

ORIGINAL ARTICLE

Newspaper Closures Polarize Voting BehaviorJoshua P. Darr¹, Matthew P. Hitt², & Johanna L. Dunaway³¹ Louisiana State University, Manship School of Mass Communication, Baton Rouge, LA 70803, USA² Colorado State University, Department of Political Science, Fort Collins, CO 80523, USA³ Texas A&M University System, Department of Communication, College Station, TX 77843, USA

Changes to the media environment have increased polarized voting in America through both addition and subtraction. We argue that the decline of local newspapers has contributed to the nationalization of American politics: as local newspapers close, Americans rely more heavily on available national news or partisan heuristics to make political decisions. We assess the impact of newspaper closures on polarized voting, using genetic matching to compare counties that are statistically similar but for the loss of a local newspaper. We identify a small but significant causal decrease in split-ticket voting in presidential and senatorial elections in these matched communities: in areas where a newspaper closed, split-ticket voting decreased by 1.9%.

Keywords: Political Polarization, Newspapers, Local Media, Matching, Partisanship.

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Rapidly-changing technologies are disrupting traditional means of content distribution, advertising revenues, and intermedia competition. The political news industry is grappling with ongoing economic and technological shocks that are linked to changing patterns of partisan polarization. Local news sources are not merely suffering in this new marketplace: many are disappearing for good (Hindman, 2009; Shaker, 2014). As newspapers close, other local media are not emerging to fill the information gaps, with negative impacts on important political outcomes (Hayes & Lawless, 2015; Hindman, 2009, 2011; Hopkins, 2018; Mondak, 1995; Schulhofer-Wohl & Garrido, 2013; Shaker, 2014; Trussler, 2018; Waldman, 2011).

A growing body of literature examines the polarizing effects of the changing media environment, focusing on the expanding set of national media outlets, with less attention paid to declining local news. The proliferation of cable television channels and access to broadband internet have affected mass voting behavior, sorting, and social polarization, as well as elites' partisan voting behavior, by providing more choices for accessing political (and apolitical) information (Arceneaux, Johnson, Lindstadt, & Vander Wielen, 2016; Hopkins & Ladd, 2014; Lelkes, Sood, &

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Iyengar, 2017; Levendusky, 2013; Prior, 2007). Many of these new entrants to the market tend to be more extreme, partisan, and polarizing than news of the past, with important consequences for voters (Levendusky & Malhotra, 2016; Stroud, 2011). Focusing on the political effects of these additions to the marketplace of news may be too limited, however: polarized voting could also be explained by patterns of subtraction and replacement, particularly in local news markets.

Another emerging literature details the negative consequences of declining local news. Where local newspapers are weaker, people know less about their representatives and subnational governments and turn out to vote at lower rates (Hayes & Lawless, 2015, 2018; Kübler & Goodman, 2018; Shaker, 2014), and municipal governments spend less and borrow at higher rates (Gao, Chang, & Murphy, 2018; Yazaki, 2017). These studies show the importance of local newspapers for citizen engagement in subnational politics, but none examine the potentially polarizing effects of local media declines.

In this article, we bridge the divide between the literatures on the polarizing effects of the changing news environment and the consequences of weakening local media. We argue that losing a local newspaper may encourage reliance on partisan heuristics when voting and, possibly, a turn to readily-available national media (Hopkins, 2018; Trussler, 2018), which is rife with partisan rancor and intense cues from polarized elites (Arceneaux & Johnson, 2013, 2015; Levendusky & Malhotra, 2016; Padgett, 2014; York, 2013). Voter opinions can be changed by exposure to national news, even in elections uncovered by those national sources (Della Vigna & Kaplan, 2007; Gerber, Karlan, & Bergan, 2009; Trussler, 2018). Party cues—the cheapest sources of information—enable voters to make judgments about races they might otherwise ignore due to lack of information, which—in the case of nearly all non-presidential contests—primarily comes from local news or the candidates themselves (Downs, 1957; Schaffner, Streb, & Wright, 2001). Partisan cues from national news are more intense than information about local candidates in local newspapers, and are likelier to permeate the attention of inattentive consumers.¹ When local newspapers close, the influence of polarized and intense national news should increase.

We assessed the impact of local newspaper closures on polarized voting. We expected to observe political effects of choice depletion that are unrelated to the amount or bias of political content in the news source that closed. We identified a significant effect in voting patterns in matched communities that have and have not experienced the closure of a local newspaper: communities with newspaper closures had lower rates of split-ticket voting in presidential and senatorial elections. We subjected this finding to a sensitivity analysis and a placebo test, finding support for a causal interpretation of this association, and conducted auxiliary analyses showing that reliance on partisan heuristics—not a decrease in political information—may explain these effects.

Our study advances the communication literature in two ways, and suggests important avenues for future research. First, by linking the literature on polarization

with research on the negative effects of declining local news, we add to the growing body of work investigating the ways that structural changes to the media environment may exacerbate polarization (Arceneaux et al., 2016; Lelkes et al., 2017; Trussler, 2018) and we encourage future work on polarizing forces other than fragmented media and partisan news. Second, we contribute to the literature on declining local news and to newer work on the nationalization of politics and the media (e.g., Hopkins, 2018; Trussler, 2018) by focusing on negative effects beyond decreased awareness and engagement in subnational politics. We show that the displacement of local newspaper audiences leads to polarization, suggesting other possible implications of displacing local audiences that are relevant to other subfields in communication, including local disease tracking and prevention (e.g., Jerit, Zhao, Tan, & Wheeler, *forthcoming*), responses to natural disasters, and awareness of public health interventions.

The nationalizing media environment and political polarization

The decline of local newspapers is an important trend in American media and contributes to the nationalization of American politics (Hayes & Lawless, 2018; Hopkins, 2018; Martin & McCrain, 2018; Trussler, 2018). Local newspapers need not supply substantial political information to be useful to democracy: their very existence acts as a bulwark against the domination of Americans' news diets by readily-available national alternatives (Arceneaux & Johnson, 2015). Declining access to quality local news is harmful to voter behavior and responsive governance, leading to more corruption (Arnold, 2004; Besley, Burgess, & Prat, 2002; Campante & Do, 2014; Strömberg, 2004) and lower voter turnout (Schulhofer-Wohl & Garrido, 2013). In the absence of quality local news options, Americans may rely on partisanship and national news to inform their political decisions (Hopkins, 2018; Trussler, 2018).

Party affiliation is the cheapest source of information available to voters (Downs, 1957). These cues are even more useful in low-information, down-ballot races, where voters rely upon candidates' party affiliations to express preferences to pollsters and complete their ballots (Schaffner, Streb, & Wright, 2001); for example, adding party labels to previously non-partisan ballots brings local election results in line with national ones for lower-information contests (Garlick, 2015). Partisan heuristics enable voters to make judgments about races they might otherwise ignore due to lack of information, which—in the case of nearly all non-presidential contests—comes from local news sources or the candidates themselves (Trussler, 2018).

National outlets do not have the space or time, nor the interest, to cover 535 legislative offices, much less 50 state governments and thousands of municipal governments (Arnold, 2004). National news outlets focus on the president and national governmental institutions, such as Congress, the courts, and federal agencies (Farnsworth & Lichter, 2007; Gardner & Sullivan, 1999). A relative reduction of local news in the media marketplace may result in less exposure to local news and more regular exposure to national

media, with significant effects on engagement and partisan voting (Clinton & Enamorado, 2014; Hopkins, 2018; Hopkins & Ladd, 2014). Voter opinions can be swayed by any expansion of media choice in the marketplace, even in elections uncovered by those new sources (Della Vigna & Kaplan, 2007; Gerber et al., 2009). Absent quality local options, national news is likely to replace local news for habitual news consumers at least, shifting its relative weight in democratic decision-making (Hopkins, 2018; Martin & McCrain, 2018; Trussler, 2018).

More regular exposure to national news in the absence of a local newspaper fosters polarization in the public for two reasons.² First, national news outlets primarily cover national politicians, elections, and issues, and national elites are deeply polarized along partisan lines (Hetherington, 2001). A backdrop of increasingly-polarized national politicians has led to national coverage rife with elite party cues, party distinctions, and partisan conflict and rancor (Arceneaux & Johnson, 2015; van Klinger, Boomgaarden, & de Vreese, 2017; Müller et al., 2017; Padgett, 2014). National audiences may see politics as framed by the contests and conflicts between the two major parties, increasing consumers' awareness of polarization (Darr & Dunaway, 2018; Levendusky & Malhotra, 2016; Stroud, Muddiman, & Lee, 2014). Second, national news media—particularly broadcast television and cable news outlets—are prone to cover the most contentious aspects of national party politics. Press coverage of national politics reflects the news values of novelty and sensationalism, made clear by a heavy focus on uncivil behavior among elite partisans (York, 2013). In their congressional coverage, national outlets use sound bites from party extremists at higher rates than non-extremists, and quote party leaders more often than rank-and-file members (Padgett, 2014). Given congressional leaders' focus on message cohesion (Groeling, 2010), such coverage is full of partisan cues from elites that delineate clear distinctions between the parties (Hetherington, 2001; Levendusky, 2009).

This contrasts with local newspaper coverage of representatives, which focuses on their actions as local agents and less on game-frame coverage (Arnold, 2004). Local news provides subnational officeholders a venue to cultivate their "personal vote," touting service and accomplishments to the local constituency and serving as a bulwark against a rising national tide of mass partisanship (Fenno, 1978; Trussler, 2018). Local newspapers cover the political officeholders and actors pertinent to their local constituency and media market. In a study of local newspaper coverage of 25 legislators, for example, Arnold (2004) found that the median legislator earned 14.9 articles per month. No typical rank-and-file member earns that regularity of coverage from national media outlets; elected officials serving local constituencies simply cannot attract the media attention necessary to claim credit and cultivate a personal vote (Snyder & Stromberg, 2010). Unlike national outlets, local newspapers prioritize elected officials' relevance to their geographic audience, instead of the officials' leadership positions or prominence in Congress. The legislators typically neglected in local newspaper coverage are those who share their media market with other districts (Arnold, 2004; Snyder & Stromberg, 2010).

Local newspaper coverage of members of Congress is also relatively positive when compared to national coverage: most local stories about legislators are neutral, while 25% are positive and only 5% are negative (Arnold, 2004). Members are covered most extensively by local newspapers when they are working to attract or retain constituency benefits. Historically, local newspaper coverage of legislators and their accomplishments had its strongest effects among voters in the representative's out-party (Schaffner, 2006), overcoming voters' partisanship and encouraging voters to reward or punish performance in the district (Trussler, 2018). Through this coverage of legislators' locally-relevant activities, local newspapers facilitate democratic accountability in subnational politics (Snyder & Stromberg, 2010).

Though the arrival and proliferation of the Internet prompted the structural disruptions ultimately responsible for many local newspaper closures, it is paradoxically offered as a reason not to worry about the disappearance of local newspapers. Yet many reports show that local news accounts for only a tiny fraction of all online traffic (e.g., Hindman, 2009). Even though the Internet provides the opportunity for low-cost entry into local newspaper markets, it is clear that online local news traffic is too low to sustain a healthy level of local reporting. Would-be online venues for local news are losing out to national news, and the Internet has not produced more local news outlets as originally predicted (Hindman, 2011). Local television news also cannot and does not sufficiently fill the gaps left by local newspapers. Time constraints imposed by the need for ads, sports, weather, disasters, and traffic leave only a minute or two for coverage of subnational politics (Arnold, 2004). Studies of local television find that political coverage is largely absent and, when present, lacks substance, focusing largely on the horserace (Dunaway, 2008).

The shifting demands of news consumers may partially explain these trends. Local political news is packaged by newspapers alongside other desirable content about local sports, shopping, businesses, and entertainment, and is less attractive to voters once removed from that bundle (Hamilton, 2004). Audiences in high-choice environments, therefore, are increasingly unlikely to seek out replacement sources for local political information, particularly given recent evidence suggesting that audiences prefer stories about national news relative to local news (Hopkins, 2018). The result is a higher likelihood of regular exposure to national news media relative to local news, which should heighten partisan affect (Lelkes et al., 2017).

When a local newspaper exits the marketplace, voters know less about local elections than voters in similar areas (Mondak, 1995). Voters may substitute to other forms of local media, but these tend to lack information on local elections compared to newspapers. Jeffrey Mondak's (1995) study of the Pittsburgh newspaper strike of 1992 resembles ours—his study matches Pittsburgh to Cleveland, and examines the media environment instead of news content—but much has changed, and our study applies the logic of his study to a national sample.

We expect to observe political effects from choice depletion that are unrelated to the amount or bias of political content in the news source that closes, similar to the political effects Markus Prior (2007) detailed in his work on media choice

expansion. The exit of local newspapers from the local marketplace is associated with large, discrete changes in readership, relative to trends before or after the opening or closing of a newspaper (Gentzkow, Shapiro, & Sinkinson, 2011). The disappearance of any local news source is a meaningful political event in the information marketplace, even one comprised of many other options (Hayes & Lawless, 2018; Hopkins, 2018; Martin & McCrain, 2018; Shaker, 2014). Newspapers set the agenda within their markets, and cable and broadcast outlets rely on newspapers to gather news (Druckman, 2005).

We based our hypotheses and analyses on several assumptions informed by previous research. First, we assumed that when local newspapers are lost, replacement news via alternative sources of local political information is unlikely, due to a lack of supply in most markets (Hindman, 2011). We did not assume that news diets are fixed, but considered it likely that when local newspapers close, habitual news users will replace them with sources that cover national politics (Hopkins, 2018; Lelkes et al., 2017; Trussler, 2018). We also assumed that national news outlets provide less coverage of subnational political actors and events relative to local outlets (Arnold, 2004), and that political coverage is qualitatively different across local and national news providers (Hopkins, 2018). We expected that the loss of a local newspaper would encourage voters to replace that news with national content, with effects on partisan voting.

Another hypothesis—that any effects on partisan voting can be explained by the loss of information provided by local news sources—must be considered. If information loss is the mechanism behind changes in partisan voting, there should be a higher rolloff in down-ballot races. If voters are turning to national news, however, the rolloff should not be affected: increased partisan cues should lead to a convergence of partisan preferences without impacting ballot completion. Partisan cues from national news are likelier to permeate the attention of inattentive citizens than information about specific local candidates—either through incidental exposure or indirect communication via social networks (Feldman, Myers, Hmielowski, & Leiserowitz, 2014; Tsfati & Chotiner, 2015)—simply because of the relatively-higher intensity of messages containing national party cues.

Communities losing local news options, therefore, find themselves in a media environment with two trends encouraging partisan voting: (a) less available information about their local politicians and community, leading to a reliance on cheaper forms of information, such as party cues, and (b) a media choice set with a higher proportion of partisan and contentious national options. Given the crucial differences between local newspaper coverage and national media coverage, losing a local newspaper should increase readers' propensity towards partisan voting, either through reliance upon partisan heuristics or replacement with national news media for political information. We expected more polarized voting in communities that have experienced the closure of a local newspaper relative to communities where local newspapers survive.

Research design and data

Our research design used patterns of partisan voting behavior in counties to discern signs of polarized voting at the local level. Our dependent variable was split-ticket voting, defined as the absolute value of the difference between the percentage of voters in each county supporting President Obama in 2012 and the percentage of voters in that same county who supported the Democratic candidate for Senate in 2012. In 1992, 37% of states with Senate races elected a Senator from a different party than the one the state voted for in the presidential election. In 2016, not a single state did so, for the first time in a century (Bump, 2016). Split-ticket voting, once called “a privilege which the American electorate exercises almost uniquely,” is falling out of favor with voters (Campbell & Miller, 1957).

Though the first studies of split-ticket voting found an association with lower levels of political motivation and knowledge, subsequent studies have shown that split-ticket voting is unrelated to political interest and can be explained by partisanship and candidate visibility (Beck, Baum, Clausen, & Smith, 1992; Campbell & Miller, 1957; Converse, 1962). Recent research on split-ticket voting identified individual-level political characteristics, such as partisan identity, ambivalence, and indifference, as key predictors (Davis, 2015; Davis & Mason, 2016), suggesting an important role for the media environment (Lelkes et al., 2017). Declining local news should reduce candidate visibility at the local level as it strengthens awareness of national, polarized political elites, encouraging greater reliance upon partisanship in voting decisions (Trussler, 2018). Just as others expected the decline of partisan newspapers to increase split-ticket voting, we expected the decline of non-partisan newspapers to decrease split-ticket voting. The split in party outcomes in local voting districts is a reasonable metric for the electorate’s willingness to consider candidates from both parties, an arguably appealing normative outcome.³

We utilized nationwide data on newspaper closures from the “Chronicling America” project, part of the National Digital Newspaper Program, which maintains a searchable database of the founding and closing dates of past and current U.S. newspapers (Library of Congress, 2016). We considered a newspaper “closed,” and included it in our sample, only if its closing date was denoted as between 2009 and 2012. Our sample contains 110 newspaper closures: 54 in 2009, 25 in 2010, 15 in 2011, and 16 in 2012. The median newspaper sells more than 80% of its copies in its home county (Gentzkow & Shapiro, 2010; Gentzkow et al., 2011), making the county an appropriate unit of market reach.

We also included closed weekly newspapers in our analyses. In 2008, the year preceding our study, only 45% of counties in the United States (excluding Alaska) contained a daily newspaper headquarters. There are many more weekly newspapers than dailies, and weeklies may influence politics even without extensive political reporting, much like entertainment channels impacted politics by altering consumers’ choice sets (Prior, 2007). Given that our theoretical expectation does not depend on the local political content in newspapers—merely their existence as a

media option—weekly newspapers should not be excluded, even if they rarely cover political matters (Leather, 1998).⁴ Figure 1 contains a map of counties with newspaper closures between 2009 and 2012.

Newspaper closures are not randomly assigned. Without the ability to experimentally manipulate the existence of a local newspaper, we instead constructed a matched dataset balanced on observable variables: percentage of the population over the voting age; percentages of White, Black, and Hispanic residents of the voting-age population⁵; median ages; percentage of females; median incomes; and percentage of the population with some college education (U.S. Census Bureau, 2017). The latitude and longitude of the county centroid were added from the U.S. Census Gazetteer to account for geographic variation (U.S. Census Bureau, 2010). We exactly matched on states to account for heterogeneity across Senate races. We also matched on the pre-closure penetration of broadband providers at the county level, taken from the replication files of [Lelkes, Sood, and Iyengar \(2015\)](#). Finally, we matched on the county's pre-newspaper closure level of partisan voting, measured by the absolute difference of the county's 2008 vote share for the Democratic candidate and .50. We did not match on the pre-closure value of the dependent variable, because a majority of the closure counties in 2012 did not hold Senate elections in 2008.

Matching was used in order to enhance the covariate balance between our closure and comparison counties. Generally, there exists no single standard for an ideal or acceptable balance in the literature ([Diamond & Sekhon, 2013](#)). We aimed to maximize the balance on the observables without discarding any observations. In the matching procedure (described below), it was especially crucial to ensure that covariates that might have been strongly related to the dependent variable were balanced across comparison and control counties. Our estimates would be more suspect if, for instance, the populations in our closure counties were substantially more educated or partisan than in the matched-comparison counties. We therefore required a matching procedure that rendered the distributions of these covariates indistinguishable across closure and comparison counties.

We used genetic matching ([Diamond & Sekhon, 2013](#)) to construct optimal weights for matching; genetic matching leverages a genetic algorithm ([Mebane & Sekhon, 2011](#)) that maximizes balance between treated (or “closure,” as we will refer to them) and control (or “comparison”) units, while discarding as little data among observations with newspaper closures as possible.

The comparisons we drew between geographic units have full support on all the observable covariates above. Based on the results of bootstrapped Kolmogorov-Smirnov tests, we conclude that our matched set is well balanced on the observables.⁶ The balance statistics are presented in Table 1. Table 1 shows that the matching procedure improved the comparability of the closure and comparison samples. No *p*-value is lower than .452 after matching. The distributions of the observables, including partisanship and education, are statistically indistinguishable across the closure and comparison samples. We used the Matching ([Sekhon, 2011](#)) and



Figure 1 Newspaper closures, 2009–2012. *Note:* Each dot represents one closed newspaper. Data comes from the U.S. Newspaper Directory of the Library of Congress.

rgenoud (Mebane & Sekhon, 2011) packages in the R programming language to construct these weights (R Core Team, 2016). While some work using genetic matching includes a propensity score in the slate of covariates (Chen, 2013), we did not do so here. King and Nielsen (2016) showed that the inclusion of propensity scores can increase imbalances on some covariates. We did not need to discard any counties that lost a newspaper and voted in a Senatorial election to improve the balance.

Results and additional tests

Given the strong balance between closure and comparison units obtained via genetic matching, we present the average treatment effect among the treated (ATT) in Table 1. We present ATT estimates because we have a limited number of observations with a newspaper closure relative to our comparison counties. As such, covariate values which have no support among our closure set should not enter into our estimates, which the ATT estimator avoids (Sekhon, 2009, p. 495). Recall that we defined split-ticket voting as the absolute value of the difference between the percentage of voters in a given county who supported President Obama in 2012 and the percentage of voters in that same county who supported the Democratic candidate for Senate in 2012. As such, negative estimates indicate that a newspaper closure is associated with less split-ticket voting in that county; results of the test of our hypothesis appear in Table 2.

Table 2 shows that a newspaper closure is associated with a negative and statistically significant ($\alpha = .05$) amount of split-ticket voting in that county relative to a comparison county. Substantively, the magnitude of the effect of a newspaper closure on president-Senate split-ticket voting is plausibly small, about 1.9%, but this is

Table 1 Matching Balance Statistics, President-Senate Split-Ticket Analysis

	<i>Before Matching</i>			<i>After Matching</i>		
	Paper Closure, mean	No Paper Closure, mean	Bootstrapped KS Test, <i>p</i> -value	Paper Closure, mean	No Paper Closure, mean	Bootstrapped KS Test, <i>p</i> -value
VAP	414,860	100,618	<.001	414,860	432,657	.838
% White VAP	.776	.815	.003	.776	.769	.825
% Black VAP	.059	.058	<.001	.059	.068	.675
% Latino VAP	.088	.091	<.001	.088	.092	.688
Median age	39.758	40.215	.310	39.758	39.606	.917
% Female	.506	.500	.024	.506	.506	.568
Household median income	\$57,268	\$46,779	<.001	\$57,268	\$57,284	.692
% Some college (>age 25)	.281	.303	<.001	.281	.283	.912
Broadband providers (2008)	9.758	8.020	<.001	9.758	9.691	.924
County partisanship (2008)	.123	.125	.633	.123	.124	.460
Latitude	41.103	38.923	<.001	41.103	40.819	.452
Longitude	−90.832	−93.185	<.001	−90.832	−90.608	.999

Note: KS = Kolmogorov-Smirnov; VAP = voting-age population.

Table 2 Average Treatment Effect of Newspaper Closure Among the Treated on Split-Ticket Voting in 2012 Elections

	President-Senate Split-Ticket Voting
Estimated ATT	-.019
Abadie-Imbens Standard Error	.009
T-statistic	-2.082
P-value	.038
No. treated	66
No. control (unweighted)	77

Note: ATT = average treatment effect among the treated.

comparatively larger than findings in other studies of changes in the local media environment (0.4 to 0.7%, Della Vigna & Kaplan, 2007; 0.3%, Lelkes et al., 2017). This careful identification of one of the many causes of polarized voting contributes to our understanding of this phenomenon by accounting for the subtraction of local media sources from the set of media choices available to consumers.⁷

Sensitivity analysis: was the selection process adequately modeled?

Our estimates can only be interpreted as causal if several key assumptions are met. We must satisfy the assumption that a newspaper closure is independent conditional on the observable variables: after conditioning on the observable covariates listed above, was the closure of a newspaper assigned as if randomly? Keele and Minozzi (2013) argued that geographic units, even those on adjacent state borders, differ significantly. We probed the plausibility of this assumption for statistically-significant findings with a sensitivity test (Rosenbaum, 2002), finding moderately strong support for our assumption of independent selection conditional on observables. This sensitivity test presents the *p*-value of the difference between the closure and comparison counties under a variety of conditions. The Γ entries indicate an odds-ratio on an omitted confounder in the selection process. When the upper bound of a *p*-value associated with a given Γ exceeds our $\alpha = .05$ threshold, this Γ value represents the sensitivity of our results to violations of the selection on observables assumptions. We conducted this test using the *psens* command in the *rbounds* package (Keele, 2014) for the R programming language.

The results in Table 3 provide moderate support for a causal interpretation of our finding in Table 2; we would have had to have missed a covariate with substantial influence on the selection process. Table 3 shows that our results to violations of our assumption that the selection process was adequately modeled up to a Γ of 1.9; if we failed to account for a covariate that increased the odds of newspaper closure by 100%, then our estimate would no longer be statistically significant at conventional levels. To put this result in context, adding an additional broadband provider increases the probability of closure by 13%: an omitted confounder would need to exert over seven times the effect on the probability of selection as

Table 3 Sensitivity Analysis, President-Senate Split-Ticket Voting ATT

Γ	Lower Bound p -value	Upper Bound p -value
1.0	<.001	<.001
1.1	<.001	<.001
1.2	<.001	.001
1.3	<.001	.003
1.4	<.001	.005
1.5	<.001	.009
1.6	<.001	.015
1.7	<.001	.022
1.8	<.001	.033
1.9	<.001	.045
2.0	<.001	.060
2.1	<.001	.078

Note: ATT = average treatment effect among the treated.

introducing a new broadband provider for the selection on observables assumption to fail (at $\alpha = .05$).

Analysts should continue to probe the selection process into newspaper closures, given that, as [Keele and Minozzi \(2013\)](#) observed, selection issues abound when conducting causal inferences on geographic units. Future work should continue to explore the correlates of newspaper closures to better model the selection process, including examining whether effects are consistent across different regions of America. As local newspapers continue to close, analysts should continue gathering data to support even stronger causal inference designs, particularly those that we were unable to estimate due to the limited number of closure counties in our sample. With more data, we could examine closure and comparison counties both before and after closures using difference in differences estimators ([Abadie, 2005](#)), for instance. Alternatively, as more data become available, scholars could compare voting patterns across geographically-contiguous counties that did not and did not experience newspaper closures as an alternative to matching.

Placebo test: did newspaper closure after 2012 affect voting in 2012?

Next, we subjected our findings to a placebo test. The placebo test is simple: for counties that lost a newspaper after the 2012 elections, did this loss cause any decline in presidential-Senate split-ticket voting in the 2012 elections, relative to the comparison counties? The timing of these events precludes any causal interpretation of the effect of a post-2012 newspaper closure on 2012 voting patterns. We collected information about post-2012 newspaper closures, finding 25 counties that lost a newspaper in either 2013 or 2014, which serve as our closures set for this placebo analysis. Full-balance statistics are presented in Table S1 in the Supporting Data, and results of our placebo test are presented in Table 4.

Table 4 presents the ATT estimates for our placebo test, showing that a newspaper closure after 2012 did not cause a similar decline in president-Senate split-ticket voting. This result supports a causal interpretation of the association presented in Table 2 between newspaper closures from 2009-2012 and decreased split-ticket voting in 2012. The results in Table 2 pass the placebo test, improving our confidence that effects of a newspaper closure on split-ticket voting in that county are not explained by observable county characteristics that would also explain the newspaper closure.⁸ Decreased split-ticket voting is only observed after the closure of a newspaper.⁹

Is the mechanism information loss or partisan heuristics?

The decline in split-ticket voting we observe in Table 2 could be the result of one of two mechanisms: either a general loss of political information may follow the closure of a local newspaper, or citizens who lose their local newspaper may shift their news consumption to national media. Shifts in news consumption to national media seem likely to increase (or at least not diminish) the effect of partisan heuristics, given the prevalence of high-intensity messages about national party politics in the national news during elections.

If the first mechanism is the correct one, then newspaper closures should also cause increases in ballot rollofs: following a newspaper closure, voters may lack sufficient information to choose candidates in down-ballot races and leave those blank. We measured ballot rollofs at the county level as the total votes cast for Barack Obama and Mitt Romney, minus the total votes for Republican and Democratic Senate candidates, divided by the total number of votes cast for Barack Obama and Mitt Romney (range: $-.05$ to $.63$). Positive values indicate more votes were cast in the presidential race than the Senate race, and negative values indicate the reverse. If the second mechanism is correct, newspaper closures should have no causal effect on rollofs. If voters shift their media use elsewhere and partisan heuristics are strengthened, then party labels on down-ballot candidates should be sufficient for voters. Table 5 presents an ATT estimate of the causal effect of a newspaper closure on a president-Senate-ballot rolloff on the same sample that was used for Table 2.

The results in Table 5 show that newspaper closures do not cause changes in ballot rollofs. This evidence is suggestive rather than conclusive, because less political knowledge could increase the use of party cues for votes in lieu of abstention. Still, we take this as limited evidence that declines in split-ticket voting are likely the product of an increased reliance on national media and increased exposure to partisan cues. Newspaper closures appear to cause declines in president-Senate split-ticket voting, but the mechanism is likely not a general loss of political information.

Conclusion

Concerns about mass partisanship are based on the idea that the heuristics of political parties will supplant more deliberative tools for sorting through the complex

Table 4 Placebo Test: Average Treatment Effect of Newspaper Closure After 2012 Among the Treated On Split-Ticket Voting in the 2012 Elections

	President-Senate Split-Ticket Voting
Estimated ATT	.004
Abadie-Imbens Standard Error	.008
T-statistic	.460
P-value	.646
No. treated	25
No. control (unweighted)	25

Note: ATT = average treatment effect among the treated.

Table 5 Average Treatment Effect of Newspaper Closure On the Treated, 2012 Ballot Rolloff

	President-Senate Split-Ticket Voting
Estimated ATT	-.015
Abadie-Imbens Standard Error	.012
T-statistic	-1.236
P-value	.216
No. treated	66
No. control (unweighted)	77

Note: ATT = average treatment effect among the treated.

array of federal, state, and local politics. One useful indicator of reliance on party cues is the rate of split-ticket voting across political geographies. Ideally, voters will incorporate a host of important factors, along with party, when making electoral decisions, particularly when the issues are local and fit less neatly into the constraints of national party ideology. This sort of voter cognition should be reflected in higher rates of split-ticket voting, based on the punishment or rewarding of incumbents, voting for person over party, and issue-based voting. Naturally, strong mass partisanship and partisan-ideological sorting have been viewed at times as good for democracy (Broder, 1972; Dalton & Wattenberg, 2000; Hetherington, 2001) and, at other times, as detrimental (Muirhead, 2006). Party cues and partisan allegiances make it easier for ordinary citizens to vote their preferences, but sorting and partisanship also encourage team-mindedness and social polarization (e.g., Garrett et al., 2014; Mason, 2015, 2016), inhibiting cooperation between people with different values and convictions.

We are not the first to treat rates of split-ticket voting as inversely related to polarization, nor are we the first to assert that elite cues and the media play important roles in shaping mass partisanship, polarization, and voting behavior (e.g., Groeling & Baum,

2013; Hetherington, 2001; Levendusky, 2009). We addressed a narrower question, borne from normative concerns about polarization and consequences of the declining newspaper industry: what is the impact of a local newspaper closure on political polarization? We discerned a significant effect—a decline of split-ticket voting across votes for the presidency and the Senate—from the loss of any local newspaper. These declines are not observed in counties that lost newspapers immediately after the 2012 elections, a standard placebo test, and are reasonably robust to the omission of a confounding selection variable, suggesting a causal interpretation. Our findings connect the literature on the polarizing effects of the changing news environment to scholarship on the negative democratic consequences of the decline of local news; just as adding the Internet or partisan cable news to the media environment can influence voting behavior, removing a local news source from the marketplace may polarize the choices citizens make.

Our findings also reflect troublesome trends in down-ballot voting behavior. Hopkins (2018) argues that the continuing expansion of media choice is producing three important effects: (a) less citizen exposure to news about subnational politics; (b) less knowledge about state and local politics; and (c) less engagement with state and local politics. His explanation is based on both supply and demand: Americans are increasingly more interested in national news than local news and, as political news content is less frequently bundled with other useful information, consumers will be less likely to choose news about local politics. The implications of our study fit with those of Hopkins (2018) and Trussler (2018), despite our narrower focus on reductions in the supply of local news through the loss of local newspapers. Changes in the provision of local news are encouraging the use of partisan labels and attitudes associated with national party politics, altering the decision rules applied in voting behavior (Trussler, 2018).

While the changes we observed are for national offices (albeit for ones with ties to subnational geographic constituencies), the implied consequences for elections further down-ballot seem bleak. Senators are the most likely down-ballot officeholders to occasionally make the national news. If we observe an effect for an erosion of split-ticket voting between presidential and Senate races, the loss of local newspapers should affect selections about other state and local officials even more dramatically. As the units of geography and governance shrink, national coverage is much less likely to serve as a suitable information replacement, and decision rules based on national party platforms are increasingly ill-suited for the task at hand.

Though our data cannot speak to this directly, it may also be that local newspapers have variable impacts across markets in different geographic locales. The extant literature reveals significant differences in the quality of local information environments (Hayes & Lawless, 2018; Napoli, Stonbely, McCollough, & Renninger, 2017) and suggests two characteristics of local communities that can provide some insulation from the loss of a local newspaper: community size and resources. Napoli et al. (2017) found that local communities with higher concentrations of resources have higher quantities and qualities of news in their local information ecosystems. In the context of their finding that smaller newspapers experienced the largest declines in

local news coverage, [Hayes and Lawless \(2018\)](#) argued that major metro areas can more easily absorb declines in local coverage, because several local television stations and possibly some online venues still provide local information for those willing to seek it out. When areas served by smaller newspapers lose those newspapers, however, they are likely losing their only source of substantive information about local politics.

There are plenty of reasons to be troubled about the loss of local newspapers, not the least of which are concerns about journalists' ability to perform the watchdog role in their community. Readers may reach different conclusions about whether our identified effect of split-ticket voting is normatively troubling, but the amount of public concern presently expressed about polarization suggests our findings offer one more reason to bemoan the decline of local newspapers. If trends continue, the national lens may be Americans' only remaining option through which to view their political choices.

Supplementary material

Supplementary materials are available at *Journal of Communication* online.

Notes

- 1 [Martin and McCrain \(2018\)](#) found evidence of partisan learning through local television news following an increase in nationalized content that was instigated by very recent ownership changes to the local station.
- 2 In our supplemental analysis, we use data from [Gentzkow and Shapiro \(2010\)](#) to demonstrate that partisan phrases are more common and represent a higher proportion of political coverage in national newspapers than in local newspapers. See the section "Supplemental Analysis on Partisan Cues in Local and National Media, [Gentzkow and Shapiro \(2010\)](#) Content Analysis Data," on pages 3–7 of the Supporting Data, for further details and full results.
- 3 Without voter-level data, we inferred a pattern of split-ticket voting from county-level data. [Burden and Kimball \(1998, 2009\)](#) explained the limitations of using aggregate-level data to estimate ticket-splitting, and suggested using [King's \(1997\)](#) estimation procedure for ecological inference instead. However, [Cho and Gaines \(2004\)](#) demonstrated the difficulty of applying King's technique to split-ticket voting. Rather than using ecological inference here, we maintain that it is reasonable to examine the difference between Senate and presidential vote shares as a metric of split-ticket voting, given the highly-polarized context during the time period we examined, though we note this potential limitation to our approach.
- 4 We conducted additional analyses using daily newspaper closures only, but separating dailies from weeklies reduced the affected N to the point where statistical precision was no longer feasible.
- 5 These data are maintained by Stephen Wolf, a contributor to DailyKos Elections.
- 6 All results presented in Table 1 are based on 10,000 bootstrap repetitions.

- 7 In addition to the simple ATT estimator, we also estimated ordinary least squares (OLS) regressions on the pre-processed matched dataset (Ho, Imai, King, & Stuart, 2007). Across several specifications, including those featuring state-clustered errors and state-fixed effects, a newspaper closure was negatively and significantly associated with president-Senate split-ticket voting in that county. This robustness check increases our confidence that these results are not explained by idiosyncracies across Senate races in 2012.
- 8 We cannot statistically compare our primary findings to the placebo test: the set of closure counties varies across the two analyses, precluding tests of nested or non-nested models.
- 9 To further buttress these results, we conducted an additional placebo test (reported in Table S3 of the Supporting Data) examining the effect of newspaper closures between 2009 and 2012 on split-ticket voting in the 2008 Senate elections. We obtained an acceptable balance (see Table S2 for full balance statistics) and found no statistically-significant association between 2008 split-ticket voting and a newspaper closure in the subsequent years.

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