

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
2002 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)	MB Docket No. 02-277
)	
Cross-Ownership of Broadcast Stations and Newspapers)	MM Docket No. 01-235
)	
Rules and Policies Concerning Multiple Ownership of Radio Broadcast Stations in Local Markets)	MM Docket No. 01-317
)	
Definition of Radio Markets)	MM Docket No. 00-244

COMMENTS OF CLEAR CHANNEL COMMUNICATIONS, INC.

Clear Channel Communications, Inc. (“Clear Channel”) hereby submits its comments in response to the *Notice of Proposed Rule Making* (“NPRM”) released by the Commission on September 23, 2002 in the above-captioned proceeding.¹

I. INTRODUCTION

Clear Channel is one of the world’s leading out-of-home media companies. It is the nation’s largest radio station owner and operator, programming more than 1,200 radio stations in local markets throughout the United States. Clear Channel also owns and/or programs more than

¹ *In the Matter of 2002 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*, FCC 02-249 (released September 23, 2002)

30 television stations across the country. The company thus has an enormous interest in the subject biennial review proceeding, in which the Commission has initiated a comprehensive review of its media ownership rules.

In its comments in the Commission's proceeding on the local radio ownership rule,² which have been incorporated in this proceeding, Clear Channel demonstrated that Congress definitively established the permissible level of common radio ownership in local markets through its enactment of Section 202(b) of the Telecommunications Act of 1996³ and that the FCC does not have the authority to consider factors beyond compliance with the numerical limits of Section 202(b) when reviewing the proposed transfer of radio station licenses. Clear Channel also demonstrated that diversity and competition, the Commission's traditional public interest goals, are adequately addressed by the modern media marketplace, where consumers have an abundant array of choices for their news and entertainment and the various media compete for both viewers and advertisers. Thus, Clear Channel established that the Commission may not as a matter of law, and need not as a matter of policy, alter the numerical limits of its local radio ownership rule⁴ in a more restrictive direction and suggested that the agency should consider relaxing the limits when considering them in the context of a biennial review.⁵

Now that the Commission has initiated a biennial review of its ownership rules, it is bound not only to address the issues raised in the *Local Radio Ownership NPRM*, but also to fundamentally reassess the very need for media ownership limitations of any sort. Congress, in

² *Rules and Policies Concerning Multiple Ownership of Radio Broadcast Stations in Local Markets*, MM Docket No. 01-317, *Definition of Radio Markets*, 16 FCC Rcd 19861 (2001) ("*Local Radio Ownership NPRM*").

³ Telecommunications Act of 1996, Pub. L. No. 104-104, §202(b), 110 Stat. 56, 110 ("1996 Act").

⁴ 47 C.F.R. §73.3555(a).

⁵ See Comments of Clear Channel Communications, Inc., submitted in MM Docket No. 01-317 (filed on March 27, 2002) ("*Clear Channel Radio Comments*").

Section 202(h) of the 1996 Act, provided that “[t]he Commission shall review its rules adopted pursuant to this section and all of its ownership rules biennially . . . and shall determine whether any such rules are *necessary in the public interest as the result of competition*” and that the agency “*shall repeal or modify* any regulation it determines to be no longer in the public interest.”⁶ This legal framework calls for a different analysis, as the continuing validity of the media ownership rules is now in question.

Indeed, employing traditional canons of statutory interpretation, it is apparent that Section 202(h) is a one-way street to deregulation. The most basic interpretive canon is to ascribe to a word its ordinary meaning, the meaning carried when it is read in its proper context by a typical member of the audience to which it is addressed.⁷ In the case of the word “necessary,” the ordinary meaning is “absolutely needed,” or “required.”⁸ Thus, absent evidence that the context would require a different meaning, in this biennial review the Commission must repeal or modify, *i.e.*, relax, its ownership rules, unless it can prove that they are absolutely needed in their present form to further the public interest. Far from requiring such a different meaning, the context bolsters the application of this plain meaning rule, as Congress’s primary purpose in enacting the 1996 Act was to “reduce regulation.”⁹

Chairman (then-Commissioner) Powell previously expressed this view in his separate statement in the 1998 biennial review proceeding:

⁶ 1996 Act, §202(h), 110 Stat. at 111-12 (emphasis added).

⁷ R. Dickerson, *The Interpretation and Application of Statutes* (Little, Brown & Co., 1975).

⁸ *Merriam Webster's Collegiate Dictionary* 776 (10th ed. 1996).

⁹ 1996 Act, preamble; *see also Reno v. ACLU*, 521 U.S. 844, 857 (1997).

I believe the clear bent of the biennial review process set out by Congress is deregulatory, in recognition of the pace of dramatic change in the marketplace and the understanding that healthy markets can adequately advance the government's interests in competition and diversity. . . . I start with the proposition that the rules are no longer necessary and demand that the Commission justify their continued validity.¹⁰

The courts have also commented on the deregulatory nature of Section 202(h), observing that the provision “carries with it a presumption in favor of repealing or modifying the ownership rules.”¹¹ Moreover, the courts have stated that the Commission may not, in the face of clear evidence that market conditions support deregulation, retain its rules and simply adopt a “wait-and-see approach” to its biennial review mandate. As the D.C. Circuit aptly stated, “[T]he mandate of §202(h) might . . . be likened to Farragut’s order at the battle of Mobile Bay (“Damn the torpedoes! Full speed ahead.”).”¹² In this context, then, the burden is on the Commission to justify retention of its ownership rules in their current form. It is a burden the Commission cannot meet.

II. THERE IS NO LONGER A NEED FOR OWNERSHIP LIMITATIONS, SINCE CONSUMERS HAVE ABUNDANT CHOICES FOR THEIR NEWS AND ENTERTAINMENT AND THE MEDIA COMPETE IN A UNIFIED MARKETPLACE

As Clear Channel has noted previously, the Commission’s historical conceptions of diversity are in need of substantial readjustment as a matter of policy.¹³ While the notion that commonly owned media advance a single viewpoint and thus reduce diversity is highly

¹⁰ *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*, 15 FCC Rcd 11058 (2000) (Separate Statement of Commissioner Michael K. Powell).

¹¹ *Fox Television Stations, Inc. v. FCC*, 280 F.3d 1027, 10 (D.C. Cir. 2002) (“*Fox*”), rehearing granted, 293 F.3d 537 (D.C. Cir. 2002).

¹² *Fox*, 280 F.3d at 1044; *see also Sinclair Broadcast Group v. FCC*, 284 F.3d 148, 172 (D.C. Cir. 2002).

¹³ *See Clear Channel Radio Comments at 15-19.*

questionable,¹⁴ it is beyond question that diversity as measured by the choices open to consumers has exploded in recent decades. Consumers in the modern media marketplace face an embarrassment of riches in terms of the choices available to them for their news and entertainment. The proliferation of media services available to local consumers has been well documented: consumers have access to radio, television, cable, DBS, newspapers, and the Internet, just to mention some of their options. Consumer choice has also expanded within each medium. In the radio industry, for example, consolidation has had a very positive effect on the public interest through recognized increases in formats, as demonstrated in studies by Mark R. Fratrick of BIA Financial Network and Professor Jerry A. Hausman, MacDonald Professor of Economics at the Massachusetts Institute of Technology, that were submitted in the local radio ownership proceeding.¹⁵ Similarly, there are more broadcast television networks, and cable television and DBS provide hundreds of channels to consumers, many of which are devoted to educational or specialty programs. Retention of the current ownership rules is thus no longer necessary to further the Commission's historic interest in promoting diversity.

¹⁴ Chairman Powell has openly questioned this view: "This is some sort of *Citizen Kane* idea that our thoughts will be directed to particular viewpoints. But the overwhelming amount of programming we watch is entertainment, and I don't know what it means for the owner to have a political bias. When I'm watching *Temptation Island*, do I see the little hallmarks of Rupert Murdoch? . . . [E]ven [in the context of news coverage] the proposition has to be challenged. We have CNN, MSNBC, Fox News, and others. How many before you believe there's a bias?" Paul Davidson, *FCC Could Alter Rules Affecting TV, Telephone, Airwaves*, USA Today, February 6, 2002, at 2B; see also Clear Channel Radio Comments at Exhibit 1 (Statement of Randy Michaels).

¹⁵ Fratrick found that the average number of general and specific formats available to listeners has continued to increase across all market size groupings since 1996, even as consolidation in local markets has increased. See Clear Channel Radio Comments at 17-19. Similarly, Professor Hausman found that the number of radio formats in local markets has increased since adoption of the 1996 Act. *Id.*

Consolidation has yielded other important public interest benefits. As Clear Channel noted in its comments in the local radio ownership proceeding—using Syracuse, New York, Fayetteville, Arkansas, and Cookeville, Tennessee as examples—it has increased local news and public affairs programming and invested heavily, both in time and money, in the sponsorship and promotion of numerous local activities and organizations. *Id.* at Exhibit 4.

Nor, as Clear Channel demonstrated in its comments in the local radio ownership proceeding, is there cause for concern about diminution of competition in the media marketplace. Empirical data show that the various media compete for both consumers and advertising dollars in a broad, unified market. Economic studies prepared by Professor Hausman concluded that radio broadcasting does not constitute a separate product market and that other media, most notably television and newspapers, are significant substitutes. Consistent with this finding, Professor Hausman showed that the increase in consolidation in the radio industry has not led to increases in advertising prices.¹⁶ Professor Hausman also refuted the notion that radio owners in a local market can affect advertising prices through coordinated behavior, since radio is a differentiated product and anticompetitive outcomes in differentiated product markets typically arise from “unilateral effects,” where a single firm wields power by cornering the market on all of the differentiated products.

Since Professor Hausman completed those studies, the Commission has continued to review radio assignment and transfer applications pursuant to the interim policy¹⁷ it adopted in the *Local Radio Ownership NPRM* and designated several of those applications for hearing

¹⁶ Using an econometric technique known as fixed effects estimation to determine whether consolidation has had an effect on advertising prices, Professor Hausman’s study in the local radio ownership proceeding demonstrated that the average change in prices is actually *lower* in markets that have experienced greater consolidation. These results hold true across all market sizes. Moreover, Professor Hausman’s empirical test demonstrated that increased concentration within a particular format does not lead to higher advertising prices. Instead, he found that increases in radio advertising rates are explained by changes in television and newspaper advertising rates, supporting the conclusion that these three modes of advertising are significant substitutes for each other. See Clear Channel Radio Comments at 20-23.

¹⁷ Pursuant to the interim policy, the agency “flags” radio applications that would result in one party controlling more than 50% of the radio revenue in the market or two parties controlling more than 70% of the radio revenue (the “50/70 screen”). Within six months of the date on which any such application is filed, the staff must recommend to the full Commission that the application be granted or designated for hearing. An applicant whose application has been designated for hearing may choose instead to await the outcome of this rulemaking and have the resulting rules applied to the application. In connection with the interim policy, the staff has been sending letters requesting additional information on competition issues, such as the relevant geographic and product markets, market shares, efficiencies, and other public interest benefits.

based on its concentration analysis. In addition, the agency released this biennial review *NPRM*, in which it explicitly questions whether it should “redefine the product market” to include “competitors in the video, audio, and newspaper industries.” As a result of these significant developments, Professor Hausman has extended his previous study in two ways. First, he collected advertising rate data from additional markets that have experienced significant increases in radio revenue concentration and performed additional analyses of the effect of concentration on advertising prices. Second, he collected data on local cable television advertising prices to determine whether local cable advertising provides a competitive substitute for radio.

The further study, which is attached hereto at Exhibit 1, amplifies Professor Hausman’s earlier findings. With respect to the effect of increased consolidation on radio advertising prices, Professor Hausman considered additional concentration measures¹⁸ designed to focus on markets in which two firms control a large fraction of the radio revenue. As before, the results of this fixed-effects econometric study confirm that, across all market sizes, consolidation has not led to higher advertising prices, even where the top two firms control more than 80 percent of the revenue.¹⁹ With respect to local cable advertising, Professor Hausman demonstrates that, like broadcast television and newspaper, there is a statistically significant correlation between increases in its prices and the price of radio advertising. Thus, Professor Hausman concludes that radio, broadcast television, cable television, and newspapers are competitors in a broad,

¹⁸ In his earlier study, Professor Hausman considered two measures of radio concentration: the Herfindahl-Hirschman Index, and one designed to correspond to the Commission’s 50/70 screen. In the extended study, he considers the two-firm concentration ratio (the market share of the two largest firms) and focuses specifically on markets where the ratio exceeds 80 percent. Hausman Study at 4.

¹⁹ *Id.* at 4-8. In fact, some of the markets that Professor Hausman reviewed in reaching this conclusion, including Youngstown-Warren, Ohio, Beaumont-Port Arthur, Texas, and Killeen-Temple, Texas, are markets where proposed Clear Channel acquisitions have been designated for hearing by the Commission.

unified local advertising market.²⁰ The existing media ownership rules, which artificially segregate the media, fail to recognize this evidence. Their retention is thus no longer justified or necessary, especially since antitrust authorities, specifically the United States Department of Justice and the Federal Trade Commission, are fully equipped to review the potential effects of media mergers without the duplicative and inadequate involvement of the FCC.²¹

In short, the empirical and statistical evidence shows that the various media compete in a broad, unified marketplace. Moreover, that marketplace provides a sufficient level of diversity and competition to protect and advance the Commission's policy goals, without the need for anachronistic, ownership rules. Since the current ownership rules are no longer

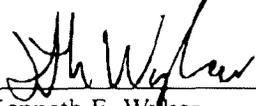
²⁰ *Id.* at 8-11. Professor Hausman also comments on two of the studies conducted by the Commission's Media Ownership Working Group: K. Brown and G. Williams, "Consolidation and Advertising Prices in Local Radio Markets;" and C.A. Bush, "On the Substitutability of Local Newspaper, Radio, and Television Advertising in Local Business Sales." Specifically, he demonstrates that, as a result of data source and econometric flaws, the conclusions of these studies are erroneous. *Id.* at 11-18.

²¹ As Clear Channel noted in its local radio ownership comments, the Commission's past forays into regulation of competition in the broadcast area have been short-lived, as the agency ultimately concluded that market forces, in combination with industry, act to encourage competition for listeners and advertisers, and/or that it has neither the expertise nor the resources to conduct a proper competition analysis. *See, e.g., Policies Regarding Detrimental Effects of Proposed New Broadcast Stations on Existing Stations*, Report and Order, 3 FCC Rcd 638 (1988); *Elimination of Unnecessary Broadcast Regulation*, Second Report and Order, 59 RR 2d 1500 (1986). Early returns from the Commission's interim policy for reviewing radio assignment and transfer applications provide no reason to be optimistic that the agency has redressed any of its shortcomings in this area. With respect to applications that had been pending for more than a year at the release of the *Local Radio Ownership NPRM*, the staff was required to recommend grant or designation for hearing to the full Commission within three months. For applications that had been pending for less than a year, the staff was given six months to make its recommendation. The Commission issued its written decision in little more than a month on the vast majority of applications in the first category. *See, e.g., Air Virginia, Inc.*, FCC 02-53 (released March 19, 2002) ("Air Virginia"). Since then, however, the Commission's efficiency has declined markedly, with a written decision on applications in the second category often not appearing until as long as five months after the staff recommendation date. *See, e.g., Mountain Wireless, Inc.*, FCC 02-166 (July 10, 2002); Letter from Peter Doyle, Chief, Audio Division, Media Bureau, to Richard J. Hayes, Jr. (October 22, 2002). Moreover, inconsistencies plague the decisions released thus far by the Commission. For example, in determining whether to include out-of-market stations as market participants, the FCC has utilized tests ranging from the extent to which an out-of-market station's 60 dBu signal covered the relevant metro, *see, e.g., Golden Triangle Radio, Inc.*, FCC 02-51 (released March 19, 2002), to whether any out-of-market station puts a 70 dBu signal over the main city in the metro "or half of the metro," *see Air Virginia*. Similarly, in one case the FCC considered the assignee's actual revenue figures in calculating post-merger market share, *see Great Scott Broadcasting*, FCC 02-52 (released March 19, 2002) at ¶ 29 & n. 78, while in another the Commission specifically declined to use actual figures. *See Green Bay Broadcasting Company, Inc.*, FCC 02-193 (released July 3, 2002).

"necessary in the public interest as the result of competition," the Commission should take advantage of this opportunity to harmonize its regulatory approach with the modern media marketplace by eliminating the rules. In the event that the Commission concludes otherwise, it should, at most, replace its current ownership rules with a more coherent "unified" media ownership rule.

Respectfully submitted,

CLEAR CHANNEL COMMUNICATIONS, INC.

By: 
Kenneth E. Wyker
Senior VP and General Counsel

January 2, 2003

EXHIBIT 1

STATEMENT OF PROFESSOR JERRY A. HAUSMAN

Statement of Professor Jerry A. Hausman

1. My name is Jerry A. Hausman. I am MacDonald Professor of Economics at the Massachusetts Institute of Technology in Cambridge, Massachusetts, 02139.

2. I received an A.B. degree from Brown University and a B.Phil. and D. Phil. (Ph.D.) in Economics from Oxford University where I was a Marshall Scholar. My academic and research specialties are econometrics, the use of statistical models and techniques on economic data, and microeconomics, the study of consumer behavior and the behavior of firms. I teach a course in "Competition in Telecommunications" to graduate students in economics and business at MIT each year. Competition among broadcast TV, cable networks, direct to home satellite (DTH) providers, newspapers, and radio is one of the primary topics covered in the course. In December 1985, I received the John Bates Clark Award of the American Economic Association for the most "significant contributions to economics" by an economist under forty years of age. I have received numerous other academic and economic society awards. My curriculum vitae is attached as Exhibit 1.

3. I have done significant amounts of research in the telecommunications industry. I have published numerous papers in academic journals and books about telecommunications. I have also done research and published academic papers regarding advertising on TV and radio.

4. In March 2002 I submitted a Declaration to the Commission that contained

empirical studies of the effects of consolidation on radio advertising rates and format diversity. I have previously submitted Declarations to the Commission regarding the competitive impacts of policies affecting DTH, DBS, cable TV, and broadcast TV service offerings. I have also submitted Declarations regarding competition between cable TV and DTH and broadcast TV. I have previously made presentations to the Department of Justice regarding competition in TV, cable TV, and radio. I have served as a consultant to the Tribune Corporation over the past decade. Tribune owns broadcast TV stations, radio stations, and newspapers. I have also consulted for a variety of companies which sell consumer goods and do large amounts of advertising, e.g. Budweiser, Kodak, and Revlon.

I. Summary and Conclusions

5. My March 2002 Declaration contained two empirical studies of the effects of the consolidation in the radio industry that has occurred since the passage of the Telecommunications Act of 1996. In the first study I found that consolidation did not lead to higher prices for radio advertising, while in the second study I found that consolidation has resulted in increases in format diversity.

6. In this Declaration I extend my previous study of radio advertising prices in two ways. First, I collect data on actual rates charged by stations in additional markets that have experienced significant increases in concentration, and I perform additional analyses of the effect of these increases in concentration on advertising prices. Second, I collect data on cable television advertising prices to study whether cable advertising (along with broadcast television

and newspaper) provides a competitive substitute for radio advertisers. Finally, I comment on two of the studies released by the Commission's Media Ownership Working Group as part of this proceeding.

7. Consistent with my previous study, I find that increases in concentration do not lead to higher advertising prices. Even in markets where two firms control over eighty percent of radio market revenue, there is no evidence that increases in concentration have increased the price of radio advertising.

8. Cable television has been one of the fastest-growing local advertising media in the period since 1995. When cable advertising prices are added to the analysis, I find that changes in cable advertising prices lead to changes in radio advertising prices. The econometric results demonstrate that cable advertising, along with broadcast television advertising and newspaper advertising, is a substitute for radio advertising.

II. Advertising Prices and the Two-Firm Concentration Ratio

9. In my previous advertising price study, I collected data on the advertising prices charged by 121 stations in 37 markets in 1995 and 2001. To measure the price of radio advertising in each market, I constructed a radio CPM (cost per thousand) by dividing the price of a spot by the number of listeners (in thousands). Using a fixed-effects econometrics methodology, I regressed the price of radio advertising on a measure of radio market concentration, the price of broadcast television advertising, the price of newspaper advertising,

and market population. I considered two measures of radio market concentration. The first measure of market concentration I considered was the Herfindahl-Hirschman Index (HHI), which is equal to the sum of squared market shares for all firms in the market. The second concentration measure I considered was an indicator variable equal to one if the largest firm's market share is at least 50 percent or if the combined market share of the two largest firms is at least 70 percent. For both measures of market concentration, I found that increases in concentration did not lead to increased advertising prices. If anything, increased concentration led to slightly lower advertising prices.

10. In the time since I completed my study, the Commission has issued hearing designation orders for license transfers in several radio markets.¹ A feature common to all of these markets is that two firms control a large fraction of the radio revenue in the market. To address the Commission's apparent concern about this type of situation, I now consider additional concentration measures, both based upon the market share of the two largest firms. In economics, the market share of the two largest firms is known as the two-firm concentration ratio (which I will abbreviate as CR2). The two new concentration measures I consider are CR2 and an indicator variable equal to one if CR2 exceeds 80 percent.

11. My original study used a stratified random sample of 37 markets, where the different strata represented different market sizes. Although my original sample contains several

¹ The Arbitron markets in which license transfers have been designated for hearing are Ann Arbor, Augusta-Waterville, Beaumont-Port Arthur, Charlottesville, Killeen-Temple, and Youngstown.

markets that had relatively high CR2s in 2001, in order to increase the precision of my estimates I collected data from additional markets with CR2s above 80 percent in 2001.² I collected data from 6 additional stations in two Arbitron markets: Killeen-Temple, and Portsmouth-Dover-Rochester. Table 1 presents the complete list of 39 markets.

12. As before, I conduct a preliminary analysis of the data by comparing the change in prices across markets that experienced different changes in concentration. I perform this comparison for the two concentration measures I originally considered (the HHI and the 50/70 indicator) and also for the two new concentration measures (CR2 and the CR2>80 indicator). For each concentration measure, I partition the markets into different categories based on the change in concentration between 1995 and 2001. I then calculate the average change in the natural log of the radio CPM for each category. If increases in concentration lead to increases in price, the change in prices should be greater in markets that experienced larger changes in concentration.

13. The results of this preliminary analysis are in Table 2. In all cases, the pattern of price changes is inconsistent with the pattern we would expect to observe if increases in concentration increased price. For the HHI and the 50/70 indicator, markets that experienced larger changes in concentration experienced smaller increases in price. For the CR2 measure, the

² Note that since CR2 is a predetermined (right-hand side) variable in my analysis, this sampling criterion does not affect the validity of my estimates. However, sampling based on the dependent variable (which is the price of radio advertising) would be inappropriate. See J. Hausman and D. Wise, "Stratification on Endogenous Variables and Estimation," in *The Analysis of Discrete Economic Data*, MIT Press, 1981.

average price change increases as we move from the first category to the second, but then decreases as we move to the third category that experienced the largest change in CR2. Finally, in markets where the CR2 moved above 80 percent between 1995 and 2001, the average change in price was actually slightly lower than the average change in markets where the CR2 remained below 80 percent the entire time. Hence this preliminary analysis suggests that increases in CR2, even to relatively high levels, have not led to increases in advertising prices.

14. The results of the fixed effects econometrics approach confirm that consolidation has not led to increases in price. Table 3 presents the results for models that I previously estimated in my March 2002 Declaration. These results, which incorporate the data from the additional two markets, corroborate my previous findings. In Column 1, the coefficient on the HHI variable is negative and statistically insignificant. In Column 2, the coefficient on the 50/70 indicator variable is very close to zero and insignificant. In neither case is there any evidence that increases in concentration have resulted in increased prices.

15. There is also no evidence that the effect of consolidation on price varies by market size. I partition the markets into three size categories, using the same categories as before.³ In Columns 3 and 4 of Table 3 I estimate regressions allowing for interactions between market size and concentration. I find that the effect of concentration on price is negative or close to zero and insignificant for every market category. I also test the statistical hypothesis that the effect of concentration on price is the same for each market size, and I cannot reject this hypothesis for

³ Markets with Arbitron rank 1-50 are considered large, 51-100 are considered medium, and

either concentration measure. Hence, as before, I find that, across all market sizes, prices have not been affected by consolidation.

16. Table 4 presents the results using the CR2-based concentration measures. In Column 1, the coefficient on the CR2 variable is negative and statistically insignificant, and in Column 2, the coefficient on the CR2>80 variable is close to zero and statistically insignificant. Hence there is no evidence that increases in the market share of the two largest firms lead to increases in price. Similarly, there is no evidence that markets that have two firms with high market shares have experienced larger increases in price than other markets. Given the precision of the estimates, it is very unlikely that markets with two large owners would experience a significantly positive price increase.

17. As with the other concentration measures, there is no evidence that the effect of changes in CR2 varies by market size. In Column 3, I allow the effect of changes in CR2 to differ in large, medium, and small markets. However, for all three market sizes concentration is estimated to have a negative and statistically insignificant effect on price. Furthermore, I cannot reject the hypothesis that the effect of concentration on price is the same in all market sizes. In Column 4, I allow the effect of changes in the CR2>80 indicator variable to differ in small and medium markets.⁴ In small markets, increases in this variable have a small and statistically insignificant effect on price, and in medium markets the effect is negative. Again, I cannot reject the hypothesis that the effect is the same in both market sizes. Taking my results as a whole, I

101+ are considered small.

conclude that there is no evidence that the increases in consolidation that occurred between 1995 and 2001 led to increases in the price of radio advertising.⁵

18. The fact that the large increases in concentration that have occurred in the radio industry have not led to increases in prices suggests that radio is not a relevant product market. Since prices did not increase more in markets that experienced larger increases in concentration, other advertising media are most likely constraining the price of radio advertising in these markets. The results I obtain for the effect of television and newspaper advertising prices on radio advertising prices are consistent with this suggestion. Throughout the different specifications reported in Table 3 and Table 4, I find that both television advertising prices and newspaper advertising prices have a positive, statistically significant effect on radio advertising

⁴ None of the large markets in my sample have a CR2 that exceeds 80 percent.

⁵ These empirical results contradict the theoretical model (B. Cunningham and P. Alexander, "A Theory of Broadcast Media Concentration and Commercial Advertising," FCC Media Ownership Working Group Study No. 6) that is cited with approval in a recent study by Dean Baker commissioned by the AFL-CIO Department for Professional Employees. As shown by my empirical results, advertisers do not pay higher rates for radio as concentration increases. Because the theoretical model is directly contradicted by the data, it cannot be considered a correct model. My results also undermine the statement in the Baker/AFL-CIO study that "consistent with the increased concentration in the radio industry, there has been a sharp rise in advertising fees since the change in rules" (p. 18). While advertising rates increased for radio in the 1996-2001 period, rates also increased for television and newspapers, whose concentration levels changed little during this period. Thus, the correct conclusion is that the economic growth of the period, together with limited increases in supply (little if any additional spectrum for broadcast stations and few new newspapers), led to the rate increases. My econometric study demonstrates that increasing concentration did not lead to increases in radio advertising prices. The Silk, Klein, and Berndt study cited by Baker (p. 19) mainly covered a period of increasing supply of radio stations. This increase in supply has since largely ended due to spectrum limitations (thus explaining the slowing of growth in the number of stations and owners in recent years). Also, the Baker/AFL-CIO study ignores my March 2002 study and published research by Berry and Waldfogel, both of which show an increase in the number of radio formats as a result of consolidation.

prices.⁶ A ten percent increase in either the television or newspaper price leads to an increase of between three and four percent in the radio price. These results indicate that television and newspaper advertising are significant substitutes for radio advertising.

III. Cable Advertising and Radio Advertising

19. Local cable television has been one of the fastest growing local media since 1995. Table 5 presents the estimated advertising expenditures for the different local media in 1995 and 2001. Although local cable advertising is still much smaller than advertising on newspapers, broadcast television, and radio, it grew much faster during this period. One of the factors underlying the growth in local cable advertising has been the clustering of local cable systems. As the share of cable viewing continues to increase, local cable advertising revenue will increase as well.

20. The characteristics of cable advertising are likely to make it a good substitute for radio advertising. Like radio, cable advertising allows advertisers to target specific demographics. The role that formats play in radio is analogous to the role that the various advertising-supported networks (e.g. ESPN, MTV, Lifetime, Nickelodeon) play in cable. Another similarity between cable advertising and radio advertising is that they are both relatively inexpensive, which allows advertisers to build repetition or frequency.⁷ Given the similarities

⁶ The television coefficient is generally significant at the five percent level, and the newspaper coefficient is generally significant at the ten percent level.

⁷ However, as I noted in my second March 2002 Declaration, many advertisers prefer “reach” to frequency.

between cable and radio advertising, it is not surprising that there is ample anecdotal evidence of advertisers switching from local radio advertising to local cable advertising in recent years.⁸

21. I did not include measures of cable advertising prices in my March 2002 study due to data limitations. However, in order to provide more systematic evidence of the substitutability of cable and radio advertising, for this study I have collected data on local cable advertising prices. The data source is the *Media Market Guide*. For 1995 I collect rates from the Q2:1996 issue (the first issue in which cable data for all DMAs was collected), and for 2001 I collect rates from the Winter 2002 issue.⁹ The *Guide* lists the cost of a 30-second spot during the prime daypart on 8 different networks (A&E, CNN, Discovery, ESPN, Lifetime, MTV, TNT, and USA), and also an overall rate that approximates the average spot cost during the prime daypart. For each radio market in my sample, I select the DMA in which the radio market is primarily located. I then select the largest cable system (or interconnect) in that DMA for which data are available for both years. I calculate the average spot cost by averaging the costs for the available networks, or by using the overall spot cost if network-specific costs are unavailable. To construct a measure similar to a CPM, I then divide by the number of subscribers for the system. Finally, as with all of the other prices in my study, I divide by the CPI.

⁸ See, e.g., E.H. Updike and R.D. Schatz, "Shhh – My TV Commercial is On," *Business Week* (<http://www.businessweek.com/1997/41/b3548030.htm>, accessed 1 November 2002), 13 October 1997 (two examples of local advertisers switching from radio to cable); "Cable, Ad Execs Tackle Issues, Answers," *Multichannel News*, 21 June 1999 (Wendy's International Inc. local-media manager says that higher radio rates have led many outlets to spend more local dollars in cable); J.D. Zbar, "Local Cable TV and Radio Can Hit That Home Run," *South Florida Sun-Sentinel*, 7 October 2002 (local advertiser adding cable to media mix).

⁹ Data from the 2002 issue were unavailable for two markets, so data from the 2001 issue were used instead.

22. A limitation of the cable advertising data is that they are based on rate cards rather than actual transactions. As a result, it is likely that the cable advertising price is measured with error. As is well-known in econometrics, when a right-hand side variable such as the cable advertising price is measured with error, its estimated coefficient will generally be biased towards zero when running a regression.¹⁰ Thus the effect of the cable advertising price may be greater than my econometric results indicate.

23. Tables 6 and 7 present the results of fixed-effects regressions that include the price of cable advertising. Since cable prices are not available for all markets, the sample includes five fewer markets than the regressions in Tables 3 and 4. In general, the cable advertising coefficient is significantly different from zero at the ten percent level, and indicates that a ten percent increase in the price of cable advertising increases the price of radio advertising by about two percent. Including the cable price does not have a large effect on the estimated newspaper coefficient, but it does reduce the magnitude and statistical significance of the broadcast television coefficient. Since collinearity of the broadcast, newspaper, and cable advertising prices may make it difficult to precisely estimate their separate effects, I also test the joint hypothesis that they have no effect on the price of radio advertising. The p-value (probability that the null hypothesis is true) for this hypothesis is listed for each specification in Tables 6 and 7. For each specification I reject the hypothesis that the three other advertising prices do not affect the radio advertising price at the ten percent level.

¹⁰ See J. Hausman, "Mismeasured Variables in Econometric Analysis: Problems From the Right

24. I find that consolidation that has led to high levels of (radio-specific) concentration has not been associated with increases in radio advertising prices. I also find that increases in broadcast television, newspaper, and cable advertising prices lead to increases in the price of radio advertising. These findings are inconsistent with the claim that radio advertising is a relevant product market. Instead, radio advertising is one part of a broader local advertising market that includes at least broadcast television, newspaper, and cable advertising.

IV. Comments on Media Ownership Working Group Studies

25. In October 2002 the Commission's Media Ownership Working Group released a series of studies of issues related to the broadcast ownership rules. In this section I comment upon two of these studies.

A. K. Brown and G. Williams, "Consolidation and Advertising Prices in Local Radio Markets"

26. Brown and Williams conduct a study of radio advertising prices that is similar in many respects to the study that was originally in my March 2002 Declaration and is updated in the current Declaration. Like my study, the Brown and Williams study uses the fixed-effects regression technique to determine whether post-Telecommunications Act consolidation has affected the price of radio advertising. However, contrary to my results, they find that consolidation has had a positive, small, but statistically significant effect on the price of radio

and Problems From the Left," *Journal of Economic Perspectives*, Fall 2001.

advertising. In the remainder of this section I comment upon the Brown and Williams study and discuss several reasons for the divergence in results.

27. One of the most important differences between my study and the Brown and Williams study is the source of the price data. Brown and Williams collect CPM data from SQAD, an industry research firm. SQAD calculates market-level CPMs using prices reported by a sample of national and regional advertisers. Brown and Williams are careful to note the limitations of their data. In particular, they note that their data do not reflect prices actually paid by local advertisers, which likely differ from the rates paid by national and regional advertisers. In 2001, national and regional advertisers accounted for less than 20 percent of total spot radio advertising expenditures. Hence the price data Brown and Williams use is missing more than 80 percent of total spot radio advertising expenditures. In contrast to Brown and Williams, the price data I use is based on actual average spot rates collected from station records. The average spot rate includes purchases by all advertisers, including both local and national/regional. Hence the prices used in my study are a much better indicator of prices actually paid by all radio advertisers.

28. Another important difference between my study and the Brown and Williams study is that Brown and Williams do not take into account changes in the prices of substitutes for radio advertising. I include the prices of broadcast television, newspaper, and cable advertising in my regressions, and I find that the prices of these substitutes have a positive, significant effect on the price of radio advertising. In contrast, Brown and Williams do not include these prices in their regressions. By not including these variables, Brown and Williams's results are subject to what is known in econometrics as omitted variables bias. Omitted variables bias means that

when relevant variables are not included, the effects of the variables that are included (in this case concentration) are estimated incorrectly: that is, they are biased.¹¹ To illustrate the direction of the omitted variables bias, I use my data to estimate a model similar to Brown and Williams's and compare the estimated effect of concentration on price when the prices of substitutes are included to the estimated effect of concentration on price when the prices of substitutes are not included. If concentration is estimated to have a larger effect on price when the prices of substitutes are not included, then Brown and Williams's results likely overstate the effect of concentration on price.

29. The results of the omitted-variable comparison are in Table 8. In Column 1 the prices of advertising for broadcast television, newspaper, and cable are included. I use the same concentration measure as Brown and Williams (the natural log of the HHI), and as a result the coefficient can be interpreted as an elasticity. Hence Column 1 implies that a 10 percent increase in the HHI reduces price by about 1.6 percent. In Column 2 I omit the prices of competing media, as Brown and Williams do. The results from Column 2 imply that a 10 percent increase in the HHI reduces price by only 0.7 percent. The important result to note is that omitting the prices of substitutes leads to an increase in the estimated effect of concentration on price. Hence by failing to include the prices of substitutes for radio advertising, Brown and Williams likely overstate the effect of concentration on price. Although the magnitude of the effect may appear to be small, a change of the same magnitude in Brown and Williams's results would result in them finding that concentration reduces price instead of increasing it. Thus if Brown and

¹¹ See W. Greene, *Econometric Analysis*, 1997 (3rd edition), p. 401 for a textbook discussion of

Williams had included the prices of competing media in their regression specification, they might well have found that increased concentration leads to lower radio advertising prices.

30. An additional difference between the Brown and Williams study and my study is that my results do not depend on the precise way in which concentration is measured. I use four different measures of concentration (HHI, 50/70 indicator, CR2, and CR2>80 indicator), and also allow the effect of concentration on price to differ by market size. Regardless of how I measure concentration, in no case do I find any evidence that consolidation has increased price. As I now demonstrate, the results of the Brown and Williams study do not share the robustness of the results of my study. The primary variable Brown and Williams use to measure local concentration is the natural log of the HHI. Brown and Williams find that the coefficient on this variable is positive and statistically significant. However, making only a small change in the way concentration is measured changes this result. If the concentration variable is the HHI itself and not the natural log of the HHI, the estimated coefficient is not statistically significant (see Table 9).¹²

31. In considering the difference between the HHI measure and the natural log of HHI measure, it is interesting to note that theoretical considerations suggest that the HHI should be a better measure of concentration. When the HHI is used without a transformation, the assumption is that a 100-point increase in the HHI has the same effect on price regardless of the level of the

omitted variables bias.

¹² By contrast, as Table 8 demonstrates, my results do not depend on whether the concentration variable is HHI or log(HHI).

HHI. When the natural log of the HHI is used, the assumption is that a 100-point increase in the HHI has less of an effect on price the higher the level of the HHI. However, this assumption runs counter to the received economic knowledge about concentration embodied in the DOJ/FTC *Horizontal Merger Guidelines*. According to the *Guidelines*, while a 100-point increase in the HHI is necessary to raise concerns when the post-merger HHI is between 1000 and 1800, when the post-merger HHI exceeds 1800 only a 50-point increase is necessary to raise concerns.

32. A final point to note regarding the Brown and Williams study is that even disregarding the above caveats and taking the results at face value, the estimated effect of consolidation on price is small in magnitude and has been offset by other changes in the industry. On page 16 of their study, Brown and Williams present an example of the price effect predicted by their model for a two-firm merger in a market that originally had four equally sized firms. Brown and Williams's model predicts that such a merger would increase price by about 2.75 percent. However, this prediction ignores the increase in group ownership that has been an important part of the recent consolidation in the radio industry. To extend Brown and Williams's example, suppose that originally the four firms in the market are small groups, each with only 0.5 percent of national revenue. Now suppose that a large group with 20 percent of national revenue (which would be smaller than Clear Channel) buys two of the firms in the market. The Brown and Williams model predicts that due to the increase in the HHI and the reduction in the number of owners, price will increase by approximately 2.3 percent.¹³ However, the increase in national

¹³ This effect differs from the effect reported in the Brown and Williams study because it is calculated using the updated Brown and Williams results, which were released in November 2002. I use the unweighted model with two-way fixed effects. The calculation is

ownership is predicted to reduce price by approximately 2 percent.¹⁴ Hence the total effect of consolidation in this example is an increase in price of only 0.3 percent.

B. C. A. Bush, “On the Substitutability of Local Newspaper, Radio, and Television Advertising in Local Business Sales”

33. The Bush study attempts to estimate a demand system for three components of the local advertising market: newspaper, radio, and broadcast television. Although Bush acknowledges some of the limitations of his data, there are additional problems with both his data and his methodology. As a consequence of these problems, the results of the Bush study are biased and unreliable. In particular, Bush’s results are biased towards finding too little demand sensitivity and too little substitution across media.

34. The first data problem is the method Bush uses to allocate newspaper advertising revenue to local markets. Since market-specific newspaper revenue is not available, Bush uses national newspaper revenue and allocates it to markets based on each market’s share of national adult population. However, this allocation procedure is correct only if newspaper prices are the same in all markets. If prices differ across markets (as is obviously the case), and if the demand for newspaper advertising is elastic (which is almost certainly true given the prevalence of one-newspaper towns) then Bush’s procedure causes him to understate the responsiveness of demand to changes in price. To see why this is true, consider the following example. Assume that two markets have the same adult population, but that price is higher in one market than the other

$0.0435 * (\log(3750) - \log(2500)) - 0.02 * (\log(3) - \log(4))$.

¹⁴ The calculation is $-0.0067 * (\log(0.1025) - \log(0.005))$.

market. Since the demand for advertising is elastic (i.e., less than negative one), revenue will be lower in the high-price market than in the low-price market. An observer who observed the actual revenues and prices in the two markets would correctly conclude that the demand for newspaper advertising is elastic. However, under Bush's allocation procedure one would assume that revenues in the two markets were equal. An observer who relied upon the Bush-allocated revenues would see that the difference in price results in no difference in revenues, and would conclude, contrary to reality, that the demand for newspaper advertising is only unit elastic (i.e., equal to negative one).

35. A second problem with the data used in the Bush study is that there is measurement error in the radio and television prices. In order to estimate a demand system for local advertisers, one should compare the expenditures made by local advertisers to the prices paid by local advertisers. Bush uses estimates of the expenditures of local advertisers in each market. However, the radio and television price data Bush uses are from SQAD, and are based on purchases made by national and regional advertisers. Since, as Brown and Williams note, the prices paid by local advertisers likely differ from the prices paid by national and regional advertisers, Bush's radio and television prices suffer from measurement error. As is described above, the general effect of this type of measurement error is to bias estimated coefficients towards zero. In this setting, this means that Bush's results are biased towards finding less elasticity and less substitution across media than actually exists.

36. Even if these data problems did not exist, the results of the Bush study would still be biased as a result of simultaneous equations bias. Econometricians have long recognized that

special methods must be used to separate the effects of demand and supply when estimating demand equations.¹⁵ However, Bush does not use these methods, and consequently he estimates downward-biased price elasticities that imply less substitution across media than actually exists. To see why this is true, consider the relationship between quantity and price. Quantity and price are determined by the intersection of the demand curve and the supply curve. The demand curve generally slopes downward (quantity demanded falls as price increases), and the supply curve generally slopes upward (price increases as the quantity supplied increases). The Bush study is trying to determine the slope of the demand curve: how much quantity demanded falls when price increases. The problem is that the data on price and quantity in different markets reflect both the negative demand relationship and the positive supply relationship. Unless appropriate simultaneous equations methods (such as instrumental variables) are used, the estimated relationship between quantity and price is a mixture of the two.¹⁶ Since the negative demand relationship is contaminated by the positive supply relationship, the estimated price elasticity is biased towards zero.

¹⁵ See J. Hausman, "Specification and Estimation of Simultaneous Equation Models," in *Handbook of Econometrics*, vol. 1, 1983.

¹⁶ For a textbook exposition of simultaneous equations bias in the context of demand estimation, see J. Hamilton, *Time Series Analysis*, 1994, pp. 233-35.

Table 1: Markets in Advertising Price Study

New York
Los Angeles
Chicago
Dallas-Ft. Worth
Philadelphia
Houston-Galveston
Washington, DC
Boston
Detroit
Atlanta
San Diego
Tampa-St. Petersburg-Clearwater
Portland, OR
Cleveland
Cincinnati
Kansas City
San Antonio
Orlando
Louisville
Albany-Schenectady-Troy
Tucson
Grand Rapids
Fresno
Omaha-Council Bluffs
Baton Rouge
Little Rock
Charleston, SC
Youngstown-Warren
Worcester
Portsmouth-Dover-Rochester
Jackson, MS
Beaumont-Port Arthur, TX
Springfield, MO
Salisbury-Ocean City
Fayetteville (North West Arkansas)
Killeen-Temple, TX
Tallahassee
Lincoln
Lubbock

Table 2: Changes in Price by Market Category

	Average change in Log (Radio CPM)	Number of Markets
HHI change < 1000	0.268	10
HHI change between 1000 and 1500	0.256	19
HHI change > 1500	0.208	10
50/70 indicator change = 0	0.250	22
50/70 indicator change = 1	0.243	17
CR2 change < 15	0.247	5
CR2 change between 15 and 28	0.259	21
CR2 change > 28	0.228	13
CR2>80 indicator change = 0	0.247	32
CR2>80 indicator change = 1	0.244	7

Table 3: Price-Concentration Regressions (HHI and 50/70 Indicator)

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1	Column 2	Column 3	Column 4
HHI (0-1 scale)	-0.305 (0.522)			
HHI*Large market			-0.636 (0.729)	
HHI*Medium market			-0.944 (0.833)	
HHI*Small market			-0.227 (0.561)	
50/70 indicator		0.009 (0.067)		
50/70*Large market				0.015 (0.086)
50/70*Medium market				-0.037 (0.114)
50/70*Small market				0.032 (0.100)
Log (Television CPM)	0.321 (0.135)	0.311 (0.137)	0.312 (0.131)	0.308 (0.140)
Log (Newspaper CPM)	0.337 (0.200)	0.337 (0.211)	0.407 (0.224)	0.358 (0.229)
Log (Population)	0.732 (0.562)	0.829 (0.576)	0.596 (0.611)	0.812 (0.612)
Year 2001	0.041 (0.121)	-0.005 (0.109)	0.066 (0.123)	-0.009 (0.115)
R^2	0.941	0.940	0.943	0.941
Root MSE	0.140	0.140	0.142	0.144
N	78	78	78	78

Notes: All regressions include market fixed effects. Heteroskedasticity-robust standard errors in parentheses.

Table 4: Price-Concentration Regressions (CR2 and CR2>80 Indicator)

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1	Column 2	Column 3	Column 4
CR2 (0-1 scale)	-0.250 (0.274)			
CR2*Large market			-0.286 (0.305)	
CR2*Medium market			-0.495 (0.457)	
CR2*Small market			-0.207 (0.324)	
CR2>80 indicator		0.015 (0.083)		
CR2>80*Medium market				-0.182 (0.108)
CR2>80*Small market				0.058 (0.091)
Log (Television CPM)	0.338 (0.136)	0.309 (0.136)	0.335 (0.136)	0.318 (0.135)
Log (Newspaper CPM)	0.350 (0.196)	0.343 (0.208)	0.388 (0.215)	0.459 (0.255)
Log (Population)	0.708 (0.562)	0.817 (0.569)	0.616 (0.588)	0.825 (0.584)
Year 2001	0.056 (0.127)	-0.004 (0.112)	0.066 (0.124)	-0.042 (0.123)
R^2	0.941	0.940	0.942	0.942
Root MSE	0.139	0.140	0.142	0.141
N	78	78	78	78

Notes: All regressions include market fixed effects. Heteroskedasticity-robust standard errors in parentheses.

Table 5: Local Advertising Expenditures by Medium, 1995 and 2001

	1995	2001	Growth
Newspaper	32,321	37,640	16.5%
Broadcast Television	19,104	21,479	12.4%
Local Cable Television	1,666	3,653	119.3%
Radio	10,858	17,150	57.9%

Notes: In millions of dollars. Broadcast television and radio include both national spot and local spot.

Source: <http://www.mccann.com/insight/bobcoen.html>, accessed 9 December 2002.

Table 6: Price-Concentration Regressions with Cable Prices (HHI and 50/70 Indicator)

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1	Column 2	Column 3	Column 4
HHI (0-1 scale)	-0.301 (0.486)			
HHI*Large market			-0.932 (0.645)	
HHI*Medium market			-1.265 (0.809)	
HHI*Small market			-0.161 (0.510)	
50/70 indicator		0.013 (0.075)		
50/70*Large market				0.003 (0.065)
50/70*Medium market				-0.078 (0.122)
50/70*Small market				0.081 (0.090)
Log (Television CPM)	0.178 (0.150)	0.157 (0.151)	0.148 (0.146)	0.123 (0.133)
Log (Newspaper CPM)	0.303 (0.211)	0.299 (0.219)	0.432 (0.205)	0.358 (0.235)
Log (Cable CPM)	0.180 (0.123)	0.199 (0.128)	0.219 (0.120)	0.254 (0.109)
Log (Population)	0.384 (0.550)	0.472 (0.556)	0.070 (0.575)	0.350 (0.583)
Year 2001	0.118 (0.124)	0.074 (0.107)	0.163 (0.119)	0.072 (0.104)
R^2	0.945	0.944	0.950	0.948
Root MSE	0.138	0.139	0.137	0.139
N	68	68	68	68
p-value for hypothesis that substitutes have zero effect	0.095	0.072	0.034	0.029

Notes: All regressions include market fixed effects. Heteroskedasticity-robust standard errors in parentheses.

Table 7: Price-Concentration Regressions with Cable Prices (CR2 and CR2>80 Indicator)

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1	Column 2	Column 3	Column 4
CR2 (0-1 scale)	-0.328 (0.255)			
CR2*Large market			-0.439 (0.286)	
CR2*Medium market			-0.686 (0.438)	
CR2*Small market			-0.182 (0.294)	
CR2>80 indicator		0.026 (0.078)		
CR2>80*Medium market				-0.200 (0.109)
CR2>80*Small market				0.078 (0.081)
Log (Television CPM)	0.204 (0.145)	0.155 (0.140)	0.178 (0.151)	0.164 (0.139)
Log (Newspaper CPM)	0.322 (0.197)	0.310 (0.220)	0.414 (0.199)	0.454 (0.260)
Log (Cable CPM)	0.178 (0.122)	0.200 (0.113)	0.215 (0.122)	0.214 (0.112)
Log (Population)	0.320 (0.550)	0.450 (0.576)	0.099 (0.567)	0.424 (0.579)
Year 2001	0.150 (0.143)	0.074 (0.126)	0.165 (0.131)	0.028 (0.132)
R^2	0.946	0.944	0.950	0.947
Root MSE	0.136	0.138	0.137	0.138
N	68	68	68	68
p-value for hypothesis that substitutes have zero effect	0.059	0.072	0.028	0.041

Notes: All regressions include market fixed effects. Heteroskedasticity-robust standard errors in parentheses.

Table 8: Effects of Omitted Variables

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1	Column 2
Log (HHI)	-0.161 (0.108)	-0.072 (0.135)
Log (Television CPM)	0.211 (0.143)	
Log (Newspaper CPM)	0.353 (0.192)	
Log (Cable CPM)	0.185 (0.123)	
Log (Population)	0.336 (0.553)	0.371 (0.730)
Year 2001	0.152 (0.144)	0.269 (0.113)
R^2	0.947	0.931
Root MSE	0.136	0.147
N	68	68

Notes: Both regressions include market fixed effects. Heteroskedasticity-robust standard errors in parentheses.

Table 9: Brown-Williams Regression with Different Concentration Measure

Dependent variable: Log(Radio CPM), morning drive daypart

Variable	Column 1
HHI (0-1 scale)	0.082 (0.052)
Log (Income)	0.268 (0.110)
Log (Population)	-0.211 (0.144)
Log (Local-National)	-0.006 (0.003)
Log (Owners)	-0.033 (0.034)
R^2	0.960
Root MSE	0.095
N	1284

Notes: Regression includes market and time fixed effects. Heteroskedasticity-robust standard errors in parentheses.

May 2002

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