Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
2014 Quadrennial 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. 14-50
	)	
2010 Quadrennial 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. 09-182
	)	
Promoting Diversification of Ownership in the Broadcasting Services	)	MB Docket No. 07-294
	)	
Rules and Policies Concerning Attribution of Joint Sales Agreements in Local Television Markets	)	MB Docket No. 04-256
	)	

Competition in Local Broadcast Television Advertising Markets

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INTRODUCTION

1. We have been asked by the National Association of Broadcasters ("NAB") to provide an economic analysis of the nature of competition in local broadcast television advertising markets, and its implications for (a) policies advocated by the Department of Justice ("DOJ") in its *ex parte* submission on ownership-attribution rules for television joint-sales agreements ("JSAs") or shared-services agreements ("SSAs"),[1] and (b) the Commission's Further Notice of Proposed Rulemaking ("FNPRM") and the accompanying Report and Order, which proposes and adopts policies consistent with the DOJ's key recommendations.[2]

2. In this study, we empirically evaluate the DOJ's position that local broadcast television advertising is a relevant antitrust product market, which implies that arrangements such as JSAs and so-called "duopoly" ownership (in which two or more broadcast stations have a common owner in a given local market) are likely to generate anticompetitive effects.

3. To evaluate the DOJ's position, we have performed several empirical analyses of the determinants of local advertising prices. The results are inconsistent with the DOJ's view of competition in local advertising markets, but are consistent with the position of NAB and other broadcasters that local broadcasting prices are affected and disciplined by cable television and other advertising alternatives. In particular, we find no empirical evidence that JSAs or duopoly ownership arrangements are associated with higher advertising prices, and some evidence that

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1. *Ex Parte* Submission of the United States Department of Justice, *2010 Quadrennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996* (Feb. 20, 2014) [hereafter *DOJ Ex Parte*], *available at* http://www.justice.gov/atr/public/comments/303880.pdf, at 2.

2. *Federal Communications Commission, 2014 Quadrennial 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 14-50, *Further Notice of Proposed Rulemaking and Report and Order* (Mar. 31, 2014), [hereafter *FNPRM/R&O*], ¶1 ("[W]e determine that certain television joint sales agreements ("JSAs") are attributable").

they are associated with lower prices. Moreover, we find no evidence that increases in concentration among local broadcasters are associated with statistically significant increases in local advertising prices. We conclude that the DOJ's definition of the relevant antitrust product market as limited to local broadcast television advertising is not supported by the available evidence, and that a properly defined relevant product would need to include non-broadcast alternatives such as cable television.

I. BACKGROUND

4. In this section, we describe the DOJ's position on the degree of competition between broadcast stations and cable and other advertising media.

A. The DOJ Asserts That Local Broadcast Television Advertising Is a Relevant Antitrust Product Market

5. The DOJ has asserted in public statements and in court filings that local broadcast is a relevant antitrust product market, noting that "[s]ince different programming and forms of media attract distinct audiences and have unique advantages and disadvantages for conveying various messages, advertising on two different forms of media may or may not be substitutes."[3] The DOJ maintains that local broadcast advertising is a distinct product market because "broadcast television spot advertising has no close substitute for a significant number of advertisers."[4]

6. The DOJ's *Horizontal Merger Guidelines* provide that a candidate market can be considered a relevant antitrust product market only if it includes a sufficiently broad set of substitute products such that a hypothetical monopolist over all products in the candidate market

3. *DOJ Ex Parte* at 8.
4. *Competitive Impact Statement, U.S. v. Gannett Co., Inc.,* No. 13-01984 (D.D.C. Dec. 16, 2013) [hereafter *Gannett CIS*], at 5.

could impose at least a small but significant and non-transitory increase in price ("SSNIP"), without losing so many sales to render the price increase unprofitable.[5] Accordingly, under standard principles of antitrust, the sale of local broadcast advertising can be considered a relevant antitrust product market only if a hypothetical entity with ownership of all broadcast stations in a given local market could raise prices to advertisers without losing a sufficient amount of sales to other advertising media to make the price increase unprofitable. Thus, the issue of whether non-broadcast advertising media belong in the relevant product market is an empirical question, which turns on the degree to which advertisers, in the aggregate, would shift their advertising dollars to cable and other media if broadcast station owners raised their prices by small but significant amounts.

B. The DOJ's Position Lacks Empirical Support

7. The DOJ claims to have resolved the empirical question of the degree of substitutability between broadcast and non-broadcast media, noting that "the Department has repeatedly concluded that the purchase of broadcast television spot advertising constitutes a relevant antitrust product,"[6] based on the claim that "advertisers view spot advertising on broadcast television stations as sufficiently distinct from advertising on other media."[7] However, examination of the DOJ's public statements and court filings reveals that the DOJ has not produced a supporting empirical foundation for its definition of the relevant product market. For example, in *U.S. v. Gannett Co.*, the DOJ challenged Gannett's acquisition of Belo Corporation, requiring that Gannet divest KMOV-TV to "eliminate the anticompetitive effects

5. U.S. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (August 19, 2010) [hereafter *Merger Guidelines*], §4.1.1

6. *DOJ Ex Parte* at 8.

7. *Id*. (emphasis added).

of the Transaction in the St. Louis DMA."[8] In the *Competitive Impact Statement* that the DOJ filed with the Court describing the bases for the settlement, the DOJ did not provide any empirical support for its broadcast-only product market definition, but instead listed subjective product characteristics that, it claims, differentiate broadcasters from other advertising media:

> Broadcast television spot advertising possesses a unique combination of attributes that sets it apart from advertising using other types of media. Television combines sight, sound, and motion, thereby creating a more memorable advertisement. Broadcast television spot advertising reaches the largest percentage of potential customers in a targeted geographic market and is therefore especially effective in introducing and establishing a product's image.
>
> Because of this unique combination of attributes, broadcast television spot advertising has no close substitute for a significant number of advertisers. Cable television spot advertising and Internet-based video advertising lack the same reach; radio spots lack the visual impact; and newspaper and billboard ads lack sound and motion, as do many internet search engine and website banner ads . . . Consequently, a small but significant increase in the price of broadcast television spot advertising is unlikely to cause enough advertising customers to switch enough advertising purchases to other media to make the price increase unprofitable.[9]

8. The DOJ's statements above are best characterized as a subjective narrative unsupported by the standard forms of empirical analysis that economists use to inform the definition of the relevant antitrust product market. The DOJ provides no empirical assessment of the supposed limitations of cable television spot advertising, Internet advertising, radio spots, and newspaper and billboard advertising, nor does it attempt to determine whether advertisers would substitute towards some combination of non-broadcast media in response to a SSNIP. The DOJ references the possibility that advertisers with "strong preferences"[10] for broadcast advertising may exist, but provides no evidence that such advertisers make up any economically significant fraction of the marketplace, let alone any evidence that their preferences are

8. *Gannett CIS* at 9.
9. *Id.* at 4-5.
10. *Id*.

sufficiently strong to relegate broadcast advertising to its own antitrust product market. The DOJ also does not attempt to analyze the possibility that local advertisers may be concerned primarily with reaching a given number of potential customers, regardless of the media through which it is reached. For example, if a furniture dealer has a fixed advertising budget for a given month, there is, in theory, nothing to prevent the dealer from allocating its budget across broadcast, cable, and other media—or from re-allocating the budget shares in response to a change in relative prices.

II. EMPIRICAL EVIDENCE IS INCONSISTENT WITH THE DOJ'S DEFINITION OF THE RELEVANT PRODUCT MARKET

9. To analyze the validity of the DOJ's position, we have conducted several econometric analyses of the determinants of local advertising prices at the level of the individual local advertising market, in addition to examining long-term trends in the aggregate data. As explained below, we find no evidence that JSAs or duopoly ownership arrangements are associated with higher advertising prices, and some evidence that they are associated with lower prices. More broadly, we find no evidence that increases in concentration among local broadcasters are associated with statistically significant increases in local advertising prices. These results are inconsistent with the DOJ's position that local broadcast television advertising is a relevant product market, and consistent with the conclusion that local broadcasting prices are disciplined by non-broadcast alternatives, and are subject to efficiencies that correlate with modest increases in local market concentration.

A. Robust Long-Term Trends Show That Broadcast Television Advertising Faces Increasing Competition From Non-Broadcast Media

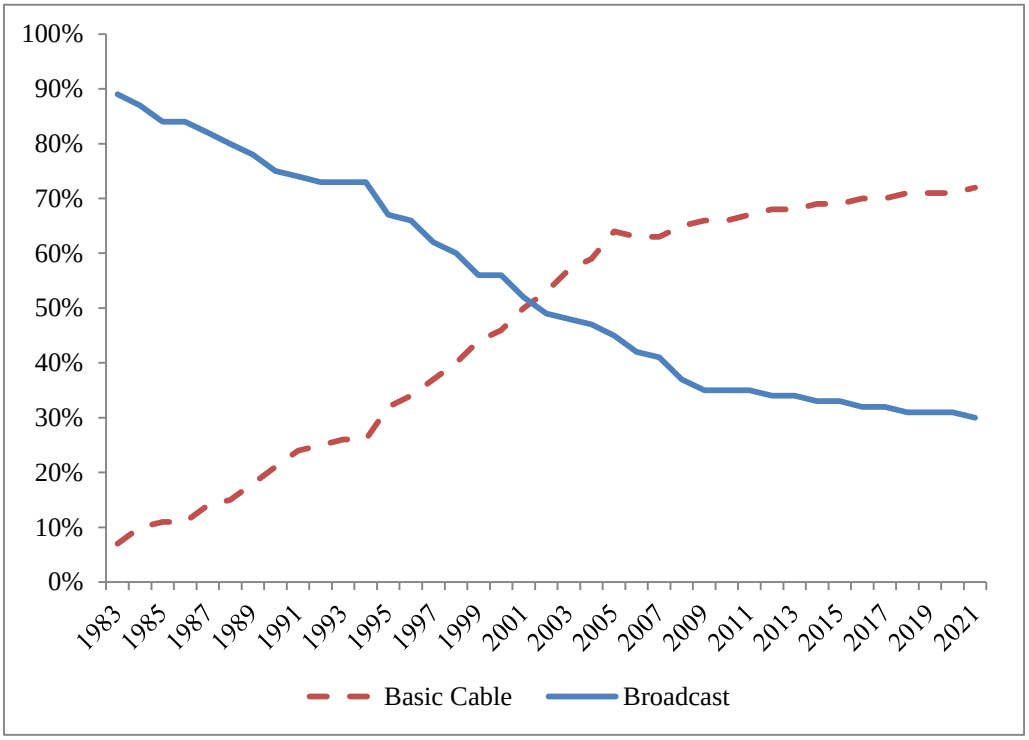
10. Broadcast television's share of both viewing audiences and advertising dollars has experienced substantial and persistent declines for decades, while non-broadcast alternatives such as cable and Internet have experienced substantial growth. This is a clear empirical

indicator of substantial and increasing competition between broadcast and other advertising media, because it demonstrates both viewers' and advertisers' willingness to substitute away from broadcast and towards non-broadcast alternatives in large numbers.

11. As seen in Figure 1, according to SNL Kagan, basic cable has captured a larger viewing share than broadcast television since 2002. In the early 1980s, broadcast's viewing share was close to 90 percent. Yet as of 2012, basic cable's viewing share had risen to 67 percent, nearly twice that of broadcast. Broadcast television's viewing share is not expected to recover; instead, SNL Kagan projects that broadcast will capture less than one third of the viewing audience in the years ahead. According to SNL Kagan, local cable advertisers earned approximately $5.0 billion in local advertising revenue in 2012, compared with $11.7 billion for local broadcast stations.[11]

11. *See* Baine, Derek, *Ad market decelerates in 2013, projected to be up 1.4% to $223B*, SNL Kagan (Dec. 17, 2013. *See also* Bond & Pecaro, *The Television Industry: A Market-by-Market Review* (2014).

FIGURE 1: BROADCAST VS. BASIC CABLE VIEWING SHARES



Source: SNL Kagan, Cable/Broadcast TV Advertising Billings Database (2012). Post-2012 data are projections.

12. Cable providers and other multichannel video programming distributors ("MVPDs") also compete for and earn additional local advertising dollars via so-called "interconnects," which allow advertisers to expand their reach within a given local market by purchasing local advertising from multiple MVPDs through a single contract. Interconnects combine the platforms of multiple cable operators, satellite providers, and incumbent local exchange carriers. For example, NCC Media, which is jointly owned by Comcast, Cox, and Time Warner Cable,[12] describes itself as "an advertising sales, marketing, and technology company that harnesses the enormous reach and consumer power of cable television programming,"[13] and reports that it has formed "alliances" involving "cable operators and

12. *See* http://nccmedia.com/about/owners-affiliates/.
13. *See* http://nccmedia.com/about/.

satellite and telco programming distributors, including DIRECTV, AT&T U-verse and VERIZON FiOS."[14]

13. There is also evidence of robust and rapidly expanding competition from Internet-based advertising.[15] According to the Interactive Advertising Bureau, Internet advertising has grown faster than any other media category since 2005, recently surpassing both cable and broadcast.[16] As seen in Figure 2, broadcast television advertising revenue has been essentially flat since 2005, and was surpassed by Internet advertising in 2013, with cable advertising rapidly closing the gap as well. If current trends continue, broadcast advertising will soon be only the third largest advertising medium, behind both cable and Internet.

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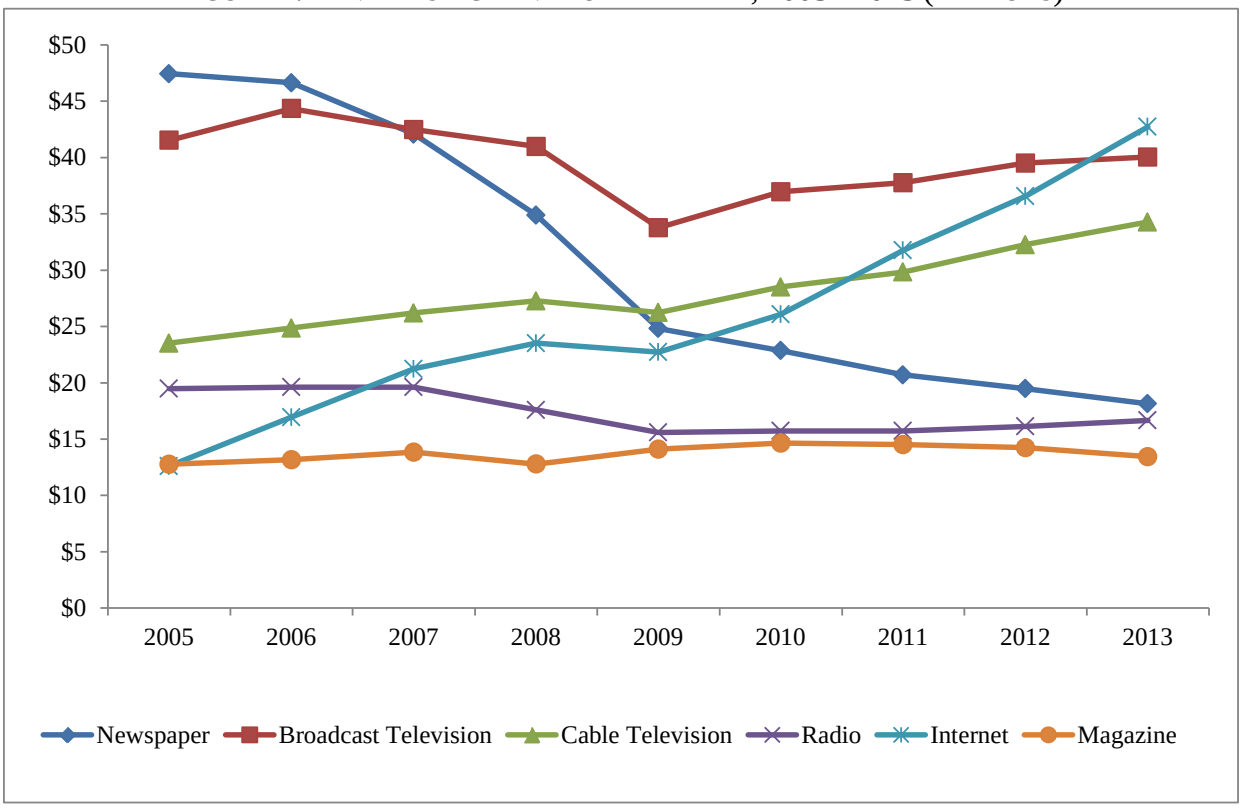
14. *See The Essential Guide to NCC Media: Planning & Buying Local Market Cable Television & Digital Media* (Sept. 2011) at 2.

15. *See* BIA Kelsey, *BIA/Kelsey Forecasts Overall U.S. Local Media Ad Revenues to Reach $151.5B in 2017, Lifted by Faster Growth in Online/Digital*, (Nov. 19 2013), available at http://www.biakelsey.com/Company/Press-Releases/131119-Overall-U.S.-Local-Media-Ad-Revenues-to-Reach-$151.5B-in-2017.asp ("Faster growth in online/digital advertising revenues will drive…faster overall growth, increasing at a 13.8 percent CAGR from $26.5 billion in 2013 to $44.5 billion in 2017. That compares with a CAGR of 0.1 percent during the same period for traditional advertising revenues, which will remain flat, growing slightly from $106.4 billion in 2013 to $107 billion in 2017. Location targeted mobile advertising revenues, which are growing at a faster pace than overall mobile advertising, will increase from $2.9 billion in 2013 to $10.8 billion in 2017, accounting for 52 percent of overall U.S. mobile ad spending in 2017.").

16. Interactive Advertising Bureau, "IAB internet advertising revenue report: 2013 full year results," (April 2014), [hereafter *IAB Report*], available at: http://www.iab.net/media/file/IAB_Internet_Advertising_Revenue_Report_FY_2013.pdf, at 20.

FIGURE 2: ADVERTISING REVENUE BY MEDIA, 2005 - 2013 (BILLIONS)



Source: *IAB Report* at 20. Broadcast Television includes Network, Syndicated and Spot television advertising revenue. Cable Television includes National Cable Networks and Local Cable television advertising revenue.

14. Analysts at SNL Kagan encountered similar trends when examining local advertising specifically, finding that both Internet and cable advertising have grown at a faster rate than local broadcast advertising revenues, which actually declined somewhat between 2003 and 2012, while being surpassed by Internet advertising.[17] Over this interval, local spot television advertising revenues declined from $11.8 billion to $11.7 billion, while local cable television advertising revenue grew at a constant annual growth rate of 4.8 percent, from $3.3 billion to $5.0 billion.[18] Local Internet advertising revenues also grew very rapidly, from just $1.8 billion in 2003 to $13.1 billion in 2012, for a constant annual growth rate of 24.7 percent.[19]

17. Baine, *supra*.
18. *Id.*
19. *Id.*

B. Econometric Tests of the DOJ's Market Definition

15. To further evaluate the relevant antitrust product market, we compiled and analyzed a ten-year panel data set spanning 210 Designated Market Areas ("DMAs") that includes (a) local broadcast advertising prices by market; (b) indicators for duopoly status and JSA/SSA status by market; (c) local broadcaster concentration; and (d) various market-level control variables. As explained below, the DOJ's assertion that local broadcast stations are a relevant antitrust product market is inconsistent with the results of the econometric analysis.

1. Regression Data Set and Summary Statistics

16. Annual broadcast advertising prices for 210 local markets were obtained from the market research firm SQAD for the ten-year period from 2004 to 2013. The SQAD pricing data measure average advertising prices based on actual transactions between advertising agencies and television stations in a given market and year. SQAD reports two different pricing metrics. The CPM (cost per-thousand) reflects the cost of reaching one thousand viewers, and is also used to price advertising for non-broadcast media (e.g., Internet). The CPP (cost per ratings point) reflects the cost of reaching one percent of the target population in a given market. Therefore, CPM is invariant across markets and advertising platforms, but CPP is not. Although CPP is still commonly used to price local broadcast advertising, CPM has already been adopted by some industry participants, and may be adopted throughout the industry in the future.[20] For analytical purposes, CPM is the more meaningful metric for cross-market comparisons, and has

20. *See, e.g.*, Kevin Downey, "Is TV Ready To Move From CPP To CPM?," *TVNewsCheck* (November 13, 2013), *available at* http://www.tvnewscheck.com/article/71924/is-tv-ready-to-move-from-cpp-to-cpm; *see also* Erwin Ephron, "The Numbers Game," *AdWeek* (April 27, 2009), available at http://www.adweek.com/news/advertising-branding/numbers-game-99057

been used by academic researchers for this purpose.[21] In any case, as explained below, the conclusions emerging from the analysis remain the same, regardless of which of the two metrics is used.

17. Market and station-level data, including information on local market demographics, income, and advertising revenue by broadcast station, were obtained from the market research firm BIA/Kelsey.[22] We used BIA's advertising revenue data to calculate the HHI for each local broadcast market in each year. BIA also provided detailed station-level ownership and transactional information from 2004 onward, which we used to generate an indicator variable for duopoly status (common ownership of two stations in the same market).[23]

18. JSAs and SSAs are private contracts between two stations authorizing one station to sell advertising time on behalf of the other in the same market, as well as the sharing of operating expenses and assets. Unlike the formation of a duopoly, which involves a transaction that must be approved by the FCC and can be ascertained based on public sources, the creation of a JSA/SSA is a private arrangement. Although some stations disclose their JSA/SSAs to the FCC when they are related to a transfer of control of a broadcast licensee or the assignment of a broadcast license, these disclosures often do not reveal the point in time at which the JSA/SSA first went into effect. We nonetheless were able to obtain substantial information on JSA/SSA status from the following sources: (a) JSA/SSAs disclosed as part of larger TV station transactions that must be approved by the FCC; (b) JSA/SSAs made public in

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21. *See* Keith Brown & Peter Alexander, *Market Structure, Viewer Welfare, and Advertising Rates in Local Broadcast Television Markets*, 86 ECONOMICS LETTERS (2005) 331-337, at 334 [hereafter *Brown & Alexander*].

22. The data set was limited to full power broadcast television stations.

23. The BIA transactional data include a field indicating the date (month and year) when a given station was acquired by its current owner. To create an annual duopoly variable, transactions occurring in the first half of the year (June or earlier) were counted as applying to that year. Transactions that did not occur until in July or later were counted as applying to the following year. Transactions labeled as merely "Proposed" were not used for purposes of determining duopoly status.

SEC filings; and (c) JSA/SSAs disclosed by NAB members.[24] The second and third sources both identify the date upon which each agreement was initiated, but the first source does not. Therefore, the first source was used as an approximate cross-sectional indicator of JSA/SSA status, while we combined the second and third sources to create a panel containing within-market variation in JSA/SSA status over time.

19. Table 1 reports summary statistics for the variables used in the regression analyses. Statistics are reported for the data set as a whole, as well as for markets with and without duopolies or JSAs. In general, non-duopoly markets tend to be the most concentrated. This is consistent with the FCC's ownership rules, which tend to prevent duopolies from forming in markets with relatively high levels of concentration.[25] In contrast, JSA markets have similar levels of concentration compared with non-JSA markets, presumably reflecting the fact that JSA/SSAs have not been subject to the same ownership rules as duopolies.

24. We agreed not to disclose the identity of the NAB members that provided information about their JSAs.
25. *See* Part II.C, *infra.*

TABLE 1: SUMMARY STATISTICS

Variable	Obs.	Mean	Std. Dev.	Min	Max
Overall					
CPM	2,099	54.29	78.02	15.38	1,599.75
CPP	2,099	274.20	620.19	7.25	8,519.50
Duopoly Indicator	2,099	0.32	0.47	0.00	1.00
Market HHI	2,099	3,563	2,112	1,082	10,000
JSA Indicator (Cross-Section)	210	0.20	0.40	0.00	1.00
JSA Indicator (Panel)	550	0.35	0.48	0.00	1.00
Population (000s)	2,099	1,453	2,346	10	21,207
TPI per Capita ($ 000s)	2,099	24.91	7.83	9.33	58.00
% Market Population Black	2,099	10.56%	11.52%	0.10%	64.10%
% Market Population Hispanic	2,099	10.90%	15.57%	0.50%	95.70%
% Population 18-44	2,099	36.46%	2.62%	25.39%	49.86%
Non-Duopoly Markets					
CPM	1,429	61.91	92.96	15.38	1,599.75
CPP	1,429	114.86	125.99	7.25	1,317.75
Market HHI	1,429	4,220	2,240	1,604	10,000
JSA Indicator (Cross-Section)	139	0.20	0.40	0.00	1.00
JSA Indicator (Panel)	411	0.41	0.49	0.00	1.00
Population (000s)	1,429	664	686	10	5,867
TPI per Capita ($ 000s)	1,429	24.03	7.47	9.33	49.51
% Market Population Black	1,429	10%	12%	0%	64%
% Market Population Hispanic	1,429	9.50%	15.52%	0.50%	95.70%
% Population 18-44	1,429	36.26%	2.79%	25.39%	49.86%
Duopoly Markets					
CPM	670	38.02	15.87	16.32	145.63
CPP	670	614.04	1,001.23	22.00	8,519.50
Market HHI	670	2,162	621	1,082	4,701
JSA Indicator (Cross-Section)	71	0.21	0.41	0.00	1.00
JSA Indicator (Panel)	139	0.17	0.37	0.00	1.00
Population (000s)	670	3,136	3,477	133	21,207
TPI per Capita ($ 000s)	670	26.79	8.25	12.09	58.00
% Market Population Black	670	12%	10%	0%	48%
% Market Population Hispanic	670	13.88%	15.27%	0.70%	79.50%
% Population 18-44	670	36.88%	2.16%	29.88%	43.98%
Non-JSA Markets					
CPM	359	44.31	33.64	16.32	269.48
CPP	359	171.23	240.19	26.25	1,743.25
Market HHI	359	3,384	1,680	1,664	10,000
Duopoly Indicator	359	0.32	0.47	0.00	1.00
Population (000s)	359	1,094	1,085	122	6,705
TPI per Capita ($ 000s)	359	24,154.08	7,727.52	12,289.00	55,169.00
% Market Population Black	359	10.21%	10.63%	0.60%	42.70%
% Market Population Hispanic	359	9.63%	12.92%	0.70%	54.70%
% Population 18-44	359	36.63%	2.47%	30.47%	45.02%
JSA Markets					
CPM	191	41.90	16.87	17.70	104.98
CPP	191	87.61	40.65	26.50	219.00
Market HHI	191	3,330	710	2,270	5,638
Duopoly Indicator	191	0.12	0.33	0.00	1.00
Population (000s)	191	602	360	139	1,542
TPI per Capita ($ 000s)	191	24,850.72	7,319.51	13,766.00	41,695.00
% Market Population Black	191	7.98%	8.89%	0.30%	36.60%
% Market Population Hispanic	191	10.41%	11.63%	1.10%	39.80%
% Population 18-44	191	35.73%	1.89%	30.82%	39.80%

Notes: CPM and CPP reflect market average prices for target population of adults 18-49, during prime daypart, as reported by SQAD. Share of population aged 18-44 computed using BIA data to match the SQAD target population as closely as possible.

2. Duopoly Status Is Not Statistically Associated With Higher Advertising Prices

20. We analyze the relationship between pricing and duopoly status using panel regressions with fixed effects by market. The use of fixed effects controls for all market-specific characteristics that are invariant over time, and identifies the effect of duopoly status based on within-market changes over time. The fixed effect methodology is superior to the cross-sectional approach implemented in prior work, because it controls for a broader range of market-specific traits, and captures market-level variation over a long period of time.[26] As in prior work, we also include controls for income, population, and demographics.[27]

26. *See Brown & Alexander* at 334 (noting that the authors observe advertising prices for a single quarter in 1998).

27. *Id*.

TABLE 2: DUOPOLY PANEL REGRESSIONS WITH MARKET FIXED EFFECTS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
Duopoly Indicator	-0.0248	-0.0218
	(-0.89)	(-0.78)
ln(Income per Capita)	0.2948***	0.2743***
	(4.75)	(4.46)
ln(Population)	-0.3244	0.3080
	(-1.32)	(1.42)
ln(Pct. Hispanic)	0.0389	-0.0002
	(0.39)	(-0.00)
ln(Pct. Black)	0.0070	-0.0203
	(0.29)	(-0.88)
ln(Pct. 18-44)	0.2538	0.7345*
	(0.57)	(1.70)
Time Trend	0.0113*	0.0111*
	(1.78)	(1.77)
Constant	5.3142***	2.6073
	(2.67)	(1.47)
Observations	2,099	2,099
R-squared	0.899	0.972

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Market fixed effects for 210 DMAs not shown.

21. As shown in Table 2, the dependent variable is measured as the natural log of either CPM or CPP. The key independent variable of interest is the Duopoly Indicator, which is set equal to one for markets that contain two or more stations under common ownership in a given year, and zero otherwise. In addition, each regression includes 210 DMA-level fixed effects (not shown). These variables collectively explain a high proportion (90 to 97 percent) of the variation in local advertising prices.

22. As seen above, the Duopoly Indicator is negative and statistically insignificant in both columns.[28] Therefore, the data provide no evidence that duopoly markets have higher local advertising rates than non-duopoly markets after controlling for other factors. In fact, the data indicate that prices are approximately two percent lower in duopoly markets (although the difference is not statistically significant). These results are inconsistent with the DOJ's view, which would predict that broadcast station duopolies would, all else equal, lead to higher advertising prices.

23. According to the FCC's ownership rules, a single entity may own two television stations in a local market if "at least one of the stations is not ranked among the top four stations in the DMA (based on market share), and at least eight independently owned TV stations would remain in the market after the proposed combination."[29] To the extent that the ownership rules dictate that duopoly status is granted only in markets with numerous TV stations and relatively low levels of concentration, where price effects are unlikely, the coefficient on the Duopoly Indicator might fail to fully reflect the effect that would be observed if duopolies were formed in the absence of the ownership rules. To verify the robustness of our results, we estimated alternate regressions specifications that control for both duopoly status and the local Herfindahl–Hirschman Index ("HHI"). In these regressions, the Duopoly Indicator remains statistically insignificant (as does the HHI).[30] The robustness of the results above are also confirmed by the results reported below, showing that JSA status is not statistically associated with higher prices—despite the fact that television stations have been able to form JSAs (and

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28. The coefficients on the Duopoly Indicator are nearly the same in both regressions, because CPM and CPP differ only to the extent that local populations differ: CPM = (CPP x 100) / (Population / 1000).

29. *See* http://www.fcc.gov/guides/review-broadcast-ownership-rules.

30. *See* Appendix 3.

SSAs) in markets where the Commission's ownership rules prevent the formation of duopolies.[31]

3. JSA/SSA Status Is Not Statistically Associated With Higher Advertising Prices

24. We next analyze the relationship between pricing and JSA/SSA status using (a) a rough cross-sectional indicator of JSA/SSA status, which incorporates all 210 DMAs; and (b) a more precise metric that captures within-market variation in JSA/SSA status over time for a smaller set of markets. As explained below, holding other factors constant, the data provide no evidence that JSA/SSAs tend to increase advertising prices in local markets. To the contrary, there is evidence that JSA/SSAs are associated with lower local advertising prices. These results are again inconsistent with DOJ's hypothesis local broadcast advertising is a relevant product market and that JSA/SSAs may have anticompetitive effects, and consistent with the view that (a) broadcast stations engage in substantial competition with cable and other non-broadcast media; (b) broadcasting is subject to economies of scale and scope, and (c) that JSA/SSAs yield procompetitive efficiency gains.

a. Cross-Sectional Regressions

25. The first set of JSA/SSA regressions uses the full set of 210 local markets to examine the cross-sectional relationship between pricing in JSA/SSA markets versus pricing in non-JSA/SSA markets, subject to the caveat that JSA/SSA status is measured imperfectly, as noted above. As before, the dependent variable is measured as the natural log of either CPM or CPP. The key independent variable of interest is now the JSA/SSA Indicator, set equal to one in

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31. The JSA regression results, like the duopoly results, also continue to hold when HHI is added to the list of control variables. *Id*.

markets for which a JSA/SSA agreement can be identified, and zero otherwise. As before, we include controls for income, population, and demographics.

TABLE 3: CROSS-SECTIONAL JSA/SSA REGRESSIONS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
JSA Indicator	-0.1564**	-0.1652**
	(-2.29)	(-2.43)
ln(Income per Capita)	0.6224**	0.6341**
	(2.43)	(2.42)
ln(Population)	-0.3367***	0.6812***
	(-6.45)	(12.98)
ln(Pct. Hispanic)	0.1322***	0.1323***
	(3.41)	(3.32)
ln(Pct. Black)	0.0557*	0.0622*
	(1.69)	(1.85)
ln(Pct. 18-44)	-0.7018	-0.1817
	(-1.23)	(-0.31)
Constant	3.7505***	-1.4179
	(3.66)	(-1.35)
Observations	210	210
R-squared	0.341	0.783

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

26. The results of the cross-sectional regressions are displayed in Table 3. As seen above, the variables included in the regression collectively explain between 34 and 78 percent of the variation in local advertising prices. The coefficient on the JSA/SSA indicator is negative and statistically significant both columns, indicating that markets with such agreements have prices approximately 16 percent *lower* than markets without JSAs/SSAs.

b. Panel Regressions

27. Due to the fact that JSAs/SSAs are private contracts, it is not generally possible to identify the point in time when a JSA/SSA agreement was first put into place.[32] Accordingly, for purposes of the panel regressions, the sample was restricted to the set of markets for which changes in JSA/SSA status over time could be identified. This yields a sample of 55 markets for which changes in JSA/SSA status can be observed from 2004 to 2013. Although this is a smaller sample than the full panel of 210 markets, it still provides more than enough observations to estimate panel regressions with market fixed effects.

TABLE 4: JSA/SSA PANEL REGRESSIONS WITH MARKET FIXED EFFECTS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
JSA/SSA Indicator	0.0532	0.0437
	(0.89)	(0.72)
ln(Income per Capita)	0.2030**	0.1796**
	(2.53)	(2.31)
ln(Population)	-0.3924	0.1812
	(-1.10)	(0.71)
ln(Pct. Hispanic)	-0.0318	-0.0242
	(-0.31)	(-0.25)
ln(Pct. Black)	0.0877*	0.0534
	(1.86)	(1.05)
ln(Pct. 18-44)	1.0430**	1.6681***
	(2.02)	(3.34)
Time Trend	0.0192*	0.0190**
	(1.89)	(2.09)
Constant	4.9976*	3.1892
	(1.87)	(1.66)
Observations	550	550
R-squared	0.895	0.954

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Market fixed effects for 55 DMAs not shown.

32. *Id*.

28. The results of the panel fixed-effects regressions are shown in Table 4. These variables collectively explain a high proportion (90 to 95 percent) of the variation in local advertising prices. Most significantly for present purposes, the JSA Indicator is not statistically different from zero.

3. Local Broadcaster Concentration Is Not Statistically Associated with Higher Local Advertising Prices

29. If the DOJ were correct in asserting that local broadcast is a relevant antitrust product market, then increases in local broadcaster concentration should be associated with higher advertising prices. In contrast, if the market is defined too narrowly, then changes in concentration should not be associated with higher prices. Accordingly, we have analyzed the relationship between pricing and the HHI, DOJ's preferred concentration metric,[33] again using panel regressions with fixed effects by market.

33. *Merger Guidelines*, §5.3.

TABLE 5: HHI PANEL REGRESSIONS WITH MARKET FIXED EFFECTS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
ln(HHI)	0.0860	0.0490
	(0.93)	(0.51)
ln(Income per Capita)	0.2933***	0.2730***
	(4.73)	(4.44)
ln(Population)	-0.3153	0.3132
	(-1.29)	(1.43)
ln(Pct. Hispanic)	0.0398	0.0006
	(0.40)	(0.01)
ln(Pct. Black)	0.0054	-0.0214
	(0.22)	(-0.92)
ln(Pct. 18-34)	0.2509	0.7367*
	(0.56)	(1.69)
Time Trend	0.0114*	0.0112*
	(1.79)	(1.78)
Constant	4.5534**	2.1766
	(2.09)	(1.09)
Observations	2,099	2,099
R-squared	0.899	0.972

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Market fixed effects for 210 DMAs not shown.

30. The results of the HHI panel fixed-effects regressions are shown in Table 5. As shown above, the variables included in the regression (including 210 market fixed effects) collectively explain a high proportion (90 to 97 percent) of the variation in local advertising prices. Most importantly, the coefficient on HHI is statistically indistinguishable from zero. In other words, the data do not support the hypothesis that increases in local broadcaster concentration has any effect on the prices that broadcasters are able to charge, a result that is inconsistent with the DOJ's assertion that local broadcasting is relevant antitrust product market.

C. Empirical Evidence Is Consistent with Significant Economies of Scale and Scope

31. There is also evidence that broadcasting is subject to economies of scale and scope, which implies that broadcasting is characterized by efficiencies that correlate with increases in local market concentration. In the presence of competition from non-broadcast media, broadcasters that enter into duopolies or JSAs in pursuit of these efficiencies should be obliged to pass on a portion of the cost savings in the form of lower advertising rates. This is consistent with our empirical findings above, showing no empirical evidence that JSAs or duopoly ownership arrangements are associated with higher advertising prices, and some evidence that they are associated with lower prices.

32. Scale economies arise from the need to make large capital investments that are largely invariant to output levels, such as broadcasting equipment, production facilities, and spectrum licenses; it also arises from the fact that "first copy" of broadcast content is relatively expensive to produce, but the marginal cost of distributing the content to additional users is essentially zero.[34] Scope economies are present when a single firm can produce multiple forms of output more efficiently than if the same outputs were produced by multiple firms. Economies of scope exploit the ability of a single asset (or collection of firm-specific assets) to produce more than one type of output. For example, a single transmitter and antenna tower might be used to broadcast multiple digital video streams over a single six MHz television channel.[35]

33. There is empirical evidence that local broadcasting is characterized by these types of efficiencies. For example, broadcasters' real net revenue per full-time employee is

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34. Jeffrey Eisenach and Kevin Caves, The Effects of Regulation on Economies of Scale and Scope in TV Broadcasting, (June 2011) at 2 [hereafter *Scale/Scope Economies*], Attachment A to Reply Declaration of Jeffrey Eisenach and Kevin Caves in NAB Reply Comments in MB Docket No. 10-71, at Appendix A (June 27, 2011), incorporated in MB Docket 09-182 by reference in NAB Comments in that docket, filed Mar. 12, 2012.

35. *Id. See also* Declaration of Mark Israel and Allan Shampine, Appendix B to Comments Of The National Association Of Broadcasters, MB Docket No. 10-71 (June 26, 2014).

highly correlated with station size, which indicates that stations with larger operations generate more output per unit of labor.[36] Larger broadcast stations also generate more profit per unit of output, which indicates that this increased output per worker is associated with greater efficiencies, as opposed to (say) an increase in the intensity of other inputs, and/or a decrease in input costs.[37] Finally, several econometric studies have found evidence of scope economies for the joint production of television and radio content, as well as for television and newspapers.[38]

CONCLUSIONS

34. Although the DOJ has asserted that local broadcast advertising is a relevant antitrust product market, the DOJ has not produced empirical evidence consistent with this hypothesis. In this study, we have evaluated the DOJ's position through several empirical analyses. In the aggregate, the data show clearly that broadcast television's share of both viewing audiences and advertising dollars has experienced substantial and persistent declines for decades, while non-broadcast alternatives such as cable and Internet have experienced substantial growth. This constitutes clear evidence of both viewers' and advertisers' willingness to substitute away from broadcast and towards non-broadcast alternatives in large numbers.

35. At a more granular level, we have performed several econometric analyses of the determinants of local advertising prices. The results are inconsistent with the DOJ's position, and consistent with the position that local broadcasting prices are disciplined by offerings from cable television and other non-broadcast media alternatives: We find no empirical evidence that

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36. *Scale/Scope Economies* at 9-12.

37. *Id*.

38. A review of the literature concluded in 2011 that "the existing body of empirical work provides substantial support for the proposition that the amount of local news programming is positively associated with newspaper cross-ownership." *See Scale/Scope Economies* at 44. *See also* Sumiko Asai, *Scale Economies and Scope Economies in the Japanese Broadcasting Market*, 18 INFORMATION ECONOMICS AND POLICY (2006) 321–331, at 321; *see also* Daniel Shiman, "The Impact of Ownership Structure on Television Stations' News and Public Affairs Programming," FCC Media Study 4 (July 2007).

JSA/SSAs or duopoly ownership arrangements are associated with higher advertising prices, and some evidence that they are associated with lower prices. Further, we find no evidence that increases in concentration among local broadcasters are associated with increases in local advertising prices. We conclude that the DOJ's definition of the relevant antitrust product market is not supported by the available evidence, and that a properly defined relevant product would need to be broadened to include non-broadcast alternatives.

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Hal J. Singer

August 4, 2014

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M.A. Economics, University of California at Los Angeles, May 2002

B.A. *Magna cum laude*, Departmental Honors in Economics, Haverford College, May 1998

Current Position

Senior Economist, Economists Incorporated, January 2014 - Present

Employment History

Director, Navigant Economics, March 2011 to December 2013

Associate Director, Navigant Economics, February 2010 to March 2011

Vice President, Empiris LLC, September 2008 to February 2010

Senior Economist, Criterion Economics LLC, October 2006 to September 2008

Senior Consultant, Deloitte & Touche LLP, September 2005 to October 2006

Teaching Fellow, Department of Economics, UCLA, January 2002 to June 2004

Assistant Economist, Federal Reserve Bank of New York, August 1998 to June 2000

Publications and Research Papers

Life After Comcast: The Economist's Obligation to Decompose Damages Across Theories of Harm, 28 ANTITRUST (Spring 2014), co-authored with Hal J. Singer.

Mobile Wireless Performance the EU and the US: Implications for Policy, 93 COMMUNICATIONS & STRATEGIES (Q1 2014), co-authored with Erik Bohlin and Jeffrey A. Eisenach.

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White Papers

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Mobile Wireless Performance in the EU & the US (prepared with support from GSMA, co-authored with Erik Bohlin and Jeffrey A. Eisenach, May 2013).

Estimating the Economic Impact of Repealing the FLSA Companion Care Exemption (prepared with support from National Association for Home & Hospice Care, co-authored with Jeffrey A. Eisenach, March 2012).

The Impact of Liberalizing Price Controls on Local Telephone Service: An Empirical Analysis (prepared with support from Verizon Communications, co-authored with Jeffrey A. Eisenach, February 2012).

Bundles in the Pharmaceutical Industry: A Case Study of Pediatric Vaccines (prepared with support from Novartis, co-authored with Hal J. Singer, July 2011).

Evaluating the Cost-Effectiveness of RUS Broadband Subsidies: Three Case Studies (prepared with support from The National Cable & Telecommunications Association, co-authored with Jeffrey A. Eisenach, April 2011).

Video Programming Costs and Cable TV Prices: A Reply to CRA (prepared with support from The National Association of Broadcasters, co-authored with Jeffrey A. Eisenach, June 2010).

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The Benefits and Costs of Implementing "Return-Free" Tax Filing in the U.S. (prepared with support from The Computer & Communications Industry

Association, co-authored with Jeffrey A. Eisenach & Robert E. Litan, March 2010).

The Benefits and Costs of I-File (prepared with support from The Computer & Communications Industry Association, co-authored with Jeffrey A. Eisenach & Robert E. Litan, April 2008).

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Speaking Engagements

Competition and Monopsony In Labor Markets: Theory, Evidence, and Antitrust Implications, New York State Bar Association, Antitrust Law Section, New York, NY (April 23, 2014).

Econometric Tests of Common Impact, Covington & Burling LLP, Washington, DC., (May 23, 2013).

Vertical Integration in Cable Networks: A Study of Regional Sports Networks, Federal Communications Commission (May 21, 2013).

Regression Methods: Theory and Applications of Fixed-Effects Models, O'Melveny & Myers LLP, Washington, DC., (July 16, 2012).

Regression Methods: Theory and Applications, Antitrust Practice Group, Cohen Milstein Sellers & Toll PLLC, Washington, DC., (June 4, 2012).

Using Regression in Antitrust Cases, University of Pennsylvania Law School, Philadelphia, PA., (April 12, 2012).

Interview with *IT Business Edge* on Rural Utilities Service Broadband Subsidies (May 17, 2011).

Reviewer

Review of Network Economics

International Journal of the Economics of Business

Honors and Awards

Howard Fellowship for Excellence in Teaching, University of California at Los Angeles, Spring 2005.

Graduate Fellowship, University of California at Los Angeles, 2000 – 2004.

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Employment History

NAVIGANT ECONOMICS, Washington, D.C.: Managing Director, 2010-2013.

GEORGETOWN UNIVERSITY, MCDONOUGH SCHOOL OF BUSINESS, Washington, D.C.: Adjunct Professor, 2010, 2014.

EMPIRIS, L.L.C., Washington, D.C.: Managing Partner and President, 2008-2010.

CRITERION ECONOMICS, L.L.C., Washington, D.C.: President, 2004-2008. Senior Vice President, 1999-2004.

LECG, INC., Washington, D.C.: Senior Economist, 1998-99.

U.S. SECURITIES AND EXCHANGE COMMISSION, OFFICE OF ECONOMIC ANALYSIS, Washington, D.C.: Staff Economist, 1997-98.

THE JOHNS HOPKINS UNIVERSITY, ECONOMICS DEPARTMENT, Baltimore: Teaching Assistant, 1996-98.

Authored Books and Book Chapters

THE NEED FOR SPEED: A NEW FRAMEWORK FOR TELECOMMUNICATIONS POLICY FOR THE 21ST CENTURY, co- authored with Robert Litan (Brookings Press 2013).

Net Neutrality Is Bad Broadband Regulation, co-authored with Robert Litan, in THE ECONOMISTS' VOICE 2.0: THE FINANCIAL CRISIS, HEALTH CARE REFORM AND MORE (Aaron Edlin and Joseph Stiglitz, eds., Columbia University Press 2012).

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Expert Testimony Since 2005

Gnanh Nora Krouch v. Wal-Mart Stores, Inc., Case No. CV-12-2217 (N.D. Ca.).

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Memberships

American Economic Association

American Bar Association Section of Antitrust Law

Reviewer

Journal of Risk and Insurance

Journal of Competition Law and Economics

Journal of Risk Management and Insurance Review

Journal of Regulatory Economics Managerial and Decision Economics Telecommunications Policy

APPENDIX 3: ADDITIONAL REGRESSION RESULTS

In this Appendix, we report the results of panel regressions that include both concentration and duopoly or JSA status. As seen below, neither the Duopoly Indictor nor the JSA Indicator nor the HHI have a statistically significant effect on local advertising prices.

TABLE A1: DUOPOLY AND HHI PANEL REGRESSIONS WITH MARKET FIXED EFFECTS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
Duopoly Indicator	-0.0233	-0.0209
	(-0.84)	(-0.75)
ln(HHI)	0.0824	0.0458
	(0.89)	(0.48)
ln(Income per Capita)	0.2945***	0.2742***
	(4.76)	(4.46)
ln(Population)	-0.3156	0.3129
	(-1.29)	(1.43)
ln(Pct. Hispanic)	0.0391	-0.0001
	(0.39)	(-0.00)
ln(Pct. Black)	0.0059	-0.0210
	(0.24)	(-0.90)
ln(Pct. 18-44)	0.2397	0.7267*
	(0.53)	(1.67)
Linear Time Trend	0.0114*	0.0111*
	(1.78)	(1.77)
Constant	4.5766**	2.1975
	(2.09)	(1.09)
Observations	2,099	2,099
R-squared	0.900	0.972

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Market fixed effects for 210 DMAs not shown.

TABLE A2: JSA/SSA AND HHI PANEL REGRESSIONS WITH MARKET FIXED EFFECTS

Variables	**Dep. Var. = *ln*(CPM)**	**Dep. Var. = *ln*(CPP)**
JSA Indicator	0.0543	0.0450
	(0.92)	(0.76)
ln(HHI)	-0.1354	-0.1602
	(-0.89)	(-1.08)
ln(Income per Capita)	0.2048**	0.1817**
	(2.53)	(2.31)
ln(Population)	-0.4181	0.1508
	(-1.16)	(0.60)
ln(Pct. Hispanic)	-0.0319	-0.0243
	(-0.32)	(-0.25)
ln(Pct. Black)	0.0895*	0.0555
	(1.89)	(1.09)
ln(Pct. 18-44)	1.0437**	1.6689***
	(2.04)	(3.37)
Linear Time Trend	0.0189*	0.0186**
	(1.85)	(2.02)
Constant	6.2373**	4.6553**
	(2.09)	(2.14)
Observations	550	550
R-squared	0.895	0.955

Robust t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Market fixed effects for 55 DMAs not shown.