

# Response to Peer Review of Study 4 Section II “Ownership Structure, Market Characteristics and the Quantity of News and Public Affairs Programming: An Empirical Analysis of Radio Airplay”

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I would like to express my sincere thanks to Scott Savage for taking the time to read and comment on the paper. I will address some of the comments specifically below and hopefully offer some clarification.

## Data and Sampling

Turning first to the data, the reviewer expressed an interest in comparing the characteristics of the radio stations in different segments of the sample, and to the sampling frame. To compile a dataset that could be used in estimation, I needed to have a set of stations for which all the variables were available. This was really a matter of arriving at a list of stations such that each had been (1) recorded by Edison Media Research (EMR), and therefore had the data necessary to develop the dependent variable; and (2) had ownership data in the BIA MAPro database, and therefore had the data necessary to develop the independent variables. The 1,128 stations in the initial sample can be broken down in the manner illustrated in Table 1.

**Table 1 – Sample Groups**

	Recorded and Coded by EMR	Not Recorded or Coded by EMR	Total
In BIA MAPro Database	1,014	84	1,089
Not in BIA MAPro Database	25	5	30
Total	1,039	89	1,128

It was thus necessary to pare the sample down from the initial 1,128 radio stations to 1,014, and then finally to 1,013 due to missing date information. In the end, the analysis uses 90% of the stations originally selected for sampling. While I think that the chances of bias are relatively low, it is worth examining the omitted subgroups more closely.

The 30 stations excluded from the estimations because they lacked the necessary data from BIA were all low-power FM stations (LPFM). The group of LPFM stations is distinct by

construction. According to Commission rules, LPFM stations can only offer noncommercial educational broadcasting and have a maximum broadcast radius of less than four miles.<sup>1</sup> For the 25 that were recorded, there are coded airplay data in the EMR database. Plus, there are some data in the EMR database describing the characteristics of each of the 30 LPFM stations. Regarding their airplay, the recorded LPFM stations seem to represent a unique group. This can be seen in a simple frequency distribution of the coded airplay of the 25 recorded LPFM stations versus the 207 recorded noncommercial FM stations in the sample, shown in Table 2.

**Table 2 – LPFM Airplay**

General Category Code	Description	LPFM		Non-Commercial FM	
		Intervals	%	Intervals	%
.	Missing	319	0.9	480	0.2
01	News	120	0.3	42,955	14.4
02	Public Affairs	485	1.3	26,072	8.7
03	Announcements	8	0.0	810	0.3
04	Music	29,268	81.3	146,438	49.1
05	Entertainment & Leisure	2,118	5.9	52,715	17.7
06	Religious Broadcast (Non-music)	1,339	3.7	6,650	2.2
07	Fundraising & Charity	12	0.0	5,093	1.7
08	Advertisements	971	2.7	11,222	3.8
09	Sports	1,246	3.5	638	0.2
10	Other	68	0.2	1	0.0
11	Dead air/Unknown	33	0.1	2,568	0.9
12	Static/Interference	13	0.0	2,438	0.8
50	Undefined	0	0.0	13	0.0

Relative to the sample of noncommercial FM stations recorded, the LPFM stations appear to place significantly more emphasis on music, sports, and religious broadcasting. Indeed, turning to the station characteristics available in the EMR database, 14 of the 25 recorded LPFM stations (56%) list their format as religious whereas only 16 of the 207 recorded noncommercial FM stations (7.7%) have a religious format. As far as ownership, the available data shows that none of the entities that own a LPFM station (many of which are naturally churches) also own other radio stations. Unfortunately, the data don't make it possible to determine whether any of the LPFM stations are cross-owned with a newspaper or TV station.

This brief analysis suggests that the LPFM stations may, in general, conform to the intuition laid out in the paper and air relatively little news programming. Such stations are

<sup>1</sup> See <http://www.fcc.gov/mb/audio/lpfm/index.html> for more details.

generally owned by small owners that may not have the resources to invest in news-gathering. It is unlikely that advertisements (in this case, contributions) have the potential to significantly augment the station's financial position. Further, because the owners generally own a single station, the incentive to invest in news-gathering or to subscribe to a news service is diminished since that content cannot be spread over multiple outlets. As a result, these stations concentrate on airing content that is relatively inexpensive, such as music.

**Table 3 – Means of Independent Variables for Unrecorded Stations**

<b>Independent Variables</b>	<b>Means of Sample Used in Estimation</b>	<b>Means of Sample of Unrecorded Stations</b>
In-Market Stations Owned by Parent	3.15	2.35
Out-of-Market Stations Owned by Parent	201.73	93.86
Distance between Station and Parent (in miles)	439.71	273.99
Waived Prohibition on In-Market Newspaper Cross-ownership (1=yes)	0.00	0.00
Cross-owned with TV Station in DMA (1=yes)	0.10	0.01
Percentage of Other Market Stations with News Format	0.11	0.08
Total Stations in the Market	28.35	22.37
Market Median Commute Time	18.26	18.67
Percentage of Market Population Male	0.49	0.49
Percentage of Market Population Black or African American	0.09	0.11
Percentage of Market Population Hispanic or Latino	0.10	0.10
Percent of Market Population Aged 18 to 24	0.09	0.09
Percent of Market Population Aged 25 to 34	0.13	0.13
Percent of Market Population Aged 35 to 44	0.16	0.16
Percent of Market Population Aged 45 to 64	0.22	0.23
Percent of Market Population Aged 65 or over	0.13	0.14
Percent of College Graduates in Market Population	0.28	0.24
Noncommercial (1=yes)	0.22	0.25
In Arbitron Metro (1=yes)	0.70	0.46
Segments Aired in Morning Drive	0.97	--
Segments Aired in Evening Drive	0.91	--
Band (1=FM)	0.58	0.37
Stations	1,013	89

There were also 89 station observations of the original 1,128 sampled that were excluded from the analysis because they were not recorded by EMR. For these stations, we obviously don't have any information about their airplay, but for all but the five LPFM stations in this group, BIA data are available. All but two of the independent variables can be constructed from BIA and Census data for the unrecorded stations. The means of the independent variables

calculated over both the sample of stations used in estimation, and the group of unrecorded stations are compared in Table 3.

The figures in Table 3 show that, at least as far as the independent variables used in the estimations, the means calculated over the 89 unrecorded stations are reasonably close to those calculated across the sample used in estimation. It seems clear that, in general, the unrecorded group of stations consists of somewhat smaller operations (owners own fewer stations) that are more likely to be in smaller markets (fewer of the unrecorded stations are in Arbitron Metros).

EMR has cited a number of reasons as to why these stations went unrecorded. Multiple attempts were made to record each station, and yet the most often cited reason is that “no discernable signal” was found. Unfortunately, that does not tell us much about why that was the case. Certainly, daytime-only stations are overrepresented in the group of unrecorded stations, with 16 of the 89 (18%) being daytime-only relative to 65 of the 1,128 stations (6%) in the whole sample. Be that as it may, in order to end up with nothing but dead air, all attempts to record would, theoretically, have to have been at night. For stations that are licensed to broadcast all day, recall that the starting times of the 20-minute segments were chosen randomly and could be at any time of the day. Among the 65 daytime-only stations, however, the times were chosen randomly but, only daytime times could be chosen. It is thus unlikely that there was no signal simply because the selected start time was outside the station’s normal broadcasting hours. There are some unrecorded stations for which it is pretty clear why no recordings were possible. Several of the 89 stations were owned by colleges or universities, and almost all of the recording attempts were made during the summer.

The reviewer noted that it would be useful to see how characteristics of the 1,128 sample radio stations compared to the sampling frame of 13,241 stations. In the paper, I briefly summarized the process by which the sample was selected in the hope that the Commission would soon release a more detailed explanation. That document has been released and offers a comprehensive description of the sample selection process.<sup>2</sup> I do not have the data to generate all of the independent variables from the original sample frame of 13,241, but the unweighted means of the independent variables generated from a 2005 pool of stations from the BIA MAPro dataset were very close to the weighted sample means of the independent variables calculated over the data used in the estimations.

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<sup>2</sup> See Study 4 at <http://www.fcc.gov/ownership/studies.html>

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In the estimations, I included a variable measuring the distance between the station and the parent's headquarters location. It was included simply to see if the proximity of the owner had any relationship to the quantity of informational programming aired by a station. Particularly, I wanted to see if the relationship (if there was any) changed as the dependent variable was changed from news to local news. The logic being that perhaps local owners are more likely to take an interest in the news and public affairs of the community in which they also live, and therefore would attach some importance to airing related content.

The distance between the station and the parent's headquarters was measured continuously. I had anticipated that the effect, to the extent there was one, would be nonlinear such that, holding other factors constant, once the parent headquarters was some distance away from the station, additional distance would have no marginal effect. At the same time, I didn't have a prior as to what that distance would be, and therefore any categorization of the distance variable would have been arbitrary. A possible alternative might be to consider proximity by including a categorical variable indicating whether the parent was headquartered (0) out-of-region, (1) in-region, or (2) in-market.

The reviewer brings up a good point regarding the correlation between the proximity variable and the number of in-market stations owned by the parent. It makes sense that perhaps the owner with the largest number of stations in a particular market is less likely to be headquartered there relative to the owner of a single station in the market. Indeed, a scatter plot shows that the two covariates do move together to some extent. Nonetheless, the two variables have a Spearman's  $\rho$  of 0.48, which does not lead me to consider them highly correlated.

## **Results**

Estimation results for each of the four specifications were presented using both the dependent variables derived from the EMR data as delivered, and from the audited data. I agree that the audited data should be superior, and therefore the results of fitting the model over the EMR data could have been omitted. The reason that I chose to include them was not to muddy the water, but rather to show the extent to which the results varied. Further, I was concerned that if I had only presented the results from the audited data, some readers would inevitably wonder why I chose to omit the others.

Regarding comparisons of the results for each specification using the two versions of the dependent variables, the reviewer made the following comment with respect to the results derived from the audited data:

Moreover, when these results are examined in Table's II-7, II-9, II-11 and II-13, it appears that that most of the ownership characteristics have no direct affect upon the quantity of news, local news, public affairs and local public affairs programming, in terms of statistical and economic significance.

I am not sure that I understand this comment. The extent to which there are any statistically significant relationships between the ownership covariates and the dependent variables is explained in the discussion of the results. It was there noted, correctly I believe, that the differences between the results presented in Tables II-6 and II-7 as well as the differences between Tables II-8 and II-9 are negligible. That is, for news and local news, the signs, magnitudes and p-values vary only slightly between the EMR data estimates and the audited data estimates. For the public affairs estimations in general, there were very few meaningful relationships between ownership structure and the quantity of public affairs programming regardless of the dataset used to develop the dependent variable. The control variables generally show more significance in the audited data estimations, but among the ownership variables, some of the p-values are greater and some are smaller relative to the EMR estimations. Ultimately, it doesn't seem to me that when examining the ownership variables exclusively, the choice of the dataset impacted the results in such a way that it is possible to say that one set of results shows a better fit, overall, than the other.

## **Conclusions**

The reviewer is accurate in his characterization of the overall findings. Regarding the reviewer's specific comments, I agree that it does not necessarily follow that an owner with many in-market stations has more market power and a larger market share than an owner with a single in-market station. Because of the formats chosen or signal strengths, an owner with two in-market stations could easily have a smaller audience, and thus be relatively less able to attract advertising (or contributions) than an owner with a single, highly-rated in-market station. Presumably, the latter owner would be in a better position to invest in producing or acquiring news programming and therefore more likely to air news, all else equal. At the same time, each owner faces a different problem in terms of how to position the programming of his or her

station(s) in market space. As the reviewer notes, to learn more about this issue it will be necessary to impose more structure on the problem and possibly bring additional data to bear. At this stage, the focus of the paper is largely a presentation of an empirical analysis of the extent to which relationships exist.