

Station Ownership and the Provision and Consumption of Radio News

Joel Waldfogel
The Carlson School and Department of Economics
University of Minnesota

April 5, 2011

This study aims to provide some evidence on the availability of radio news, along with evidence about the relationship between station ownership and the availability of news programming.

Ownership of radio stations can affect their targeting – and the appeal they have for listeners – for a variety of reasons. First, joint ownership of stations can affect owners’ positioning incentives. A firm owning many stations in a market may have an incentive to reduce format duplication and therefore may offer more variety than a similar number of atomistic stations would offer. Second, joint ownership – within or across markets – can reduce costs, possibly allowing a given-sized audience to support more stations and variety. Just as this may operate overall – across radio formats – it may operate among news formats as well.¹

Finally, the nature of the station’s owner may affect the station’s targeting. First, a news radio station owned by a firm operating a newspaper may be able to operate with lower costs. Thus, markets with cross-ownership may have more available news stations. Second, there is some evidence that the presence of minority owners increases the amount of programming targeted at minority listeners. Minority ownership – relatively rare overall – is quite uncommon in news. Public station ownership, on the other hand, is quite common for news (along with classical and jazz programming). Existing literature provides reason to believe that public news stations are sufficiently dissimilar to commercial stations so that public stations would not simply displace commercial stations and would instead provide additional, distinct varieties.² Accordingly, this study will examine the influence of four aspects of station

¹ These mechanisms are explored in Steiner (1952), Rogers & Woodbury (1996), Alexander (1997), Berry and Waldfogel (2001), DiCola (2010), and Sweeting (2010).

² See Berry and Waldfogel (1999) for evidence on public radio’s impact. See Dubin and Spitzer (1993) or Siegelman and Waldfogel (2001) for evidence of the impact of minority ownership on programming availability.

ownership on the provision of news programming: 1) group ownership, 2) ownership concentration in the local market, 3) public station ownership, and 4) cross ownership.

The study proceeds in four sections after the introduction. Section 2 describes the data employed in the study. Section 3 simply characterizes the availability of radio news programming, as well as news listening, in US radio markets. One way of characterizing the availability of programming is by counting the number of stations in a given radio format. While there are many distinct formats offering music (top 40, adult contemporary, and so on), there are very few formats under the heading of news. The vast majority are termed simply, “news.” A small group offers “business news.” We can, however, distinguish commercial and public news stations. Because of the possibility that commercial and public news stations offer different programming, we revisit the question of their substitutability in section 4 as an aid to characterizing the availability of programming. Section 5 then turns to analysis of the determinants of the availability of news programming: we ask how concentration, group ownership, public station ownership, and cross ownership affect both the availability of news offerings and the extent of news listening in US radio markets.

A word about the challenge of uncovering causal relationships is in order at the outset. Unlike an academic study undertaken because events – such as deregulatory policy “experiments” – make it relatively easy to ascertain the causal impact of, say, ownership concentration on programming variety, this study is prompted by policy makers’ interest in the question and their interest in seeing whether relationships documented in earlier research hold in the period 2005-2009. This recent period, while of interest, is not a period of policy in radio ownership rules such as the Telecommunications Act of 1996. The absence of a major policy

“experiment” makes causal inference more difficult. I will attempt to interpret findings accordingly.

II. Data Description

The basic data for this study is a market-level panel on available stations and listening, by format. These data are combined with market-level demographic information (population, income, etc). Our focus in this study is on news stations.

The underlying data are derived from four sources. First, underlying listening data are derived from Arbitron’s Fall 2005 and Spring 2006 surveys, which we combined to create 2005 data, as well as Arbitron’s Fall 2007 and Spring 2008 surveys, which we combine to create 2007 data.

Second, station characteristics are obtained from the government-furnished information (GFI). These data include format designations. In particular, the “Format Category” takes on 20 values, including “news” and “talk.” The more detailed formats in the GFI (the “Format General” variable) allow us to see three separate substantial formats relevant to news and information: business news, news, and talk.³ The GFI also include data on the identity of each station’s owner (the Parent).⁴ Finally, the GFI include information on the number of news radio stations owned by firms operating newspapers. The station-level data are available for 2005, 2007, and 2009.

³ The Longitudinal_Radio_Long.dta dataset includes 3517 entries with FormatCategory=News. Of these, 3432 have FormatGeneral=News, 84 have FormatGeneral=Business News. One has FormatGeneral=Public Service.

⁴ The data include a “public” format, but this is not an exhaustive list of public stations and, indeed, does not include the news stations.

A third data source allows me to determine which of the stations is public. I obtained past NPR station lists from the Internet Archive (<http://www.archive.org/web/web.php>). I was able to obtain station lists dated July 2005, September 2006, March 2007, January 2008, and June 2008. I match 2005, 2007, and 2009, respectively, with NPR lists for July 2005, March 2007, and June 2008. Matching NPR data with the 3 news formats in the GFI produces 6 possible news formats: public and commercial news, talk, and business news, although there are no public business news stations. Hence, for the analysis, there are at most 5 distinct news formats in a market.

The fourth underlying data source is the remainder of the GFI, including demographic information at the market level.

III. Availability of News Programming

Table 1 describes the availability of news programming overall in the roughly 300 Arbitron metro areas, as well as the availability of the five types of information stations: commercial business news, news, and talk; and public news and public talk.⁵ The top 300 Arbitron metro areas included 262 million people in 2009, so the populations reached by stations described in Table 1 include the vast majority of the US population.

As Table 1 shows, stations classified as “news” stations – especially commercial news stations – are almost ubiquitously available in US metro areas. Nearly all of the sample markets (95 percent) had a commercial news station in 2009, while 41 percent of the markets had a public

⁵ I say “roughly” 300 because the number of metro areas included in the GFI varies from year to year. For example, the market-level dataset, RadioMarkets.dta, includes 296 markets for 2005, 301 for 2007, and 299 for 2009. I therefore refer to the number of markets included as “roughly 300.”

station. Because virtually all markets have commercial news stations, almost of the markets with public stations have both commercial and public news stations. The ubiquity of news stations arises even in the smallest sample metro areas: When we divide markets by population deciles, 83 percent of markets in the smallest deciles have a commercial news station, and 87 percent have either a commercial or a public news station.⁶

Commercial news is by far the most common sort of information station, followed by commercial talk. Next most common is public news. Least common are commercial business news and public talk. By construction, markets can have no more than five distinct news formats. The number of news varieties available varies between an average of 2.03 per market in the smallest decile of markets and 3.3 in the largest. The number of news stations varies more widely: from an average of 1.67 in the smallest decile to an average of 9.23 in the top decile.

IV. Substitutability: Are Different News Formats Distinct?

The near ubiquity of “news” stations raises the question of the similarity of the various types of news stations. For the sake of illustrating the point, if all five of the available news formats were identical, then much of the benefit listeners could derive from news stations would be achieved with the first local news station, and listeners would derive little benefit from additional news stations. Because virtually all markets have a news station, there would be very

⁶ For example, according to the GFI, listeners in the New York City metro area receive the following 14 news stations : WNJY-FM, WXLN-FM, WSTC-AM, WNLK-AM, WSHU-AM, WGCH-AM, WBBR-AM, WOR-AM, WCBS-AM, WINS-AM, WVOX-AM, WVNJ-AM, WABC-AM, WNYC-FM. Of these, the last 8 broadcast from inside the New York metro area.

little scope for different ownership arrangements – or anything else – to increase the benefit available from news stations.

On the other hand, if different news stations and formats are distinct – for example, if public and commercial news stations are substantially different – then having an additional public news station would add a distinct variety to the set of local options. The more distinct that public news is from commercial news, the less that public news stations will draw listening from, and displace the operation of, commercial stations. The extent of substitutability between public and commercial stations is explored in Berry and Waldfogel (1999) using cross sectional data for 1993. They examine possible substitution in the three most common formats for public stations: news, classical music, and jazz. They find the strongest evidence of substitution in classical music, followed by jazz. They find no evidence of substitution in news.

Our data allow us to revisit this question for the period since 2005. We can implement cross-sectional analyses analogous to Berry and Waldfogel (1999). Because we have panel data, we can also attempt to measure substitution using within-market (as well as across-market) variation. Although our main interest in this study is in news, we examine substitutability in classical music and jazz as well, to provide a basis for comparison. Table 2 compares public and commercial station availability and listening in classical, jazz, and news. Public stations are dominant only in classical music, where more than half of stations are – and listening is – are public. Public jazz stations make up about a quarter of jazz stations. Public news stations make up roughly a sixth of total news stations (and listening). (This comparison includes only “news,” not “talk” or “business news.”)

While news stations are available in markets of all sizes, classical and jazz stations are not. The panels of Figure 1 show the shares of markets in each population decile with a news, a classical music, or a jazz station, respectively. As the figure demonstrates, fewer than half of the smaller markets have a classical station. Fewer than half of all but the largest markets have a jazz station. Commercial classical and jazz stations are rare except in the largest markets. This is relevant because there is no scope for public stations to displace commercial stations in markets too small to support a commercial station. Here, we also examine displacement separately on markets large enough to support a commercial station in the format, e.g. the top 5 or top 3 deciles.

Our first test for substitutability asks whether a public station operating in a format displaces commercial stations. We implement this question three ways. First, we simply regress commercial stations operating in, say, news, on public stations in the same format, population, and year dummies. Population is included as a measure of the commercial viability of news stations (larger markets generate larger audiences whose larger ad revenues can support more stations). Year dummies allow for possible changes in the viability of news stations over time. Standard errors are clustered at the market level. Second, we augment population with a long list of demographic controls. The detailed controls include per capita income, the number commuting by vehicle, the percent of population that is black, percent Hispanic, the population in 18 separate age and gender groups. Even with controls, these specifications are vulnerable to a concern about unobserved heterogeneity: markets with high unobserved tastes for a format would be appealing places for both public and commercial stations to operate in that format. If so – if unobservable factors move public and private stations operating in the same direction – then we would expect cross sectional approaches to underestimate displacement. Finally, we

estimate a specification including metro area fixed effects, which identifies the displacement coefficient using only within-metro area variation.

Identifying coefficients using only within-metro-area variation has a benefit and a cost. The benefit is the elimination of time-constant unobservable factors correlated with both the viability of public and commercial stations in a format. (For example, some markets may have listeners with stronger tastes for news than one might expect based on the other observable characteristics of the market). The challenge is that displacement can be identified using changes over time only to the extent that there is change over time in, say, the number of public stations in the format.

The first three columns of Table 3 implement these three approaches for classical music. The cross sectional approaches (in columns (1) and (2)) yield displacement rates of roughly -0.13, both of them statistically significant. The FE estimate suggests greater displacement (-0.32 and significant). The next three columns repeat the exercise for jazz, with two of three estimates statistically insignificant. The last three columns examine news, and both cross sectional estimates are insignificant, while the FE estimate is -0.26 (and differs significantly from zero).

Given the rarity of commercial classical and jazz stations outside the largest markets, we also estimate the public-commercial displacement rates on the top half of markets by size, and the top 3 deciles. Classical music continues to have the largest – and most consistently negative – displacement rates, roughly -0.3 for the top half of markets and roughly -0.4 for the top 30 percent of markets using either cross sectional or fixed effects approaches. Coefficients in the other categories are uniformly negative but are not consistently significant. The fixed effects

estimate of news displacement, however, is consistently statistically significant and rather large, between a quarter when the entire sample is included and a half for the top 3 deciles.

These displacement estimates are largely similar to the estimates in Berry and Waldfogel (1999), who find a large displacement rate for classical music. The estimates in Table 3 are different, however, in the respect that the fixed effects news displacement rate here is larger than the news displacement rate in Berry and Waldfogel (1999).

A second approach to substitution asks, for example, whether public stations in a format draw listeners from commercial stations in the same format (and vice versa). If commercial and public stations within a format are similar, than additional public stations will sharply reduce commercial listening, and vice versa.

I begin by examining this question graphically. Figure 2 presents some simple comparisons which shed some light on this question. In particular, I compare commercial and public listening in each category across three groups of markets: those with one public and no commercial stations, those with one commercial and no public stations, and those with one of each. For this comparison, I include both years of listening data.⁷ Not surprisingly, we see a large amount of public listening in a market with one public and no commercial, and we see a large amount of commercial listening in a market with one commercial station and no public stations. We can learn about substitutability from the change in, say, commercial listening as we go from a market with a commercial but not a public station to a market with both.

The graphs give fairly clear evidence of substitution in classical music: Relative to markets with only a public classical station, markets with both a public and a commercial station

⁷ One should bear in mind that there are some stations outside the market that receive listening, so we expect some public listening even in a market with no public stations in the format.

have lower public classical listening. Likewise, markets with both types of stations have lower commercial classical listening than markets with only a commercial classical station. There is mixed evidence of substitutability in jazz. Public jazz listening is lower in markets with both kinds of jazz stations (compared with markets with only public jazz), while commercial jazz listening is not lower in markets with both (relative to markets with only commercial jazz). Finally, news shows no evidence of substitution. Commercial and public news listening are each higher in markets with competition.

We also explore listening substitution more systematically via regressions. For example, the first column of Table 4 asks how public classical listening varies with 1) the number of public classical stations, and 2) the number of commercial classical stations. The coefficient pattern indicates that markets with an additional public classical station have an additional 0.52 percentage points of public classical listening, while markets with an additional commercial classical station have 0.05 percentage points less public classical listening, and both coefficients are statistically significant. The second column asks how commercial classical listening varies across markets with public and commercial classical stations operating, with the finding that markets with an additional commercial classical station have commercial classical listening that is 0.16 percentage points higher, while markets with an additional public classical station have commercial classical listening that is 0.05 percentage points lower, with both coefficients again statistically significant. Columns (3) and (4) add metro area fixed effects. Results for classical music are as follows: own effects (for example the effect of commercial stations on commercial listening) are positive, and own effects are larger for public stations. Cross effects are negative but only the commercial classical coefficient in the public listening regression is significant. There is substantial evidence of substitutability in classical music.

Results for jazz and news are rather different. While own effects are positive and of equal size for commercial and public stations, cross effects from both cross sectional and fixed effects approaches – while negative – are insignificant, providing no rejection of the null hypothesis of no substitution.

While none of the public formats appear to be perfect substitutes for their commercial analogues, public news and jazz appear less substitutable than classical music. This suggests that public news provides a variety distinct from commercial news.

V. Ownership, News Programming, and News Listening

We now turn to the following main questions: a) how does station ownership affect the availability of news programming? and b) how does station ownership affect news listening?

Conceptually, we have four notions of ownership that may matter. These include measures of ownership concentration (such as the number of news station owners in a market, or the HHI among news stations based on listening to different owners' stations), measures of the number of stations in large ownership groups, measures of the number of public stations, and the number of news stations operated by firms also owning newspapers.

Ownership concentration may affect the provision of variety by providing owners with incentives to operate more stations. If so, then a market with a given number of commercial news stations may offer more distinct commercial news varieties if the news sector is operated by fewer separate owners (or, more generally, if ownership concentration within news is higher). Group ownership may affect the number of news varieties available by allowing stations to be

operated at lower costs. The question is whether, conditional on demand, a market with a bigger large-group presence operates more news stations. Finally, having additional public stations may raise the amount of news programming available. At the extreme, if public stations offer entirely distinct varieties, then they will not divert listeners from commercial news stations. Then a market with an additional public station will have an entire additional news station as well as a higher share of population listening to news programming. (The evidence in Tables 3 and 4 already provides an answer to this question, but we revisit the question in a slightly different form below, in Table 7).

Table 5 presents regressions of commercial news variety (and commercial news listening) on measures of the total number of stations and owners. We have two ways of approaching the question of how ownership concentration affects news variety. One way is to relate news varieties – and news listening – to the total number of stations – and the total number of owners – operating in the market.⁸ It seems natural to use total stations and owners as determinants of the total amount of variety in the market. If listeners regard news stations as substitutes for other kinds of stations, then the use of total stations and owners is appropriate. On the other hand, it is possible that news stations, while potentially substitutes for one another, are distinct from other formats from the perspective of listeners. Then the number of stations and owners operating in news *per se* would be more relevant as determinants of news varieties and news listening. It is difficult to resolve this *a priori*, so I pursue both approaches. The first half of the table explains commercial news varieties and commercial news listening with total stations and owners; the second half uses news stations and varieties as explanatory variables.

⁸ This is the approach employed by Berry and Waldfogel (2001).

As column (1) shows, almost mechanically, markets with more stations have more variety, including news variety.⁹ The effect of ownership concentration on commercial news variety is addressed here through the question of whether this relationship is different as markets have higher concentration (fewer owners). The first column shows that markets with more stations overall have more news varieties available (and this intuitive positive relationship is statistically significant). After accounting for the relationship with total stations, the coefficient on overall station owners is negative and significant. The second column repeats the exercise including metro area fixed effects. While signs and coefficient sizes are similar, coefficients are not significant. Similarity of coefficients between OLS and FE estimates indicates that a correlation between market-level unobservables and included variables, which would necessitate the use of fixed effects estimates, is absent in this context. The prob value for the Hausman test is 0.89. Thus, this exercise suggests that higher concentration promotes variety.

Columns (3) and (4) turn from variety to listening, asking whether news listening is higher in markets with more total stations and/or more owners. None of the variables are significant in columns (3) or (4).

The second half of the table revisits the exercise using more specific measures of stations and owners, in particular the number of commercial news stations and the number of commercial news station owners. Not surprisingly, markets with more commercial news stations have more varieties of commercial news stations. News ownership variables bear no significant relationship to news variety, however, after accounting for the number of stations. Neither stations nor owners bear significant relationships with news listening in the cross sectional nor

⁹ The commercial news varieties variable can take on 4 possible values: 0, 1, 2, and 3. That is, a market can have as many as 3 different commercial news varieties available.

fixed effects approaches. (We saw earlier that commercial news listening grows in the number of commercial news stations. The inclusion of commercial news owners, which is highly collinear with commercial stations, presumably deprives stations of its formerly positive coefficient in the listening equation). The absence of a relationship between news owners and news variety raises doubt about whether the negative relationship in column (1) reflects a meaningful effect. In short, we find little evidence of an effect of ownership concentration on the available variety of commercial news stations.

We now turn to possible effects of group ownership on commercial news variety, in Table 6. The idea is that stations operated by groups owning multiple stations may have lower costs, which could allow them to operate more stations for any given level of demand for their programming. The question we seek to ask is thus whether markets of a given size have more news stations, or more news varieties, if their new stations are operated by larger groups. To this end, we regress measures of commercial news variety on a basic measure of market size (total population), along with a variable measuring the share of the market's commercial news stations in groups of 25 or more stations. As before, we report both OLS and fixed effects estimates.

Column (1) relates the number of commercial news stations operating with population and the share of overall stations in large groups. Just as larger markets have more stations overall, larger markets also have more news stations. Markets with a larger share of their news stations in large groups have fewer news stations, and this difference is statistically significant. Both of these relationships also emerge in column (2) which includes metro area fixed effects. Columns (3) and (4) replace commercial news stations with commercial news varieties as the dependent variable. While significance is now inconsistent, the basic pattern is that larger markets have more varieties, and markets with a larger share of their news stations in large

groups have fewer commercial news varieties. The last two columns explore the relationship between commercial news listening and groups, with no significant results.

The evidence in Table 6 indicates that markets with a higher share of their news stations in large groups have fewer commercial news stations – and fewer commercial news formats – than do markets with a smaller share of their news stations in large groups. It is difficult to draw strong causal inference from these regression, but one can say that there is no evidence that heavier involvement of large groups in a market’s commercial news provision promotes the availability of more stations or more variety.

Do additional public news stations raise the amount of news programming available, or does an additional public news stations simply cannibalize commercial news stations? Related, how does listening vary with additional public vs commercial news stations. We have already seen, in Tables 3 and 4, that additional public news stations raise the total number of news stations available in a market.

Table 7 revisits the question using a slightly broader definition of news. While Tables 3 and 4 included only the narrow format category, “news,” Table 7 includes the broader definition of news that includes new, business news, and talk, whether commercial or public. The table explores how the total number of news varieties available – and total news listening – vary with the numbers of public and commercial news stations. Markets with an additional commercial news station have, on average, about one fifth of an additional news variety, while markets with an additional public station have on average an additional two thirds news varieties. This emerges from both the cross sectional relationship – in column (1) – and relationship estimated with metro-area fixed effects, in column (2).

The latter half of the table explores the relationship between stations and overall news listening. Both the cross sectional and fixed effects specifications – in the third and fourth columns, respectively – yield much higher coefficients on public stations. That is, the average marginal impact of a public station on listening is larger by a factor of 10 or more. A few comments are in order. First, while it is reasonable to worry about possible endogeneity of public and commercial stations operating in the cross section, the fact that the results survive the inclusion of metro-area fixed effects provides some additional assurance that the coefficients reflect causal impacts. Second, as we saw in Table 1, the average number of commercial news stations substantially exceeds the number of public news stations. The public-commercial comparison in Table 7 is thus a comparison of the listening impact of, say, the second or third commercial station vs the listening impact of the first public station in a market. If public news stations were more numerous, their marginal impact would likely decline.

Table 8 turns to the question of whether cross ownership promotes news variety or listening. To this end I regress the number of news varieties available on a) the number of public news stations, b) the number of commercial news stations owned by a newspaper, and c) the number of commercial news stations not owned by a newspaper. Newspaper-owned news stations bear no statistically significant relationship to available variety nor listening. Other results are as in Table 7.

Conclusion

We have explored the relationship between ownership factors and the provision of radio news programming, with the following main results:

- 1) News programming – particularly commercial news programming – is widely available, in the sense that virtually all metro areas have a station in the broad commercial format category, “news.” Nearly all (96 percent) US metro areas have a commercial “news” station, while 41 percent of US metro areas have at least one public news station.
- 2) Public and commercial news stations are not perfect substitutes.
- 3) We find no evidence of a relationship between ownership concentration within news and the variety of commercial news stations available on the dial.
- 4) Markets with proportionally more commercial news stations in large ownership groups have fewer news stations and less news variety, relative to other markets their size.
- 5) Public news stations have larger marginal impacts on available news variety and news listening than do commercial news stations, with some of this difference driven by the larger number of commercial news stations per market.
- 6) We find no evidence that the presence of commercial news stations owned by newspapers promote the availability of greater news variety or listening.

References

Alexander, Peter, "Product Variety and Market Structure," *Journal of Economic Behavior & Organization* XXXII, (1997), 207-214.

Berry Steven and Joel Waldfogel, "Public Radio in the United States: Does it Correct Market Failure or Cannibalize Commercial Stations?" *Journal of Public Economics* LXXI, (1999), 189-211.

Berry., Steven T. AND Joel Waldfogel. "Do Mergers Increase Product Variety? Evidence from Radio Broadcasting." *Quarterly Journal of Economics* (2001): 1009-1025.

DiCola, Peter. "FCC Regulation and Increased Ownership Concentration in the Radio Industry." Northwestern University School of Law, July 16, 2010.

Dubin, Jeffrey A. and Matthew L. Spitzer. "Testing Minority Preferences in Broadcasting." USC Law Center Working Paper No. 94-8, 1993.

Rogers, Robert and John Woodbury, "Market Structure, Program Diversity, and Radio Audience Size," *Contemporary Economic Policy*, XIV (1996), 81-91.

Siegelman, Peter and Joel Waldfogel, "Race and Radio: Preference Externalities, Minority Ownership, and the Underprovision of Programming to Black and Hispanic Listeners," in *Advertising and Differentiated Products* (Michael R. Baye and Jon P. Nelson, eds., 2001)

Steiner, Peter, "Program Patterns and the Workability of Competition in Radio Broadcasting," *Quarterly Journal of Economics* LXVI, (May 1952), 194-223.

Sweeting, Andrew. "The Effects of Horizontal Mergers on Product Positioning: Evidence from the Music Radio Industry." *RAND Journal of Economics*, 41(2) (Summer 2010), 372-397.

Figure 1: Station Presence in Classical, Jazz, and News

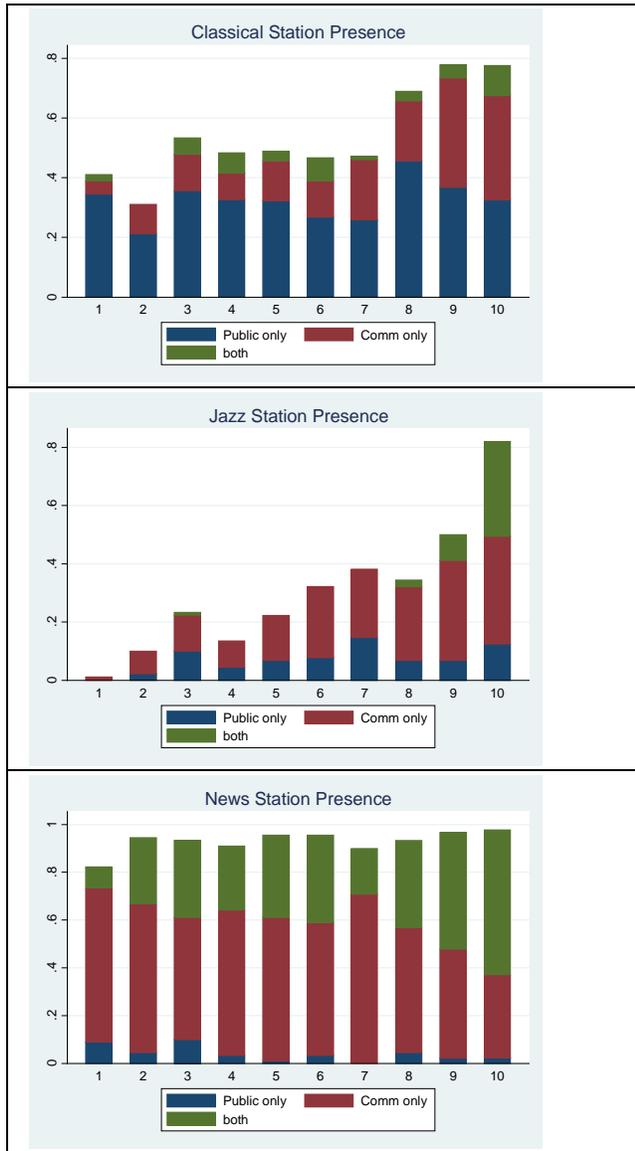


Figure 2: Public-Commercial Listening Substitution

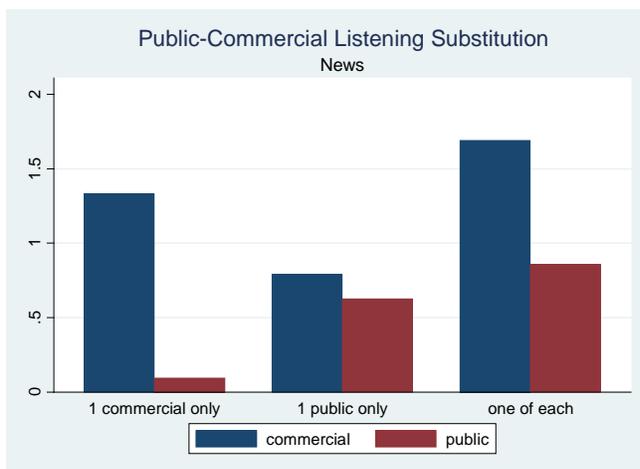
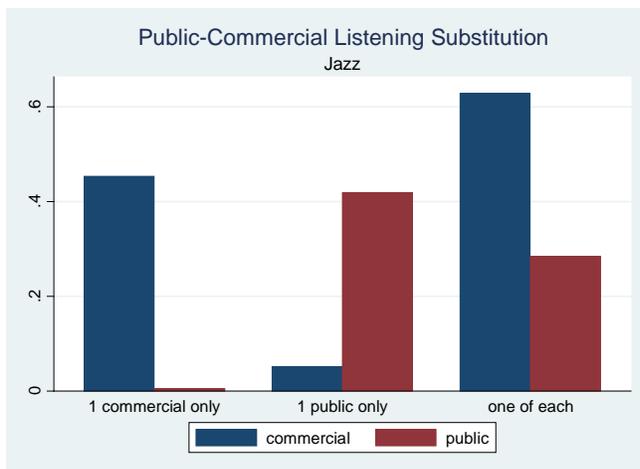
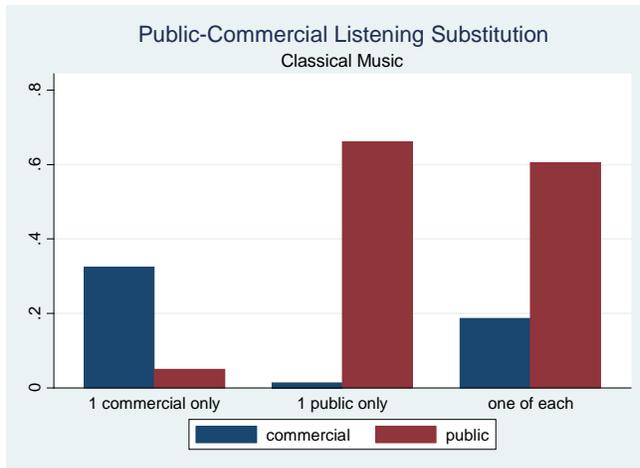


Table 1: Average Number of News Stations per Market and News Station Presence by Population Decile, 2009

decile	<u>commercial</u>			<u>public</u>		<u>overall</u>		<u>News presence</u>		
	bus news	news	talk	news	talk	varieties	number	public	comm	either
1	0.04	1.27	0.38	0.19	0.04	2.03	1.67	0.20	0.83	0.87
2	0.00	1.60	0.33	0.27	0.03	1.53	2.23	0.30	0.97	1.00
3	0.00	1.50	0.75	0.57	0.07	2.10	2.70	0.47	0.90	0.93
4	0.00	1.72	0.76	0.45	0.03	2.00	2.87	0.37	0.93	0.97
5	0.03	2.43	0.47	0.43	0.07	1.80	3.43	0.37	1.00	1.00
6	0.00	1.90	0.83	0.52	0.03	2.03	3.17	0.47	0.93	0.97
7	0.10	2.45	0.93	0.24	0.07	2.03	3.67	0.23	0.97	0.97
8	0.07	2.27	1.00	0.63	0.00	2.07	3.97	0.43	1.00	1.00
9	0.21	3.03	1.52	0.66	0.07	2.60	5.30	0.53	0.97	0.97
10	0.62	5.17	2.55	1.07	0.14	3.30	9.23	0.77	0.97	0.97
overall	0.11	2.35	0.51	0.96	0.06	2.2	3.8	0.41	0.95	0.96

Note: Table describes averages for all Arbitron markets. Each decile contains roughly 30 markets.

Table 2: Listening and Stations in Formats with Large Public Presence

		<u>classical</u>		<u>jazz</u>		<u>news</u>	
		comm	pub	comm	pub	comm	pub
listening	2005	0.10	0.32	0.22	0.05	1.57	0.35
	2007	0.09	0.28	0.16	0.04	1.50	0.32
		<u>classical</u>		<u>jazz</u>		<u>news</u>	
		comm	pub	comm	pub	comm	pub
stations	2005	0.29	0.40	0.33	0.13	2.19	0.45
	2007	0.29	0.39	0.27	0.11	2.18	0.44
	2009	0.21	0.41	0.21	0.13	2.37	0.49

Note: Listening is the AQH listening share, in percentage points. It is the percent of population listening to radio during an average quarter hour. Overall average listening is roughly 12 percent. Thus, for example, commercial news in 2005 attracted $100 \times (1.57/12)$ percent of total listening.

Table 3: Commercial-Public Station Displacement

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Comm. Classical Stations			Comm. Jazz Stations			Comm. News Stations		
Public Stations in same format	-0.1415	-0.1181	-0.3184	-0.0723	-0.1575	-0.1751	0.0957	-0.0467	-0.2642
	(0.0440)**	(0.0447)**	(0.0381)**	(0.0644)	(0.0508)**	(0.0908)	(0.1248)	(0.1169)	(0.0947)**
Metro FE	No	No	Yes	No	No	Yes	No	No	Yes
Detailed controls	no	yes	no	no	yes	no	no	yes	no
Constant	0.2576	-0.2382	0.4169	0.2217	-0.0321	0.3553	1.5868	1.3347	2.3140
	(0.0421)**	(0.2247)	(0.0213)**	(0.0382)**	(0.1202)	(0.0204)**	(0.0923)**	(0.4647)**	(0.0549)**
Observations	897	894	899	897	894	899	897	894	899
R-squared	0.11	0.28		0.20	0.38		0.36	0.55	
Displacement in sub-samples:									
Top 5 deciles	-0.2897	-0.2613	-0.2789	-0.1102	-0.2014	-0.1285	0.0116	-0.1452	-0.4315
	(0.0665)**	(0.0762)**	(0.0597)**	(0.0825)	(0.0652)**	(0.1343)	(0.1665)	(0.1556)	(0.1406)**
Top 3 deciles	-0.4058	-0.3917	-0.3229	-0.0516	-0.1982	-0.0966	-0.0376	-0.1276	-0.4876
	(0.0981)**	(0.0934)**	(0.0815)**	(0.1065)	(0.0865)*	(0.1796)	(0.2108)	(0.1994)	(0.1580)**

Notes: Robust standard errors in parentheses, clustered on metro area in specifications without metro fixed effects. * significant at 5% level; ** significant at 1% level. Each cell in the “displacement in sub-samples” section of the table is from a separate regression including markets in either the 3 or 5 largest population deciles. Detailed controls include per capita income, the number commuting by vehicle, the percent of population that is black, percent Hispanic, the population in 18 separate age and gender groups.

Table 4: Commercial-Public Listening Substitution

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Public Classical	Comm Classical	Public Classical	Comm Classical	Public Jazz	Comm Jazz	Public Jazz	Comm Jazz	Public News	Comm News	Public News	Comm News
Public Classical Stations	0.5158	-0.0536	0.7530	-0.0192								
	(0.0398)**	(0.0142)**	(0.0507)**	(0.0181)								
Comm. Classical Stations	-0.0464	0.1606	-0.1837	0.1113								
	(0.0205)*	(0.0349)**	(0.0552)**	(0.0197)**								
Public Jazz Stations					0.3201	0.0421	0.4392	0.0844				
					(0.0460)**	(0.0487)	(0.0373)**	(0.0719)				
Comm. Jazz Stations					-0.0190	0.3729	-0.0187	0.3437				
					(0.0105)	(0.0373)**	(0.0157)	(0.0303)**				
Public News Stations									0.4633	-0.0146	0.5680	-0.0228
									(0.0416)**	(0.0773)	(0.0405)**	(0.0802)
Comm. News Stations									-0.0174	0.1260	-0.0261	0.1412
									(0.0114)	(0.0295)**	(0.0189)	(0.0375)**
Metro FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Constant	0.1160	0.0693	0.0575	0.0694	0.0189	0.0823	0.0029	0.0849	0.1679	1.2635	0.1453	1.2461
	(0.0183)**	(0.0149)**	(0.0300)	(0.0107)**	(0.0056)**	(0.0147)**	(0.0080)	(0.0154)**	(0.0326)**	(0.0877)**	(0.0472)**	(0.0935)**
Observations	597	597	597	597	597	597	597	597	597	597	597	597

Notes: Robust standard errors in parentheses, clustered on metro area in specifications without metro area fixed effects. * significant at 5% level; ** significant at 1% level.

Table 5: Effects of Ownership Concentration on Commercial News Variety and Listening

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Commercial News Varieties	Commercial News Varieties	Commercial News AQH	Commercial News AQH	Commercial News Varieties	Commercial News Varieties	Commercial News AQH	Commercial News AQH
Total Stations	0.0339 (0.0060)**	0.0242 (0.0153)	0.0023 (0.0106)	0.0084 (0.0227)				
Radio Parents	-0.0287 (0.0109)**	-0.0215 (0.0186)	0.0015 (0.0191)	-0.0403 (0.0275)				
Comm News Stations					0.1125 (0.0328)**	0.1297 (0.0304)**	-0.0613 (0.0628)	0.0757 (0.0516)
Comm News Parents					0.0387 (0.0426)	0.0535 (0.0380)	0.1307 (0.0800)	-0.0752 (0.0632)
Metro FE	no	yes	no	yes	no	yes	no	yes
Constant	0.9235 (0.0806)**	1.1055 (0.3530)**	1.4451 (0.1112)**	1.9050 (0.5430)**	1.1060 (0.0485)**	1.0057 (0.0634)**	1.4192 (0.0916)**	1.5450 (0.1068)**
Observations	896	896	595	595	848	848	562	562

Robust standard errors in parentheses. Specifications without metro FE have standard errors clustered at metro area level. All specifications include year dummies. Specifications with the listening (AQH) dependent variable include data for 2005 and 2007. The remaining columns include data for 2009 as well. * significant at 5% level; ** significant at 1% level. Columns (5)-(8) include only observations with at least one local news station.

Table 5a: Effects of Ownership Concentration Variables on Commercial News Stations, Variety, and Listening

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of News Stations	Number of News Stations	Number of Commercial News Varieties	Number of Commercial News Varieties	Commercial News AQH	Commercial News AQH
Total Stations	0.0887 (0.0334)**	-0.0148 (0.0399)	0.0294 (0.0087)**	0.0390 (0.0179)*	-0.0024 (0.0161)	-0.0089 (0.0267)
Radio Parents	0.0504 (0.0564)	0.1101 (0.0559)*	-0.0272 (0.0158)	-0.0489 (0.0252)	0.0164 (0.0283)	-0.0077 (0.0382)
Largest Local Owner Group	0.1806 (0.0725)*	-0.0098 (0.0513)	0.0703 (0.0254)**	-0.0053 (0.0231)	-0.0570 (0.0467)	-0.0047 (0.0296)
Avg Comm'l Stns per Owner	-0.0847 (0.1562)	0.1652 (0.1715)	-0.1011 (0.0596)	-0.1238 (0.0772)	0.1859 (0.1094)	0.1470 (0.1039)
Metro FE	no	yes	no	yes	no	yes
Constant	-0.6309 (0.4460)	2.1011 (0.9073)*	0.8517 (0.1969)**	1.4219 (0.4084)**	1.2479 (0.3502)**	1.5908 (0.6143)*
Observations	896	896	896	896	595	595
R-squared	0.70		0.30		0.02	

Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level.

Table 6: Group Ownership and News Stations, Variety, and Listening

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of Comm News Stations	Number of Comm News Stations	Commercial News Varieties	Commercial News Varieties	Commercial News AQH	Commercial News AQH
Pop (mil)	1.0503 (0.1945)**	0.5315 (0.5840)	0.1384 (0.0382)**	0.2390 (0.2504)	0.0308 (0.0350)	-0.9272 (0.4920)
Share news stns in 25+ groups	-0.6659 (0.2454)**	-0.6960 (0.1854)**	-0.1116 (0.0701)	-0.1886 (0.0795)*	0.0178 (0.1411)	-0.0329 (0.1109)
Metro FE	No	Yes	No	Yes	No	Yes
Constant	2.8221 (0.1872)**	3.2847 (0.5082)**	1.5352 (0.0531)**	1.4856 (0.2179)**	1.5465 (0.0935)**	2.3842 (0.4187)**
Observations	841	841	841	841	557	557

Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level.

Table 7: Public and Commercial News Stations, News Variety, and News Listening

	(1)	(2)	(3)	(4)
	Overall News Varieties	Overall News Varieties	Overall News Listening	Overall News Listening
Number of Comm News Stations	0.1716 (0.0165)**	0.2216 (0.0177)**	0.0410 (0.0214)	0.0358 (0.0316)
Number of Pub News Stations	0.6220 (0.0543)**	0.6997 (0.0518)**	0.5110 (0.0963)**	0.5979 (0.0923)**
Constant	1.0390 (0.0648)**	0.8429 (0.0673)**	1.4843 (0.0884)**	1.4768 (0.1123)**
Metro Area FE	no	yes	no	yes
Observations	900	900	598	598

Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level

Table 8: Variety and Listening for Public and Two Kinds of Commercial News Stations (Newspaper-Owned and Other)

	(1) Overall News Varieties	(2) Overall News Varieties	(3) Overall News Listening	(4) Overall News Listening
Newspaper-owned comm'l news stations	-0.0012 (0.1544)	0.0078 (0.4106)	0.4357 (0.3294)	0.4419 (0.5519)
Other comm'l news stations	0.1713 (0.0158)**	0.2099 (0.0179)**	0.0334 (0.0213)	0.0177 (0.0324)
Number of Pub News Stations	0.6290 (0.0526)**	0.6676 (0.0524)**	0.5003 (0.0956)**	0.5608 (0.0933)**
Constant	1.0515 (0.0642)**	0.9129 (0.0716)**	1.5032 (0.0888)**	1.5408 (0.1193)**
Metro FE	no	yes	no	yes
Observations	896	896	595	595

Robust standard errors in parentheses. * significant at 5% level; ** significant at 1% level