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**Do Local Owners Deliver More Localism?
Some Evidence From Local Broadcast News**

Working Paper

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Abstract

In the interest of pursuing localism, the FCC chose to locally license and encourage local ownership of television stations, sacrificing channel capacity and diminishing diversity and competition. To assess some of the gains of such a policy, we estimate the impact of broadcast television station characteristics on the number of total news seconds, local news seconds, local on-location news seconds, and the ratio of local to total news seconds. Using OLS results, we find that local ownership adds almost four minutes of local news, and almost three minutes of local on-location news. Moreover, local ownership increases the ratio of local to total news seconds by over 6%.

1. Introduction

The allocation of broadcast licenses (both television and radio) by the Federal Communications Commission had some intent of promoting localism. However, this localism objective, and the assignment of television to local communities, had at least one significant opportunity cost: a greater number of national networks and hence a greater number of VHF channels for residents of most locales. Given the constraints imposed by available spectrum and power, every resident in the US could have accessed six national VHF channels; instead the available frequencies were assigned to local channels, precluding additional national networks and limiting residents of many localities to far less than six VHF channels.¹ This illustrates a tension between the FCC's three policy objectives of localism, diversity and competition. Specifically, promoting localism diminished diversity and competition, by reducing the number of VHF channels available to most US residents. What localism benefits did the FCC's policy provide in return for this trade-off?

In this paper, we construct a measure of localism and analyze the actual *output* of local broadcast news stations using a highly-granular database of local broadcast news content. We then relate our measure of local content in broadcast news back to variables of interest, including ownership structure. We find that local ownership of television stations adds almost four minutes of local news; almost three minutes of total news; and almost three minutes of local on-location news. Finally, local ownership increases the ratio of local to total news seconds by over 6%.

We organize the paper as follows. In Section Two, we briefly summarize the regulatory history and literature relating directly to the question of localism. In Section Three, we introduce our measure of localism. In Section Four, we discuss our data and methodology. In Section Five, we present our results. In

¹ Some may contend that the modern MVPD universe makes irrelevant the concern over an additional one-to-six VHF channels. However, because a single VHF channel can be subdivided into several digital channels, the upcoming transition to digital increases the opportunity cost of each lost VHF channel.

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Section Six, we make some concluding remarks and discuss directions for future research.

2. Localism and the Federal Communication Commission

Adopted on April 11, 1952, the FCC's Sixth Report and Order, in Docket 8736 and 8975, assigned television spectrum using "five priorities."² The five priorities were: (1) provide at least one television station to all parts of the United States; (2) provide each community with at least one television broadcast station; (3) provide a choice of at least two television services to all parts of the United States; (4) provide each community with at least two television broadcast stations; (5) assign any channels which remained under the foregoing priorities to the various communities depending on the size of the population of each community, the geographical location of such community, and the number of television services available to such community from television stations located in other communities.

The five priorities were originally expounded in the March 22, 1951, Third Notice of Proposed Rule Making. Interestingly, these principles may be based on a facially innocuous misquoting of the 1934 Act. The Third Notice said that it had "...endeavored to meet the twofold objective set forth in Sections 1 and 307(b) of the Communications Act of 1934, to provide television service, as far as possible to all people of the United States and to provide a fair, efficient, and equitable distribution of television broadcast stations to the several states and communities." However, Section 307(b) of the 1934 Federal Communications Act states that "...the Commission shall make such distribution of licenses, frequencies, hours of operation, and of power among the several States and communities as to provide a fair, efficient, and equitable distribution of radio **service** to each of the same" (emphasis added).

This may have implications for policymaking. Had the FCC licensed the television spectrum nationally, then all viewers in all localities could have

² Paragraph 63.

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received 6 VHF channels, which would have carried 6 national television networks. By licensing stations locally, the FCC created a less equitable distribution of service for viewers: due to spectrum scarcities viewers in smaller localities received fewer VHF channels. Thus, changing a single word in the quotation of Section 307 (b) of the 1934 Act may have committed the FCC to pursue a licensing policy that violated the text of the Act.³ Aside from legal issues, in pursuing priority (2) to guarantee at least one channel to each locality and (4) to guarantee at least two channels to each locality (in combination with rules capping ownership at five VHF stations), the FCC traded channel space, which would have provided more competition and diversity, for locally-licensed and locally-owned channels.

Our study suggests that local ownership of broadcast television stations appears to promote greater localism in local news content than non-local ownership, and especially network owned-and-operated stations. We suggest that there is a simple reason for this: economies of scale in program distribution favor non-local content. Given a fixed cost of producing news content, multi-station owners can spread those fixed costs over more stations by distributing the same content across many localities. This content will be non-local for most localities. Single-market local owners cannot capture these efficiencies, and thus a local owner has a higher cost of providing non-local content. This higher cost, *ceteris paribus*, induces the local owner to favor local content. Moreover, a single-market local owner can only access local advertisers, which may lower the opportunity cost of providing programming. Therefore, the local owner may provide more local programming.⁴

The literature relating to political rationales for localism includes the works of Briffault (1988, 1990), Collins (1980), Pateman (1970), Frug (1980), Cook (1998), McChesney (1993), and Napoli (1997a, 1998a, 2001). Hamilton (2003) summarizes much of the literature relating to the political economy of

³ In fairness to the FCC, this interpretation may have been motivated by their reading of Congressional intent. Given the FCC's reliance on annual Congressional appropriations, Congressional intent may motivate the FCC more than the text of Congressional statutes.

⁴ There is a possibility that some of this non-local content may be more appealing to viewers than some local content.

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news production. Much of this literature explores the relationship between localism and the diffusion of political power, and posits media organizations as critical political institutions. In particular, this literature suggests that local media provide incentives for political participation as well as information that is voter-relevant. In a novel study, George and Waldfogel (2002) find that an increase in local penetration by the New York Times decreases local penetration by the local newspaper, which in turn reduces participation in local elections. This finding provides empirical evidence that consumption of local media may confer positive externalities. The literature relating to cultural rationales for localism includes the works of Briffault (1988), Frug (1980), Bernard (1973), Donner (1998), Neuman (1991), Morgan (1986), Emig (1995) and Napoli (2001). Much of this literature focuses on distinctive cultural values and traditions within local communities, and the function media plays in reinforcing or diminishing these values and traditions.

3. A Definition and Measure of Localism

As we noted above, we utilize a new database of actual news stories broadcast on local television news and establish a set of necessary and sufficient conditions for defining a given news story as local. Our definition and measure of localism is determined, in part, by the delineation of designated market areas (DMA) as determined by Nielsen Media Research, an independent, third-party audience measurement system. According to Nielsen, “In designing the DMA regions, Nielsen Media Research uses proprietary criteria, testing methodologies and data to partition regions of the United States into geographically distinct television viewing areas, and then expresses them in unique, carefully defined regions that are meaningful to the specific business we conduct.”⁵ The “specific business” referred to above is the sale of advertising time and space to advertisers. According to the California Newspaper Publishers Association:

⁵ Federal Communications Commission document, Letter from Nielsen Media Research to the Commission, April 3, 2003, 98-206. Geographic continuity is a standard feature of all 210 DMAs except three.

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DMA is a term used by advertising agencies to define specific geographical areas where groups of people tend to live, work and conduct their normal day-to-day activities similar to others in the same general region. DMA boundaries are often defined by significant geographical changes in a region's landscape such as mountain ranges, deserts, or sparsely populated areas. These "natural barriers" often tend to create different and unique lifestyles among entire populations of people, creating unique and identifiable designated market areas. Each DMA generally has its own unique market characteristics and measurable consumer media usage patterns used by media buyers to help identify the newspapers, TV and radio stations most likely to reach the audience targeted by the client.⁶

In what follows, we base our measure of localism on the conceptual framework established by the construction of designated market areas. Thus, the "necessary" part of our necessary and sufficient conditions for localism is that the story takes place within the DMA.

A second element of localism, our "sufficient" condition, concerns the news stories themselves, i.e., when is a story reported by a station within the DMA a "local" story? Our decision rule is that the story is local if the story is of at least marginally greater importance to the mean individual residing within the DMA, and if we believe the mean individual within the DMA would identify the story as local. Thus, it is the value of the story to the individual within a DMA, and that individual's perception of the story as local relative to individuals in other DMAs, that gives the story its "sufficient" local context.⁷ For example, Federal budget negotiations in Washington, D.C., take place within that DMA and, given the large population of local interested parties, the mean individual in the Washington, D.C., DMA is likely more interested in the Federal budget negotiations than the mean individual in other DMAs. However, even the mean individuals in the Washington, D.C., DMA would likely perceive the Federal budget negotiations as a national issue. Hence, Federal budget negotiations are

⁶California Newspaper Publishers Association, http://www.cnpa.com/snap/dma_map.htm

⁷ Everyday weather and sports were not included in the original data set, and are not reflected in our analysis. However, exceptional weather events (e.g., tornado, avalanche, heat wave, sandstorm, blizzard, fire, flood, earthquake, hurricane, typhoon, tsunami, meteor impacts), were covered as news.

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classified as non-local even within the Washington, D.C., DMA. Note that these “hard cases” are the exception rather than the rule.

4. Data and Methodology

Our database consists of 4,078 individual news stories from five different days, with length measured in seconds, drawn from sixty stations across 20 DMAs.⁸ We categorized each story as either local or non-local, based on the criteria given in Section 3.⁹ We also categorized the stories as to whether the station utilized live location reporting on those stories. This yielded 275 station-level observations on the number of total news seconds, the number of local news seconds, and the number of local live location seconds.¹⁰

We adjust for all “circumstance of time and place” by creating a series of 97 dummy variables that interact the day and the DMA.^{11,12} This allows us to adjust for all unobserved heterogeneity created by events on any particular day in any particular DMA (e.g., a fire in Wichita on March 9th).

⁸ The data, all from 1998, were gathered by the Project for Excellence in Journalism, and a comprehensive description can be found at <http://www.journalism.org/resources/research/reports/ownership/default.asp>. According to the Project for Excellence in Journalism, “market selection was performed based on Nielsen Media Research market rankings. Markets were grouped into four quartiles on the basis of the number of television households in each. Markets were then chosen randomly within each quartile, after stratification in order to ensure geographic diversity. Within each market, the highest-rated half-hour timeslot for news was studied.” <http://www.journalism.org/resources/research/reports/ownership/methodology.asp>.

⁹We classified the news clips before we observed the station characteristics (or even the stations) that comprise our set of independent variables. So long as researchers generate the dependent variables before the researchers observe the independent variables and before the researchers design the experiment, then the researchers have not introduced bias into the experiment.

¹⁰ Not every station was in the sample on every day, which is why we obtain 275 (not 300) station level observations. Appendix A displays the list of stations, their DMAs, and their owners. In addition, Appendix A lists the means, minima, and maxima of the number of total news seconds, local news seconds, and local live location news seconds.

¹¹ Not all DMAs are present in every sample day; therefore we have a total of 98 DMA day pairs (rather than 100).

¹²These dummies adjust for all DMA characteristics, including market size. Because we have DMA day dummies and all of the stations in a given DMA on a given day share the same time slot, our DMA dummy completely accounts for all time slot variation.

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We regress the number of seconds of total news, local news, and on-location local news on thirteen station characteristics, which we list and describe in Table One.¹³ We derive the data on station characteristics from the May 1998 BIA Television Database and the website Business.com.

Table One: Independent Variable Names and Descriptions

Variable	Description
Owned & Operated	Dummy Variable Indicating O&O
Own Cities	Total Number of DMAs in Which the Station Owner Owns a Station
Local Owner	Dummy Variable Indicating Whether the Station Owner is Headquartered Within the DMA
Owns Newspapers	Dummy Variable Indicating Whether the Station Owner Owns Newspapers in Other DMAs
Cross Radio	Dummy Variable Indicating Whether the Station Owner Owns a Radio Station Within the DMA
UHF	Dummy Variable Indicating Channel Above 13
(Local Owner) * (Own Cities)	The Total Number of DMAs in Which a Local Station Owner Owns a Station
(Local Owner) * (Owns Newspapers)	Interaction Dummy Indicating a Local Owner That Owns Newspapers in Other DMAs
(Local Owner) * (Cross Radio)	Interaction Dummy Indicating a Local Owner That Owns a Radio Station Within the DMA

Some may raise concerns about sample selection. We only observe news seconds for those stations airing local news during our sampled time slot. What if locally-owned original three network O&Os/affiliates are less likely to air local news at all, because they don't enjoy the cost advantages in non-local news content that may stem from non-local ownership? This could bias standard regression estimates and pose a serious problem.

However, we observe all of the original three network affiliates/O&Os in our sample DMAs. This is not surprising, as the original three networks air national news broadcasts and air a 10:00PM-11:00PM hour of network programming, both of which provide their local stations with two unique characteristics that lead all of these stations to air local news at particular times

¹³ Our sample consists of stations from a stratified random sample of markets. We can therefore consistently estimate the effect of our exogenous variables on localism, because any possible sample selection takes place on an independent variable, and our independent variables are exogenous. As Wooldridge (2002, p.555) notes: "When x is exogenous and we apply OLS to the selected sample...we can select the sample on the basis of explanatory variables." Since the selection indicator does not correlate with the dependent variable (which means that $E(u|x,s)=0$), our estimates are consistent.

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during the day. This means that if we did observe all of the characteristics of all of the stations in all of our markets and ran a first-stage Heckman selection probit, being an “original three” network O&O/affiliate (or, equivalently, having the unique characteristics thereof) would be a perfect predictor of selection success. We can therefore employ a sample consisting only of “original three” network affiliates and employ standard regression techniques, because the inverse mills ratio derived from the first-stage Heckman selection probit would not vary among these observations.

5. Estimation and Results

We estimate four models: two OLS models estimating the effect of station characteristics on total news seconds and local news seconds; one Tobit model estimating the effect of station characteristics on local on-location news seconds, and a fractional logit model estimating the effect of station characteristics on the fraction of local to total news. For the first two models (total news and local news), we also employ robust regression to adjust for possible outliers.¹⁴ Specifically, we estimate:

$$(1) \text{ Total News Seconds} = \alpha_0 + \alpha_1(\text{Owned \& Operated}) + \alpha_2(\text{Own Cities}) + \alpha_3(\text{Local Owner}) + \alpha_4(\text{Owns Newspapers}) + \alpha_5(\text{Cross Radio}) + \alpha_6(\text{Local Owner * Own Cities}) + \alpha_7(\text{Local Owner * Owns Newspapers}) + \alpha_8(\text{Local Owner * Cross Radio}) + X_{DMA-Day} + \varepsilon_\alpha$$

$$(2) \text{ Total Local News Seconds} = \beta_0 + \beta_1(\text{Owned \& Operated}) + \beta_2(\text{Own Cities}) + \beta_3(\text{Local Owner}) + \beta_4(\text{Owns Newspapers}) + \beta_5(\text{Cross Radio}) + \beta_6(\text{Local Owner * Own Cities}) + \beta_7(\text{Local Owner * Owns Newspapers}) + \beta_8(\text{Local Owner * Cross Radio}) + X_{DMA-Day} + \varepsilon_\beta$$

$$(3) \text{ Total On Location Local News Seconds} = \varphi_0 + \varphi_1(\text{Owned \& Operated}) + \varphi_2(\text{Own Cities}) + \varphi_3(\text{Local Owner}) + \varphi_4(\text{Owns Newspapers}) + \varphi_5(\text{Cross Radio}) + \varphi_6(\text{Local Owner * Own Cities}) + \varphi_7(\text{Local Owner * Owns Newspapers}) + \varphi_8(\text{Local Owner * Cross Radio}) + X_{DMA-Day} + \varepsilon_\varphi$$

$$(4) \frac{\text{Local News Seconds}}{\text{Total New Seconds}} = \vartheta_0 + \vartheta_1(\text{Owned \& Operated}) + \vartheta_2(\text{Own Cities}) + \vartheta_3(\text{Local Owner}) + \vartheta_4(\text{Owns Newspapers}) + \vartheta_5(\text{Cross Radio}) + \vartheta_6(\text{Local Owner * Own Cities}) + \vartheta_7(\text{Local Owner * Owns Newspapers}) + \vartheta_8(\text{Local Owner * Cross Radio}) + X_{DMA-Day} + \varepsilon_\vartheta$$

¹⁴ To the degree observations are outliers, Robust Regression weights those observations inversely.

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Table Two reports the results of Regression 1 relating the number of total news seconds to station characteristics. Columns 2 and 3 in Table Two report the OLS and Robust Regression coefficient of each variable, which is the number of seconds of total news added or subtracted by a station characteristic. Interpreting the statistically significant OLS results, we find that local ownership adds over 169 seconds (almost three minutes) of total news to the local broadcast.¹⁵ However, this result is not robust to Robust Regression. This implies that an outlier or outliers may drive the OLS results.

When the owner is local, within-DMA cross-radio ownership subtracts over 120 seconds (over two minutes) of total news to the local broadcast. Finally, the number of total news seconds declines almost 9 for each additional DMA in which the owner has a television station. However, these results are not robust to Robust Regression. This implies that an outlier or outliers may drive these OLS results.

¹⁵ We obtain 169.20 seconds by adding the estimated local owner effect to the estimated (local owner * own cities) effect from having a local owner in one city.

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Table Two: Number of Total News Seconds to Station Characteristics

Variable	OLS Regression Coefficient (t-statistic)	Robust Regression Coefficient (t-Statistic)
Owned & Operated	-37.48 (-1.33)	-43.74 (-1.51)
Own Cities	-1.17 (-0.89)	0.11 (0.12)
Local Owner	178.73** (2.16)	-66.73 (-1.64)
Owens Newspapers	-6.97 (-0.28)	11.46 (0.67)
Cross Radio	-6.46 (-0.30)	-23.95 (-0.91)
UHF	-5.48 (-0.18)	31.92 (1.65)
(Local Owner) * (Own Cities)	-8.53* (-1.87)	-1.70 (-0.44)
(Local Owner) * (Owens Newspapers)	15.87 (0.27)	39.44 (0.75)
(Local Owner) * (Cross Radio)	-124.50* (1.86)	50.65 (1.12)
Observations = 275	R ² = 0.70 Robust Standard Errors	

* = Significant at the 10% Level; ** = Significant at the 5% Level; *** = Significant at the 1% Level

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Table Three reports the results of Regression 2 relating the number of local news seconds to station characteristics. Interpreting the statistically significant results, owned and operated stations air almost 93 fewer seconds (over one and a half minutes) of local news. The number of local news seconds declines by almost three seconds for each DMA in which the owner has a television station. Local owners air over 223 more seconds (almost four minutes) of local news.¹⁶ The number of local news seconds increases by over 67 seconds (over one minute) if a non-local station owner also owns a radio station within the DMA. Finally, if the local owner also owns a radio station within the DMA, the number of seconds of local news declines by over 268 seconds (over four minutes).¹⁷ The non-local cross-radio result is the only result that is not robust to Robust Regression. Note, however, that the Robust regression cross-radio coefficient is still positive, indicating that any outliers do not move against the relationship in the rest of the data.

¹⁶ We obtain 223.36 seconds by adding the estimated local owner effect to the estimated (local owner * own cities) effect from having a local owner in one city.

¹⁷ We obtain 268.02 seconds by adding the estimated (local owner*cross-radio) effect to the cross-radio effect.

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Table Three: Number of Local News Seconds to Station Characteristics

Variable	OLS Regression Coefficient (t-statistic)	Robust Regression Coefficient (t-Statistic)
Owned & Operated	-92.75** (-2.43)	-68.25* (1.68)
Own Cities	-2.88* (-1.88)	-2.83** (-2.29)
Local Owner	226.24*** (3.00)	113.88** (1.99)
Owens Newspapers	-16.04 (-0.56)	9.36 (0.39)
Cross Radio	67.33** (2.17)	44.06 (1.20)
UHF	-42.87 (-1.26)	-23.64 (0.87)
(Local Owner) * (Own Cities)	-5.30 (-1.11)	-3.26 (-0.60)
(Local Owner) * (Owens Newspapers)	-21.15 (-0.36)	7.56 (0.10)
(Local Owner) * (Cross Radio)	-335.35*** (-5.21)	-227.48*** (-3.60)
Observations = 275	R ² = 0.68 Robust Standard Errors	

* = Significant at the 10% Level; ** = Significant at the 5% Level; *** = Significant at the 1% Level

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Table Four reports the results of Tobit Regression 3 relating the number of local on-location news seconds to station characteristics. Local ownership adds almost 178 local on-location news seconds (almost 3 minutes).¹⁸ If the local owner also owns a radio station within the DMA, the number of seconds of local news declines by over 198 seconds (over three minutes). Finally, UHF stations air over 51 seconds (almost one minute) more local on-location news seconds.

Table Four: Tobit Regression, Number of Local On-Location News Seconds to Station Characteristics

Variable	Coefficient	t-Statistic
Owned & Operated	14.15	0.39
Own Cities	-0.26	-0.23
Local Owner	179.34***	3.47
Owens Newspapers	-4.01	-0.18
Cross Radio	29.91	0.89
UHF	51.25**	2.09
(Local Owner) * (Own Cities)	-1.49	-0.31
(Local Owner) * (Owens Newspapers)	12.93	0.19
(Local Owner) * (Cross Radio)	-198.33***	-3.47
Observations = 275	Pseudo R ² = 0.07	

* = Significant at the 10% Level; ** = Significant at the 5% Level; *** = Significant at the 1% Level

Table Five reports the results of fractional logit Regression 4, relating the ratio of local news to total news to station characteristics.¹⁹ Interpreting the statistically significant coefficients, the fraction of local news is 5% less on owned

¹⁸ We obtain 177.85 seconds by adding the estimated local owner effect to the estimated (local owner * own cities) effect from having a local owner in one city.

¹⁹ Papke and Wooldridge (1996) detail the fractional logit estimation technique. Papke (2004) outlines the Stata command for implementing the fractional logit technique. Stata 8 users should add the command "IRLS" following the comma in the GLM command to employ maximum quasi-likelihood estimation.

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and operated stations. Local ownership increases the fraction of local news by over 6%. Ownership of a radio station within the DMA increases the fraction of news seconds devoted to local news by almost 6%. Finally, if a local owner owns radio station within the DMA, the fraction of news seconds devoted to local news decreases by almost 18%.²⁰

Table Five: Local News as a Fraction of Total News
(In Column 2, Percentages are Expressed as Whole Numbers)

Variable	Marginal Effect	Z-Statistic
Owned & Operated	-5.04%**	-2.42
Own Cities	-0.14%	-1.50
Local Owner	6.41%**	2.19
Owens Newspapers	-0.64%	-0.38
Cross Radio	5.74%***	3.44
UHF	-3.56%	-1.39
(Local Owner) * (Own Cities)	0.04%	0.15
(Local Owner) * (Owens Newspapers)	-3.15%	-0.76
(Local Owner) * (Cross Radio)	-23.40%***	-4.58
Observations = 275		

* = Significant at the 10% Level; ** = Significant at the 5% Level; *** = Significant at the 1% Level

6. Conclusion

We estimate station characteristics' impact on the number of total news seconds, local news seconds, local on-location news seconds, and the fraction of total news seconds devoted to local news. We find that local ownership adds almost four minutes of local news, almost three minutes of total news, and almost three minutes of local on-location news. Local on-location news seconds reflects a greater degree of actual investment in local news coverage, since on-location

²⁰ We obtain 17.66% by adding the Cross-Radio marginal effect to the [(Local Owner) * (Cross Radio)] marginal effect.

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reporting requires the dedication of specific assets (e.g., camera crews, reporters, vehicles, etc.).

Ownership of a radio station by a local owner attenuates the effect of local ownership on news coverage. Specifically, we find that radio cross-ownership by the local owner decreases local news coverage by over four minutes, and decreases local on-location news coverage by over three minutes. Multi-station ownership across DMA's also diminishes the effect of local ownership. For each additional DMA in which the local owner owns a television station, the amount of total news decreases by almost 9 seconds.

As we suggested in this paper, the ownership rules that have emerged from recent FCC rule-makings and subsequent Congressional action do not appear to have promoted localism.²¹

Interestingly, there may be a broadcast policy that promotes localism without diminishing diversity and competition: if the observed relationship between local ownership and local news coverage holds for radio, then expansion of low power FM would enhance localism. In addition, because such expansion would increase the number of radio stations, then listeners would also enjoy enhanced diversity and competition. A recent FCC study conducted by the MITRE Corporation suggests that the FCC could license more low power FM radio stations without causing interference with extant signals. Thus, an expansion of low power FM may represent a rare "free lunch" opportunity for regulators, allowing the FCC to expand localism, diversity, and competition simultaneously.

²¹ This finding has no clear implications for consumer welfare, since there is no clear relationship between localism and consumer welfare.

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