**Methods**

**Design and Data**

The study is based on a 17-wave, rolling cross-sectional survey administered in the United States (*N* = 1,965). Respondents were recruited by Qualtrics and completed the survey online between September 3 and November 1, 2020 (Incidence Rate = 100%; Cooperation Rate (CR3) = 70%; AAPOR, 2016). Each survey wave (i.e., sampling frame) was balanced according to quotas for age, race, gender, and census region according to the 2018 American Community Survey (Table A1 in the online appendix). These data were weighted by non-quota demographics including education and income (see Table A2 online). Missing values were imputed using a chained equations technique (Fully Conditional Specification; see van Buuren & Groothuis-Oudshoorn, 2011).

**Measures**

***Open-Ended News Use Questions***

Survey respondents were asked three times to “write the name of a news outlet (e.g., The New York Times or nytimes.com, Fox News or foxnews.com, WBRC Birmingham) that you used in the past week.” These open-ended news use measures require respondents to engage in free recall, which is more cognitively demanding than close-ended measures that rely on cued recall (Kruikemeier et al., 2018). But because of this additional demand, open-ended news use measures likely reduce random measurement error arising from patterned response or poor recall associated with close-ended news use measures (Prior, 2009). The responses were cleaned and categorized to indicate discrete news outlets (e.g., “*New York Times*” or “Fox News”), with broader categories created for responses where data reduction reduced noise and enhanced clarity (e.g., television call letters, channel numbers, or network affiliations were combined into a “local television” category). In all, respondents named XX distinct outlets/categories (see Table B2 online for a list).

***News Ideology***

*News ideology* is the primary outcome of interest, and it is measured at both the organizational and individual levels. At the organizational level, the news outlets named in the open-ended measures described above were coded for ideology (-3 = *Very Liberal*, 0 = *Neutral*, 3 = *Very* *Conservative*) by three trained coders (Krippendorf’s alpha > .90 for 10% of the list). Based on prior literature (Barnidge et al., 2020; 2021; Stroud, 2008), coders were instructed to adhere to a hierarchical guideline for coding organizational ideology: (1) the outlet’s ideology as identified by existing scholarship (e.g., Budak et al., 2016; Niculae et al., 2015; Otero, 2018); (2) if not identified in prior literature, the outlet’s stated ideology; (3) if not stated, the balance of candidate endorsements dating back to 2012; (4) if no endorsements, ideological stances in editorials about gun control, abortion, immigration, and same-sex marriage. If coders could find no information based on these criteria, the outlet was assumed to be neutral. The final organizational-level variable ranges from -2.0 to 2.2, with a mean of -0.1 (*SD* = 0.8).

At the individual level, each respondent was assigned up to three coded ideology scores based on the outlets they named. These scores were then averaged for each respondent, creating an index of individuals’ news ideology as indicated by their named outlets (*M* = -0.1, *SD* = 0.8). NOTE ABOUT VARIATION ACROSS FRAMES.

***Individual Ideology***

Individuals’ political ideology was measured with three survey items asking respondents to place themselves on an 11-point, L-R scale (-5 = *Liberal*, 0 = *Neutral*, 5 = *Conservative*). These item has a mean of 0.2 (*SD* = 3.0).

***Control Variables***

Regression analyses control for demographics, including *age* (*M* = 3.0, *SD* = 1.6 where 1 = *18-24* and 8 = *85 or older*), *gender* (51% female, including 1 non-binary respondent), *race* (40% persons of color, not including white-identifying Hispanics), *education* (*M* = 4.5, *SD* = 1.8 on a 7-point scale where 1 = *No high school* *diploma* and 7 = *Post-graduate degree*) and *income* (*M* = 4.7, *SD* = 2.3 on an 8-point scale where 1 = *Less than $15,000* and 7 = *More than $150,000*). Finally, analyses control for *political interest*, which was measured with three items asking how interested respondents are (1 = *Not at all* and 5 = *Very*) in politics, news, and community (*M* = 3.5, *SD* = 1.0).

**Analysis and Results: INCORPORATE RQs/Hs**

Following previous work on audience overlap studies (e.g., Kzsiak, 2011; Mukerjee et al., 2018), we constructed a network projection of audience overlap from the open-ended news use measures. Defining audience overlap as the extent to which the audience for one news organization is contained within the audience of another, the network projection is constituted by individual respondents who are connected via shared attention to news organizations, which occurs when two or more respondents name the same news organization. Thus, news organizations act as nodes in the network, and a respondents names two organizations, the projection creates an edge between the two nodes. The more frequently the organizations are co-mentioned, the larger the edge weight of the connection between them. Based on recommendations from prior literature, the projected network was filtered to reduce systematic measurement error by removing connections with an edge weight < 2 (Barnidge et al., 2021). While studies of audience attention networks employing close-ended survey measures use other filtration methods designed to reduce non-systematic measurement error (Mangold & Scharkow, 2020), open-ended data present a different problem, that of systematic measurement error, which arises from systematic tendencies to over- or underestimate phenomena of interest (King et al., 1994). Therefore, we rely on filtration methods specifically tailored to this measurement issue.

After filtering the network, we ran a series of clustering algorithms on the projection that: a) best fit the theoretical assumptions for audience fragmentation; and b) produced the most consistent results. Louvian clustering met these criteria, producing three stable “news niches” (see Figure 1), which we have labeled according to the organizations they comprise (see Table 1): (1) *right-leaning cable* *and television*, which is characterized by high levels of attention to television news (both national broadcast and cable news on the left and right), as well as prominent right-wing or right-leaning digital news organizations (e.g., Breitbart and the *New York Post*); (2) *left-leaning elite press*, comprising prominent coastal prestige newspapers including the *New York Times* and the *Washington Post*, along with left-leaning digital news organizations such (e.g., Huffington Post and Politico);and (3) *local—aggregators*, which features heavy reliance on news aggregators, local media, and social media in addition to prominent centrist newspapers (e.g., *USA Today* and the *Chicago Tribune*). After obtaining these categories from the cluster analysis, respondents were assigned a nominal code representing their news niche based on the extent to which their responses to the open-ended news attention measures aligned with one of the categories (cable: *n* = 905; elite: *n* = 195; local: *n* = 344). Respondents whose answers did not fall cleanly into one of the three categories were considered to have no niche (*n* = 564).

[Insert Figure 1 and Table 1 about here]

Having identified the three news niches, one-way ANOVA was used to assess the between-group and within-group variance in news ideology at both the organizational and individual levels. A visual inspection of the projection network shows considerable overlap among news niches (see Figure 1), which raises the question of whether there are differences between the niches in terms of news ideology. The answer to this question is unequivocally yes. At both the organizational and individual levels, the between-group variance is substantially larger than the within-group variance (see Table 2), resulting in significant *F*-statistics (at the organizational level, *F* (2) = 5.19, *p* = 0.011; at the individual level, *F* (2) = 81.20, *p* < 0.001), which can be interpreted as the ratios of between-group to within-group variance. These results indicate that the differences between the news niches are larger than differences among individuals within each niche. A closer inspection of the means for news ideology show that at both levels, the mean of the *elite* group is different from the means of the other two groups (see Figure 2), with a significantly more liberal news ideology (*M =* -0.79 versus a grand mean of -0.10 at the organizational level, and *M* = -0.73 versus a grand mean of -0.10 at the individual level). Meanwhile, the other two groups have similar means, but different variances. The *local* group displays a relatively small variance estimate with cases tightly clustered around the mean (*Var*. = 0.09 at the organizational level and *Var*. = 0.15 at the individual level), whereas the *cable* group displays a relatively large variance estimate with cases widely dispersed around the mean (*Var.* = 1.88 at the organizational level and 0.79 at the individual level). Thus, the three niches are substantially different from one another: The elite niche is solidly liberal with both individuals and organizations ranging from left-leaning to solid left; the local niche is primarily centrist, with individuals and organizations tightly clustered around the neutral point; and the cable niche is the most ideologically diverse, with a centrist average but also a broad array of individuals and organizations on either side.

[Insert Table 2 and Figure 2 about here]

Next, we used multilevel modeling to assess the effects of individual ideology (i.e., political preferences) on news ideology (i.e., the valence of news exposure), while also accounting for how those effects are shaped by the news niches. Because the time-ordered and grouped data structure could produce measurement invariance, it is necessary to include both sampling frame and news niche as grouping variables (3 niches x 17 frames = 51 groups). Level-one predictors are centered on the group mean to ease interpretation of the fixed effects. Results are shown in Table 3. The first model in the table shows the baseline fixed and random effects of individual ideology. The fixed effect is positive and statistically significant (*b* = 0.06, *SE* = 0.01, *p* < 0.001). But while the intercept for news ideology does vary between groups (*Var.* = 0.09), the random effect of individual ideology is close to zero (*Var.* = 0.00), resulting in a relatively low ICC of 0.17. These result indicate that while the mean for news ideology may vary across groups, the effect of individual ideology on news ideology is relatively stable.

[Insert Table 3 about here]

The next two models in the table layer on contextual effects for audience ideology and organizational ideology. These can be interpreted as characteristics of news niches: Audience ideology is calculated as the group mean of individual ideology within each niche, and organizational ideology is calculated as the group mean of news ideology within each niche. Thus, the former captures the effects of *the ideology of other people within a niche*, and the latter captures the effects of *the ideology of organizations with a niche*. As shown in the table, both effects are statistically significant and also substantially larger than the effect of individual ideology. For audience ideology, the effect is *b* = 0.43 (*SE* = 0.04, *p* < 0.001), and for organizational ideology, it is *b* = 1.02 (*SE* = 0.09, *p* < 0.001). These effect sizes are compared in a dot-and-whisker plot in Figure 3, which clearly shows that the organizational effect is the largest and the individual effect is the smallest, with the audience effect in between. Therefore, these results show that while an individual’s own ideology matter when it comes to shaping the ideological valence of their news exposure, the ideologies of organizations and other audience members within their news niche has a larger effect.

[Insert Figure 3 about here]

The final two models in Table 3 test whether individual ideology interacts with audience ideology and/or organizational ideology. Results show a marginal but non-significant interaction with audience ideology (*b* = 0.02, *SE* = 0.01, *p* < .10), and a statistically significant interaction with organizational ideology (*b* = 0.08, *SE* = 0.03, *p* < .01). These conditional effects are plotted in Figure 4, which shows that the positive effect of individual ideology is stronger where it aligns with audience and organizational ideology (with the caveat that the interaction with audience ideology is marginal).

[Insert Figure 4 about here]

**References**

American Association of Public Opinion Research (AAPOR). (2016). Standard definitions: Final dispositions of case codes and outcome rates for surveys. https://www.aapor.org/AAPOR\_Main/media/publications/Standard-Definitions20169theditionfinal.pdf

Barnidge, M., Gunther, A. C., Kim, J., Hong, Y., Perryman, M., Tay, S. K., & Knisely, S. (2020). Politically motivated selective exposure and perceived media bias. *Communication Research, 47*(1), 82-103.

Barnidge, M., Diehl, T., Sherrill, L. A., & Zhang, J. (2021). Attention centrality and audience fragmentation: An approach for bridging the gap between selective exposure and audience overlap. *Journal of Communication*, *71*(6), 989-921.

Budak, C., Goel, S., & Rao, J. M. (2016). Fair and balanced? Quantifying media bias through crowdsourced content analysis. *Public Opinion Quarterly, 80*(S1), 250-271.

King, G., Keohane, R. O., & Verba, S. (1994). *Designing social inquiry: Scientific inference in qualitative research*. Princeton University Press.

Kruikemeier, S., Lecheler, S., & Boyer, M. (2018). Learning from news on different media platforms: An eye tracking experiment. *Political Communication, 35*(1), 75-96.

Ksiazek, T. B. (2011). A network analytic approach to understanding cross-platform audience behavior. *Journal of Media Economics, 24*(4), 237-251.

Mangold, F., & Scharkow, M. (2020). How do filtering choices impact structures of audience networks? A simulation study using data from 26 countries. *Communication Methods & Measures, 14*(2), 125-144.

Mukerjee, S., Majó-Vázquez, S., & González-Bailón, S. (2018). Networks of audience overlap

in the consumption of digital news. *Journal of Communication*, *68*(1), 26–50.

Niculae, V., Suen, C., Zhang, J., Danescu-Niculescu-Mizil, C., & Leskovec, J. (2015). Quotus: The structure of political media coverage as revealed by quoting patterns. In *Proceedings of the 24th International Conference on World Wide Web* (pp. 798-808). International World Wide Web Conferences Steering Committee.

Otero, V. (2018). Media bias chart: Version 4.0. https://www.adfontesmedia.com/intro-to-the- media-bias-chart/

Prior, M. (2009). Improving media effects research through better measurement of news exposure. *The Journal of Politics*, *71*(3), 893-908.

Stroud, N. J. (2008). Media use and political predispositions: Revisiting the concept of selective exposure. *Political Behavior, 30*(3), 341-366.

Van Buuren, S., & Groothuis-Oudshoorn, K. (2011). mice: Multivariate imputation by chained equations in R. *Journal of Statistical Software*, *45*, 1-67.

**List of Tables and Figures**

Figure 1

*Network Projection from Cluster Analysis*

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 1  *Organizational Niche Membership* | | | | | |
| **Niche 1** | | **Niche 2** | | **Niche 3** | |
| *Right-Leaning Cable & TV* | | *Left-Leaning Elite Press* | | *Local/Aggregators* | |
| ABC\*  BBC\*  Breitbart  CBS\*  CNBC\*  CNN\*  Fox | LA Times\*  MSNBC\*  NBC\*  Newsmax  NY Post  OAN  Right Sphere  Univision\* | Huffington Post  NY Times  Washington Post  Politico  NPR\*  Buzzfeed  International Media\*  Wall Street Journal\*  New Magazines\*  PBS\*  Left Sphere |  | Aggregators  Chicago Trib.  Local Paper  Local Radio  Local TV  Local Web  MSN  Neutral Sphere  Social Agg. | USA Today  Yahoo |
| \* Denotes organization that does not conform to theoretical expectations based on selective exposure. | | | | | |

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| Table 2  *Means and Variances for News Ideology at the Organization and Individual Levels* | | | | |
| Statistic | Local/Aggregators | Elite | Cable | Full Sample |
| **Organizational Level** | | | | |
| Mean | -0.10 | -0.79 | 0.41 | -0.10 |
| Variance | 0.09 | 0.27 | 1.88 | 1.08 |
| *N* | 11 | 11 | 15 | 37 |
| Between-Group Variance | 4.57 | | | |
| Within-Group Variance | 0.88 | | | |
| Test Statistic | *F* (2) = 5.19, *p* = 0.011 | | | |
| **Individual Level** | | | | |
| Mean | -0.07 | -0.73 | 0.03 | -0.10 |
| Variance | 0.15 | 0.15 | 0.79 | 0.62 |
| *N* | 344 | 195 | 905 | 1,444 |
| Between-Group Variance | 41.29 | | | |
| Within-Group Variance | 0.51 | | | |
| Test Statistic | *F* (2) = 81.20, *p* < .001 | | | |
| *Note*: Response variable has theoretical range of 6 (Min. = -3 ‘far left’ and Max. = 3 ‘far right’) and an observed range of 5.0 (Min. = -2.0, Max. = 3.0). Data weighted by education and income. | | | | |

Figure 2

*Boxplot of News Ideology at the Organizational and Individual Levels*



|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 3  *The Predictors of News Ideology at the Individual, Audience, and Organizational Levels* | | | | | | | | | | | | |
|  | Model 1 | | | Model 2 | | | Model 3 | | Model 4 | | Model 5 | |
| **Fixed Effects** | *b* | | *SE* | *b* | *SE* | | *b* | *SE* | *b* | *SE* | *b* | *SE* |
| Intercept | -0.21\*\*\* | | 0.05 | -0.14\*\*\* | 0.03 | | 0.00 | 0.03 | -0.14\*\*\* | 0.03 | 0.00 | 0.03 |
| Age | -0.04\*\*\* | | 0.01 | -0.04\*\*\* | 0.01 | | -0.04\*\*\* | 0.01 | -0.04\*\*\* | 0.01 | -0.04\*\*\* | 0.01 |
| Gender (1 = Female) | 0.01 | | 0.04 | 0.00 | 0.04 | | 0.00 | 0.04 | 0.00 | 0.04 | 0.00 | 0.04 |
| Race (1 = Person of Color) | -0.15\*\*\* | | 0.04 | -0.15\*\*\* | 0.04 | | -0.16\*\*\* | 0.04 | -0.15\*\*\* | 0.04 | -0.15\*\*\* | 0.04 |
| Education | -0.01 | | 0.01 | -0.01 | 0.01 | | -0.01 | 0.01 | -0.01 | 0.01 | -0.01 | 0.01 |
| Income | 0.00 | | 0.01 | 0.00 | 0.01 | | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 |
| Political Interest | -0.04\* | | 0.02 | -0.04\* | 0.02 | | -0.04\* | 0.02 | -0.04\* | 0.02 | -0.04\* | 0.02 |
| Individual Ideology | 0.06\*\*\* | | 0.01 | 0.06\*\*\* | 0.01 | | 0.06\*\*\* | 0.01 | 0.06\*\*\* | 0.01 | 0.07\*\*\* | 0.01 |
| **Contextual Effects** | *b* | | *SE* | *b* | *SE* | | *b* | *SE* | *b* | *SE* | *b* | *SE* |
| Audience Ideology |  | |  | 0.43\*\*\* | 0.04 | |  |  | 0.44\*\*\* | 0.04 |  |  |
| Organization Ideology |  | |  |  |  | | 1.02\*\*\* | 0.09 |  |  | 1.03\*\*\* | 0.09 |
| **Interactions** | *b* | | *SE* | *b* | *SE* | | *b* | *SE* | *b* | *SE* | *b* | *SE* |
| Individual Ideology \*  Audience Ideology |  | |  |  |  | |  |  | 0.02# | 0.01 |  |  |
| Individual Ideology \* Organization Ideology |  | |  |  |  | |  |  |  |  | 0.08\*\* | 0.03 |
| **Random Effects** | *Var*. | | | *Var.* | | | *Var.* | | *Var.* | | *Var.* | |
| Intercept Niche:Frame | 0.09 | | | 0.01 | | | 0.01 | | 0.01 | | 0.01 | |
| Individual Ideology | 0.00 | | | 0.00 | | | 0.00 | | 0.00 | | 0.00 | |
| Residual | 0.45 | | | 0.44 | | | 0.44 | | 0.44 | | 0.44 | |
| **Fit Statistics** |  |  | |  | |  |  |  |  | |  | |
| LR | -1,720.00 | | | -1,686.47 | | | -1,685.37 | | -1,688.34 | | -1,684.30 | |
| ICC | 0.17 | | | 0.02 | | | 0.02 | | 0.03 | | 0.02 | |
| *Notes*: Cell entries are parameter estimates from multilevel models (MLM) with random slopes and intercepts.  *N* = 1,444. Groups = 51 (3 niches by 17 frames). #*p* < .10,\**p* < .05, \*\**p* < .01, \*\*\**p* < .001. Data weighted by education and income. Variables are group-mean centered. | | | | | | | | | | | | |

Figure 3

*Dot-and-Whisker Plot Showing Effects on News Ideology at the Individual, Audience, and Organizational Levels*



Figure 4

*Conditional Effects of Individual Ideology at Various Levels of Audience and Organizational Ideology*

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**Appendix A:**

**Sample Demographics and Weighting Scheme**

|  |  |  |
| --- | --- | --- |
| Table A1  *Demographic Profile of Survey Sample and Target Population* | | |
|  | Current Survey | U.S. Census Bureau:  2016 American Community Survey | |
|  | (%) | (%) | |
| Gender |  |  | |
| Male | 49.0 | 49.2 | |
| Female | 51.0 | 50.8 | |
| Age (median) | 35-44 | 37.7 | |
| Ethnicity/race |  |  | |
| White | 59.6 | 62.0 | |
| Black or African American Native | 15.9 | 12.3 | |
| American Indian and Alaska Native | 1.5 | 0.7 | |
| Asian | 12.9 | 5.2 | |
| Native Hawaiian and other Pacific Islander | 0.2 | 0.2 | |
| Hispanic | 7.6 | 17.3 | |
| Household income (median) | US $60,000–75,000 | US $57,617 | |
| Education |  |  | |
| Less than high school graduate | 2.1 | 13.0 | |
| High school diploma or equivalent | 15.7 | 27.5 | |
| Some college or associate degree | 26.2 | 29.2 | |
| Bachelor’s degree or higher | 56.1 | 30.3 | |
| *Note*: The US Census Bureau 2016 American Community Survey is available online at http://factfinder.census.gov/ | | |

|  |  |
| --- | --- |
| Table A2  *Survey Weights* | |
| Income | |
| Category | Weight |
| Less than $15k | 1.02 |
| $15k to 30k | 1.00 |
| $30k to $45k | 1.00 |
| $45k to 60k | 1.00 |
| $60k to $75k | 1.00 |
| $75k to $100k | 0.86 |
| $100k to $150k | 0.95 |
| More than $150k | 0.95 |
| Education | |
| Category | Weight |
| None, or grades 1-8 | 5.75 |
| High school incomplete (grades 9-11) | 1.77 |
| High school graduate (grade 12 or GED certificate) | 1.33 |
| Some college, no 4-year degree (includes Associate’s Degree) | 0.89 |
| Technical, trade, or vocational school after high school | 0.65 |
| College graduate (Bachelor’s Degree) | 0.42 |
| Post-graduate training/professional school after college | 0.42 |
| *Note*. Income measured as annual household income. Education measured in terms of highest level completed. Final survey weights created by multiplying weights for income and education. | |

**Appendix B:**

**Lists of News Organizations Included in Study**

|  |  |
| --- | --- |
| Table B1  *List of News Organizations Named in Survey* |  |
| Organization | Mentions |
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