as radio, television, and newspaper advertising (see discussion on the construction of the HHIs above).
$XOWN_i$ = A dummy variable indicating whether newspaper i is cross-owned.

[Note: all variables except dummy variables and variables which may take on values less than or equal to zero (e.g., variables which denote a percent change) are expressed in natural logarithms.]

A regression model was first formulated using those independent variables from the above list which yielded the best explanatory fit. A separate regression was then run adding to the basic model the HHI variable and the cross-ownership dummy variable.

The cross-ownership dummy variable is used to measure the net impact of cross-ownership on newspaper advertising rates. Dummy variables are a

[27] The rate used is the open inch rate. A standardized measure which controls for newspapers of differing physical size and number of columns would be more appropriate, but such data are simply not available for such a large sample of daily newspapers.
[28] State GDP is considered to be a general proxy for demand in state k. Wages and the price of energy are supply factors, related to the cost of actually publishing the newspaper.

convenient way of testing for the presence of structural differences between two groups of observations, controlling for other factors. The dummy variable $XOWN_i$ in the equation above provides a numerical estimate of the magnitude of the net effect of cross-ownership on newspaper advertising rates. The 5% statistical test of significance for the coefficient on $XOWN_i$ is equivalent to the test of whether cross-ownership has any net effect on newspaper advertising rate.

The results of the regression analysis are presented in Table 6. The regression equation explains a large proportion of the variation in newspaper advertising prices, with an R^2 value of 0.7934. In addition, the signs and magnitudes of the coefficients on each of the independent variables are plausible. The price of electricity is assumed to be a supply factor with regard to the publishing of newspapers, and has its expected positive sign. City population[29] is obviously the most important positive effect on price. Although the inclusion of newsstand price (daily edition), Saturday edition, and Sunday edition is somewhat ad hoc, since each have both cost and demand effects, the expectation is that they are more an indication of newspaper quality, and thus would be expected to have a positive effect on price.[30] No prior conjecture was made with regard to the ethnic composition variables which were tried in the equation. Clearly, DMA markets with higher per capita income are more attractive to advertisers, which should (and does) have a positive influence on price.

If cross-ownership has a significant (positive) effect on prices, allowing for the overall level of concentration, then the XOWN dummy variable should also appear as a significant variable in the regression equation. However, the

[29] Information on population is taken from SRDS, *Circulation '97*. For newspapers with information on Newspaper Designated Marketing Area (NDM) population, the city population is equal to the NDM population. For newspapers with no information on NDM population, the City Zone (CZ) population was used. For newspapers with no information on either NDM or CZ population, the city population was taken from 1996 U.S. Census data. For a small number of large metropolitan areas in which each of these measures likely understates the potential readership (e.g., Los Angeles), the Metro Area population was used as reported in *Circulation*.

[30] The question of endogeneity is unlikely to arise here, given the relative infrequency of changes in the edition structure or the newsstand price.

XOWN dummy variable was *not* found to be a significant factor in explaining newspaper advertising prices, controlling for other factors.

In the regression estimates in Table 6, HHI is not statistically significant.[31] Finding that HHI is not significant could indicate that the relevant product market has been defined too narrowly. Newspaper, radio, and television, the three advertising media included in calculating the HHIs used in the regression, also compete with other forms of advertising that were not included (e.g., cable television, outdoor advertising, direct mail, etc.). The HHIs used in this analysis are also subject to at least two types of measurement error. First, it is unlikely that the DMA is the proper geographic market for all of the daily newspapers in the sample. For example, small newspapers compete in geographic markets that are considerably smaller than the DMA. Practical necessity dictated using DMAs, as it was not possible for this study to undertake a detailed study of the correct geographic market for over 1,400 newspapers. Second, there is significant imprecision in the revenue estimates for individual newspaper, television, and radio stations.

To account for the latter measurement error in the HHI calculations, the model described above was estimated using instrumental variables (IV). The essence of the IV approach is to find variables which can help to predict the variable which is suspected of measurement error but which are unrelated to the dependent variable. Although the exact revenues for each of the radio, television, and newspapers in each DMA is not known exactly, the *number* of each type of property in each DMA is known exactly. These counts are clearly correlated with the HHIs, and thus are a natural choice to serve as instruments. Thus, the total number of radio stations, television stations, and newspapers in each DMA are used in a "first-stage" regression to predict the value of the HHI for that DMA. This predicted value is the one which appears in the final model in Table 6.

[31] For the regression analysis, HHIs were calculated using estimated advertising revenues for each newspaper, radio, and television station. This differs from an HHI in which each station has revenues equal to the market average, as was assumed for purposes of comparing 1997 and 1975 concentration levels.

Previous Behavioral Studies

For such a narrowly defined field of inquiry, the literature on reduced-form regression analyses of the relationship between market concentration and advertising rates in broadcast media is actually quite extensive.[32] Previous work on this subject has yielded mixed results. Some earlier studies, including Peterman (1971), RMC (1971), and Lago (1971),[33] found no effect from cross-ownership using essentially similar techniques, i.e., a reduced-form price regression model with a dummy variable measuring the net effect of cross-ownership. However, there is some consensus that the inclusion of certain endogenous explanatory variables, notably circulation, is driving these results.[34] More recent work by Wirth and Allen (1979) using the price of television advertising as the dependent variable actually finds a statistically significant *negative* effect on prices due to cross-ownership. They cite economies of ownership, usage of actual transaction prices as opposed to list prices as the dependent variable, and especially more vigorous regulatory scrutiny on the part of the FCC as possible explanations for their results. Ferguson (1983) also finds a negative effect on newspaper advertising rates due to cross-ownership, although he eschews the single-equation reduced form approach in favor of a system of separate equations for circulation and advertising rates which explicitly realizes the two-way linkage between these two variables.

One paper which finds a significantly positive effect on newspaper advertising prices due to cross-ownership is Owen (1973), which finds that cross-ownership results in a 7 percent increase in rates, controlling for other factors. Be-

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[32] See Bruce M. Owen, "Newspaper and Television Joint Ownership," *The Antitrust Bulletin*, Vol. 18 (1973), Michael O. Wirth and Bruce T. Allen, "Another Look at Crossmedia Ownership," *The Antitrust Bulletin* ,Vol. 24 (1987), and James M. Ferguson, "Daily Newspaper Advertising Rates, Local Media Cross-Ownership, Newspaper Chains, and Media Competition," *Journal of Law & Economics*, Vol. 27 (1983) for examples in this literature which are specific to the subject of media cross-ownership. Also see Robert G. Picard, *Media Economics*, Newbury Park: Sage Publications, 1989 pp. 124-132 for an extensive list of more general references.

[33] John Peterman, "Concentration of Control and the Price of Television Time," *American Economic Review*, Vol. 61 (1971), RMC Incorporated, "A Quantitative Analysis of the Price Effects of Joint Mass Communication Ownership," Report #UR-150, submitted in FCC Docket 18110 by the National Association of Broadcasters (1971), A.M. Lago, "The Price Effects of Joint Mass Communication Media Ownership," *The Antitrust Bulletin* ,Vol. 16 (1971).

[34] See footnote 26.

cause the final model estimated in Table 6 differs in its choice of variables, it is not exactly comparable to Owen's study. As a way of placing this earlier result in context, however, it may be a useful exercise to replicate Owen's study using the current dataset. The results of running Owen's 1973 model using current data are given below in Table 7.

Using the current data, Owen's (1973) model indicates no statistically significant net effect due to cross-ownership. There are several possible reasons why these results differ from those obtained 1973. In the first place, the competitive landscape in these markets has changed dramatically in the intervening 25 years. As indicated by the structural analysis described above in this paper, the levels of concentration among newspapers, radio, and television have fallen significantly since 1973. In addition, the 1973 study focused only on newspapers publishing in cities with greater than 100,000 in population (as of 1960). The current dataset includes all U.S. daily newspapers.

Competition, as measured by the presence of a competing daily newspaper in the same city, maintains a negative (and statistically significant) effect on newspaper advertising rates. However, overall concentration (e.g., measured via inclusion of market level HHIs) has not been accounted for here; if it were, the presence of two newspapers in the city would likely not be significant. In addition, as shown below, the current analysis finds a statistically significant relationship between daily newspaper advertising rates and other variables which were not included in the 1973 analysis.

Conclusion

It could be argued that newspaper-broadcast cross-ownership was prohibited in 1975 to prevent increasing concentration in advertising markets. A structural analysis of 21 DMAs was undertaken to determine how competitive conditions among newspaper, radio and television have changed since the enactment of the cross-ownership rule in 1975. Within these consistently defined geographic areas, estimated ownership concentration of advertising revenues fell or was unchanged in 20 of the 21 areas studied, and changes were very substantial. These findings indicate that the structural conditions

for advertising competition have improved, such that a broad prohibition is no longer needed to maintain competitive conditions at their 1975 level.

A proper analysis of how competitive structure would be changed by increased cross-ownership should be conducted on a case-by-case basis. Such an analysis would take account of such factors as the relative sizes of the two entities that would be cross-owned, the concentration of advertising revenues among newspaper, television and radio as well as other competing media, and the proper definition of the relevant geographic market in that area. The competitive concerns are indistinguishable from the concerns raised in antitrust analysis. No across-the-board prohibition on cross ownership is warranted.

This paper also found no reason to believe that cross-ownership is likely to lead to higher prices. After controlling for other factors, there was no statistically significant difference between advertising prices of cross-owned newspapers and those of other papers.

Table 1. Sample DMAs and Rank

DMA	1997 Rank
Chicago	3
Phoenix	17
Raleigh-Durham	29
Nashville	33
New Orleans	41
Little Rock-Pine Bluff	57
Flint-Saginaw-Bay City	62
Omaha	75
South Bend-Elkhart	85
El Paso	99
Lansing	106
Reno	119
Corpus Christi	128
Bakersfield	132
Lubbock	147
Panama City	159
Utica	166
Lake Charles	179
Great Falls	184
Charlottesville	199
Victoria	206

Table 2. Number of Commercial Radio and Television Stations in Sample DMAs

DMA	Commercial Radio Stations			Commercial Television Stations		
	1975	1997	Change	1975	1997	Change
Bakersfield	17	42	25	3	6	3
Charlottesville	6	11	5	1	1	0
Chicago	98	113	15	7	13	6
Corpus Christi	20	35	15	3	6	3
El Paso	23	26	3	3	7	4
Flint-Saginaw-Bay City	36	53	17	3	5	2
Great Falls	13	19	6	2	3	1
Lake Charles	7	12	5	1	2	1
Lansing	20	25	5	2	4	2
Little Rock	63	110	47	3	7	4
Lubbock	27	39	12	3	8	5
Nashville	101	136	35	4	10	6
New Orleans	44	54	10	4	8	4
Omaha	30	45	15	3	5	2
Panama City	17	30	13	2	4	2
Phoenix	62	108	46	6	12	6
Raleigh-Durham	74	83	9	3	10	7
Reno	22	31	9	3	6	3
South Bend-Elkhart	27	37	10	4	5	1
Utica	15	27	12	2	4	2
Victoria	3	8	5	1	2	1
Total	725	1,044	319	63	128	65
Median	23	37	14	3	6	3

Table 3. Number and Circulation Concentration of Newspapers in Sample DMAs

DMA	Number of Daily Newspapers			HHI of Weekly Circulation		
	1975	1997	Change	1975	1997	Change
Bakersfield*	2	3	1	10,000	8,145	-1,855
Charlottesville	1	1	0	10,000	10,000	0
Chicago*†	33	25	-8	3,155	2,723	-432
Corpus Christi*	2	2	0	10,000	9,080	-920
El Paso*	4	2	-2	7,113	6,384	-729
Flint-Saginaw-Bay City	8	7	-1	6,974	6,718	-257
Great Falls*	2	2	0	10,000	8,452	-1,548
Lake Charles	1	3	2	10,000	6,423	-3,577
Lansing	3	3	0	4,901	4,964	63
Little Rock-Pine Bluff*	16	14	-2	3,175	5,728	2,553
Lubbock*	3	2	-1	8,291	8,397	106
Nashville	9	11	2	5,577	4,505	-1,072
New Orleans*	7	7	0	9,249	7,165	-2,084
Omaha	7	7	0	6,306	7,802	1,496
Panama City	1	2	1	10,000	8,056	-1,944
Phoenix*	8	9	1	7,313	5,826	-1,487
Raleigh-Durham*	8	12	4	3,072	2,460	-611
Reno*	3	5	2	8,042	5,534	-2,508
South Bend-Elkhart*	9	9	0	3,739	2,686	-1,052
Utica*	4	5	1	6,952	3,774	-3,179
Victoria	1	1	0	10,000	10,000	0
All DMAs:						
Total	132	132	0	-	-	-
Median	4	5	1	7,313	6,423	-890
DMAs without missing circulation information:						
Total	31	35	4	-	-	-
Median	4	5	1	8,487	7,260	-1,228

*1975 circulation was not available for one or more newspapers; missing circulation treated as zero for HHI calculation.

†1997 circulation was not available for one newspaper; missing circulation treated as zero for HHI calculation.

Table 4. Estimated Advertising HHIs in Sample DMAs

DMA	1975 HHI	1997 HHI	Change
Bakersfield	4,067	2,476	-1,591
Charlottesville	6,159	4,935	-1,224
Chicago	1,897	985	-912
Corpus Christi	4,225	2,203	-2,023
El Paso	2,532	1,315	-1,217
Flint-Saginaw-Bay City	2,634	1,687	-947
Great Falls	5,061	3,666	-1,396
Lake Charles	6,439	3,909	-2,530
Lansing	2,241	1,565	-675
Little Rock-Pine Bluff	1,330	1,423	92
Lubbock	3,047	1,727	-1,320
Nashville	2,245	1,054	-1,191
New Orleans	2,971	1,500	-1,470
Omaha	2,388	1,614	-774
Panama City	2,634	1,833	-802
Phoenix	1,532	1,118	-414
Raleigh-Durham	1,082	707	-375
Reno	2,243	1,511	-732
South Bend-Elkhart	1,879	1,224	-654
Utica	3,498	1,596	-1,902
Victoria	8,402	8,416	14
Median	2,634	1,596	-1,038

Table 5. Weighted Average 1997 Estimated HHIs

	Estimated HHI				HHI x Population Weight	
DMA	Equal Shares	Estimated Shares	Population	Population Weight	Equal Shares	Estimated Shares
Bakersfield	2,476	2,579	548,000	2.0%	50	52
Charlottesville	4,935	4,981	141,000	0.5%	25	26
Chicago	985	1,448	8,835,000	32.4%	319	469
Corpus Christi	2,203	2,281	555,000	2.0%	45	46
El Paso	1,315	1,430	868,000	3.2%	42	45
Flint-Saginaw-Bay City	1,687	1,788	1,191,000	4.4%	74	78
Great Falls	3,666	3,744	174,000	0.6%	23	24
Lake Charles	3,909	4,000	221,000	0.8%	32	32
Lansing	1,565	1,728	650,000	2.4%	37	41
Little Rock-Pine Bluff	1,423	1,566	1,279,000	4.7%	67	73
Lubbock	1,727	1,830	403,000	1.5%	26	27
Nashville	1,054	1,310	2,066,000	7.6%	80	99
New Orleans	1,500	1,712	1,728,000	6.3%	95	108
Omaha	1,614	1,734	982,000	3.6%	58	62
Panama City	1,833	2,020	312,000	1.1%	21	23
Phoenix	1,118	1,213	3,425,000	12.5%	140	152
Raleigh-Durham	707	985	2,168,000	7.9%	56	78
Reno	1,511	1,654	563,000	2.1%	31	34
South Bend-Elkhart	1,224	1,805	846,000	3.1%	38	56
Utica	1,596	1,671	259,000	0.9%	15	16
Victoria	8,416	8,472	82,000	0.3%	25	25
Median	1,596	1,734				
Total			27,296,000	100.0%	1,298	1,569
Weighted Average	1,298	1,569				

Table 6. Final Results (2SLS)

Variable	Parameter Estimate	Standard Error	T for H_0: Parameter=0
Intercept	-3.622658*	0.84325	-4.296
Price of Electricity	0.141775*	0.05142	2.757
Population	0.448711*	0.00910	49.337
Newsstand Price, Daily Edition	0.109312*	0.04406	2.481
Saturday Edition	0.243187*	0.02629	9.252
Sunday Edition	0.168464*	0.02605	6.467
Percent Population Hispanic	-0.054290*	0.00953	-5.694
Per Capita Income	0.116396	0.06176	1.885
HHI	0.031537	0.05605	0.563
Cross-Owned	0.086229	0.06375	1.353

*Significant at the 5 percent level.

Table 7. Replicating Owen's 1973 Study

Variable	1973 Parameter Estimate	1998 Parameter Estimate	Standard Error	T for H_0: Parameter=0
Intercept	-0.0157	-2.368507*	0.0875106	-27.065
Population	0.641*	0.484873*	0.0088999	54.481
Cross-Owned	0.102*	0.094986	0.0660872	1.437
Both Morning & Evening Editions	0.316*	0.273870*	0.1157600	2.366
Sunday Edition	0.196*	0.092460*	0.0267993	3.450
Competing Newspaper in Same City	-0.147*	-0.146554*	0.0566276	-2.588

*Significant at the 5 percent level.