LOCAL JOURNALISM UNDER PRIVATE EQUITY OWNERSHIP

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ABSTRACT

Local daily newspapers historically played an important role in U.S. democracy by providing citizens with information about local policy issues. In recent decades, local newspapers have struggled to compete with new online platforms. In the first study of private equity (PE) in a struggling industry, we find nuanced effects. PE leads to higher digital circulation and lower chances of newspaper exit. However, the composition of news shifts away from local governance, the number of reporters and editors falls, and participation in local elections declines. The results have implications for knowledge about local policy issues and highlight trade-offs surrounding media ownership.

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1   Introduction

Starting with De Tocqueville (1835), a large body of literature argues that local newspapers are crucial to modern representative democracy, because they hold local leaders accountable and increase civic engagement (Snyder and Strömberg, 2010; Gentzkow et al., 2011).[1] Over the past two decades, local newspapers in the U.S. have struggled to compete with social media and other new sources of content, causing a vicious cycle of declining readership and revenue (Cagé, 2016). These internet sources are known to have lower local governance content (Falck et al., 2014; Gavazza et al., 2019). Meanwhile, voters' knowledge of local policy issues has declined, a trend that is associated with the increasing nationalization of U.S. politics, including the rise in straight-ticket voting based on partisan issues rather than location-specific policy positions (Hopkins, 2018; Moskowitz, 2018).

While much of the prior literature studies the role of shifting consumer preferences in driving these trends, we focus on an important supply-side change: the entry of private equity investors into the local newspaper industry. The share of newspapers owned by private equity funds has increased from about 5% in 2002 to about 23% in 2019 (Figure 1). Across the world, newspapers have typically been owned by the state or families; Djankov et al. (2003) document this pattern and present the private benefits of control, including fame and influence, as rationales for concentrated private sector media ownership. Private equity ownership represents the opposite end of a fundamentally different model, in which the main agenda is to quickly increase firm value and maximize profits as opposed to non-pecuniary amenities.

Perceived cost-cutting following newspaper buyouts has received widespread criticism in the news media. In this view, the single-minded pursuit of shareholder returns—which is more high-powered under private equity than other types of ownership—leads to an evisceration of local news, resulting in a loss of local monitoring functions provided by

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[1]Section 1.1 contains an extensive review of this literature. De Tocqueville (1835) wrote that the United States "makes use of an unlimited freedom of political association . . . Newspapers make associations, and associations make newspapers. . . Thus, of all countries on earth, it is in America that one finds both the most associations and the most newspapers."

newspapers and a decline in government accountability (Kuttner and Zenger, 2017; Lewis, 2018; Shephard, 2018; Smith and Chiglinsky, 2020).[2] An alternative perspective is that private equity ownership leads to investments in digital platforms and efficiency gains that enable newspapers to survive and even thrive in a new environment. For example, a press release from the newspaper publishing unit of private equity firm Versa Capital Management explains that "[t]he company achieved significant cost synergies by successfully streamlining operations. It also launched new on-line and mobile platforms and introduced a number of creative revenue initiatives."[3] In this view, investment in information technology need not compromise the quality of local news reporting.

This paper studies the impact of private equity ownership on newspaper content, employment, political participation, and other outcomes. We digitize 17 years of Editor & Publisher International Yearbooks of daily newspapers from 2001–2017 and combine them with digital versions through 2019. The data contain basic information on a comprehensive sample of daily newspapers in the U.S. We connect these data to annual information on ownership, employment, and article content. To our knowledge, this is the first data set of newspapers from recent years in the U.S. and is the only one to include several interesting variables such as employment. We hope it will be useful for future research.[4]

Our digitized panel data includes 1,610 unique newspapers, 262 of which have ever been owned by private equity. These newspapers were either purchased in one of 56 deals or were subsequently acquired by a private equity-owned chain. We find that private equity tends to target newspapers that charge higher advertising rates, are members of chains, and that have relatively lower circulation. To assess the effects of buyouts, we use a differences-in-differences model with newspaper and year fixed effects. This estimates the impact of a newspaper switching to private equity ownership, relative to other newspapers in the same

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[2]For example, after private equity-owned GateHouse purchased a newspaper, an editor was quoted as saying: "I'm sweating bullets hoping some bean counter doesn't say we've got to get another 17% profit out of this. How much more can these people cut? It becomes harder to do the right thing—to cover the city council meetings and find out what really did happen—when you had five people in the newsroom and now you're down to two" (Kuttner and Zenger, 2017).

[3]https://www.businesswire.com/news/home/20141009006229/en/Civitas-Media-CEO-Announces-Stepping.

[4]The authors will post the complete data for public use.

year. We also present dynamic leave-one-out differences-in-differences event study plots, which tests for pre-trends and describe the immediacy of any effects.

The results paint a more nuanced picture than the extreme views that characterize the public policy debate. First, we consider local policy reporting, which has important public good dimensions and for which there are no obvious substitutes. If local content production is relatively more expensive – for example, requiring more journalists and local office space – and private equity firms seek to quickly improve profitability, then we expect a newly private equity-owned newspaper to shift away from local content production. Consistent with this prediction, the share of articles in a newspaper concerning local governance, which includes words such as "city council," "zoning," and "state legislature", declines following private equity buyouts by 3.6 percentage points, which is 10.8% of the mean.

Instead of local news, private equity firms may produce more national news content, which can be syndicated across many different papers. Indeed, we observe an increase in the share of articles on national politics (which includes words such as "Obama," "Bush," and "White House") of 1.3 percentage points (8.3% of the mean). These results indicate a change in focus towards national news—which is more centrally produced and cross-syndicated to many newspapers within the same ownership structure—and away from local news. They do not reflect more overall articles; to the contrary, we find that the total number of articles declines by 16.7%. Thus, while the industry overall has been in a period of structural change, there appears to be an effect of private equity buyouts on the composition of news.

The most obvious rationale for these changes is cost savings. There is a fixed cost to producing new reporting, but once an article exists it can be disseminated through additional newspapers at a very low marginal cost. Under this hypothesis, we expect to observe a decline in employees at local newspapers, particularly reporters. Indeed, we find that the number of reporters decline by 7.3%, and the number of editors decline by 8.9%. By contrast, the number of interns and freelancers—who represent lower paid, casual labor—remains unchanged.

We consider several additional operational outcomes. First, private equity buyouts are

associated with print circulation declines, but large increases in digital circulation. The digitization result should be interpreted with some caution as we are only able to observe digital circulation for a small portion of the sample. However, it offers suggestive evidence that private equity-owned newspapers invest in digital technologies, which increase digital access to newspaper content. Third, we find significant decreases in newspaper closure rates, suggesting that, at least within the span of our data, private equity owners do not quickly shut down firms after extracting rents. Taken together, these results suggest that private equity ownership is associated with managerial changes which raise digital circulation partially at the expense of print circulation while also improving survival prospects. Higher survival rates for private equity-owned newspapers are also suggestive evidence—though not conclusive—that our results are not solely driven by private equity owners targeting declining newspapers.

Our final analysis explores real effects on civic engagement that stem from less information about local government. Local newspaper reporting often spills over beyond the paper's readership, because local TV and especially social media rely on it as a source of information about local government issues.[5] Internet sources, especially social media, do not appear to offer a serious substitute for newspapers' traditional local issue coverage. Instead, the emerging literature on the role of the internet and social media in politics suggests that these sources rely on newspapers for source material while also contributing to the nationalization and segregation of news consumption (see Section 1.1). Therefore, changes to newspaper content can affect public knowledge far beyond the newspaper's readership.

We show that following private equity buyouts, total votes and turnout (i.e., votes as a share of the population) decline in elections of county commissions and councils. These bodies oversee county governments, which are responsible for local taxation,

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[5]Such information spillovers have implications for revenue; for example Ardia et al. (2020) note that "[t]he platforms are able to mediate the relationship between news consumer and news producer, forcing news outlets to use platform-based services to reach their audience and collecting the profits from advertisers. Consumers increasingly rely on social media as their source for news, enhancing revenue for platforms at the expense of news providers who are losing advertising income while they still bear the cost of reporting the news." Also see Shearer and Mitchell (2021) and Martin (2018).

infrastructure, and judiciaries. Specifically, turnout falls by 0.82 percentage points, relative to a mean of 9%. We also observe declines for mayoral and sheriff elections, albeit with weaker statistical significance as the data are sparser. Finally, using survey data we find that private equity buyouts increase the fraction of people who have no opinion about their U.S. House Representative by two percentage points (relative to a mean of 18%), while having no effect on opinions about the U.S. President. These results suggest lower participation in local democracy after private equity buyouts, which raises concerns about deteriorating local news coverage reducing local government accountability.

The changes that emerge after private equity buyouts raise the question of whether other organizational forms have similar effects. We comprehensively classify each newspaper-year as having one of seven ownership types. All other ownership types—including that of other financial firms such as pension funds—correlate with more local governance content. Family-owned and, to a lesser degree, independent newspapers are causally associated with more local governance content. These ownership types, as well as private chains that are not family-owned, also retain more employees. Finally, we show that the effects of private equity are independent of consolidation effects, which Fan (2013) finds to be relevant in the newspaper market. Overall, these results give us some confidence that there are particular effects of private equity ownership. However, given the sparsity of data for some outcomes – and hence statistical noise – further research is needed, and we hope that our paper and the data that it employs can be a building block for future studies.

This paper offers the first academic study of private equity in a distressed industry. Industry observers often describe private equity as finding opportunities for returns in distressed sectors; for example, the co-heads of Apollo Global Management's private equity business noted in a call with investors that opportunities to purchase distressed assets during the COVID-19 pandemic presented a "time to shine" for the firm.[6] One view of private equity's approach to distressed industries focuses on financial engineering, in particular the strategy of placing high leverage on the company's balance sheet. In this case, we might observe no operational changes. An alternative view is that operational

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[6]Bloomberg article on Apollo.

changes increase efficiency, perhaps reorienting an unprofitable or declining business towards higher profitability. This perspective is supported by evidence that, in more stable industries, private equity managers take an active role in operations to improve efficiency and create value. Our results are consistent with this more active operational view of private equity ownership.

Overall, the operational changes we see appear to have ambiguous social welfare consequences. The bright side is that private equity ownership leads to higher newspaper survival rates and more digital content, consistent with investing to help to turn around and modernize a struggling industry. A downside is that civic engagement appears to decline because readers of newspapers and the outlets that rely on their reporting have less information about local government. The high-powered incentives to maximize profits that accompany private equity ownership may be poorly aligned with the public good characteristics and implicit contracts involved in reporting about local government.

1.1 Theoretical Context & Literature Review

In this section, we discuss three research areas that we build on and which provide important assumptions for our analysis: (1) How media exposure relates to political outcomes; (2) Whether social media substitutes for traditional news; and (3) The effects of private equity on consumers and other stakeholders.

Media and Politics. The first strand of literature documents that local governance content in newspapers affects voter turnout, voter decisions, and ultimately government policy. Perhaps most relevant, Gentzkow (2006) shows that the decline in voter turnout in the second half of the 20th century is linked to the substitution of newspapers and radio by television, which conveyed less political knowledge. Furthermore, Gentzkow et al. (2011) show that when a newspaper initially enters a market there is a large positive effect on political participation. While the effect of newspapers on Presidential turnout has declined in recent years, the effect on Congressional elections persists until the end of their sample in 2004. Also in this vein, Snyder and Strömberg (2010) show that when local newspapers

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reduce coverage of a U.S. House representative, the Congressman is less likely to work for the constituency in Congress, is less likely to vote against the party line, and his district receives less federal spending.

From the political science literature, Hayes and Lawless (2015) and Hayes and Lawless (2018) show that less local media coverage of local issues and elections are associated with less civic engagement and noncompetitive U.S. House of Representatives elections. Filla and Johnson (2010) find that people with access to a daily local newspaper are more likely to vote regularly, and Darr et al. (2018) find that elections are less competitive in counties that have lost a local newspaper. Further evidence that newspaper and radio content affect policy includes Strömberg (2004), Dyck et al. (2008), Ferraz and Finan (2008), Drago et al. (2014), and Barthel et al. (2016).

Gao et al. (2019) find that local newspaper closures negatively affect long-run municipal borrowing costs because there is less information available about the quality of local government. In addition to studying different and broader outcomes, we focus on the changing composition of local news among operational newspapers rather than on the extensive margin of newspaper failure. This distinction is important because over 80% of newspapers survive over our sample period, despite the stresses in the industry (Table 1), while large fractions of surviving newspapers experience private equity ownership (21%, see Figure 1).

There is also evidence that information in the media is closely related to partisanship. For example, DellaVigna and Kaplan (2007) find that the entry of Fox News in U.S. localities increased the Republican presidential vote share. Gerber et al. (2009) show that exposure to more newspaper media in Virginia increased voting for Democrats, even when the newspaper slant was Republican.[7] Our finding that there is less local and more national content in newspapers after private equity buyouts is related to the overall trend of

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[7]Outside the U.S., there is also interesting work on this topic. Using the staggered introduction in Italy of Berlusconi's private TV network, Durante et al. (2019) show that exposure to Berlusconi's network increased viewers propensity to vote for his party, in part because the content made viewers less civic minded. Oberholzer-Gee and Waldfogel (2009) find that availability of local television news in Spanish increases Hispanic turnout. Enikolopov et al. (2011) demonstrate that an independent anti-Putin broadcaster in Russia reduced voting for the Putin government party substantially. DellaVigna et al. (2014) provide evidence that exposure to nationalistic content in a rival ethnic group's media increased ethnic hatred in the Balkans.

nationalization in U.S. politics; in recent decades, state and local election outcomes are increasingly correlated to national election outcomes because fewer people vote for different parties in local (e.g., House) elections than in the Presidential election (Jacobson, 2015; Abramowitz and Webster, 2016; Hopkins, 2018). Martin and McCrain (2019) argue that this is related to conglomerate ownership of local television stations, which has been associated with a strong rightward shift in coverage. Moskowitz (2018) connects these trends to local news coverage. He shows that when voters have less exposure to news about local candidates' policies and performance, they are more likely to submit a "straight-ticket" ballot, in which national and more partisan issues are applied to local elections, even though the policies at stake—such as local infrastructure projects or school programs—have little to do with the national, partisan issues.

Our research also connects with work on media markets. For example, Angelucci et al. (2020) study the entry of national television news in 20th century America and find that there was a negative shock for local newspapers, leading to a decline in original reporting and, crucially, local news. Related to our main hypothesis that owner profit motives are related to news content, Gurun and Butler (2012) find that because newspapers rely on local firms for advertising revenue, they cover them more positively than non-local firms. Fan (2013) builds a structural model of newspaper markets at the county-year level, which he uses to estimate the effect of a merger within a media market with data from 1997–2005. Our research question concerns the type of newspaper ownership, and our results do not reflect within-media market mergers. Other work on media competition includes Groseclose and Milyo (2005), Gentzkow et al. (2014), Puglisi and Snyder (2015), Gentzkow and Shapiro (2010), and Cagé (2020). Finally, there has been analysis of the rise of billionaire control of newspaper outlets (Durante et al., 2019; Grossman et al., 2020).

In sum, this body of work provides strong evidence that newspapers have been essential – especially in the U.S. – for maintaining citizen engagement and policymaker accountability. This supports the connection that we draw between declining local governance content in newspapers and reduced voter turnout in local elections.

Social Media. A growing literature indicates that internet sources of news, especially

social media, do not offer meaningful substitutes for the traditional local issue coverage found in newspapers. For example, Levy (2020) shows that Facebook algorithms limit exposure to counter-attitudinal news, and thereby increase polarization. There is also evidence that social media increases the prevalence of fake news about politics (Vosoughi et al., 2018). In particular, Allcott and Gentzkow (2017) show that Facebook is four times more likely to be visited immediately before a visit to a fake news website than before a visit to a real news website.

Similar to the findings of Gentzkow (2006), Falck et al. (2014) document that internet availability has negative effects on voter turnout, which they attributed to reduced information via television. Gavazza et al. (2019) also demonstrated that in the U.K., more time spent on the internet decreased voter turnout by crowding out consumption of media with more news content, especially newspapers. While there is evidence that people who deactivate their Facebook accounts have less knowledge about national politics (Allcott et al., 2020), and research on non-democratic countries finds that social media penetration increases political protests (Qin et al., 2019; Enikolopov et al., 2020), in Western countries research indicates that under certain circumstances, access to broadband internet or social media increase nationalism, hate crimes, and political polarization (Bakshy et al., 2015; Sunstein, 2018; Schaub and Morisi, 2019; Bursztyn et al., 2019; Müller and Schwarz, 2019). For example, Lelkes et al. (2017) show that in the U.S. in the 2000s, access to broadband internet increased partisan hostility.

We conclude based on this literature that internet- or social media-based news does not thus far offer objective information about sub-national policy issues in democratic countries and therefore is unlikely to provide an unbiased, full substitute for a decline in local government content at local newspapers. Conversely, growing evidence suggests that these sources increase nationalization of news content and polarization. This leads us to argue in our analysis that less local government content in local newspapers implies less information available to citizens.

Private Equity. This paper also contributes to analysis of private equity's impact on product quality, labor, and other stakeholder outcomes. It is well-known that private equity

ownership is associated with exceptionally high-powered incentives to maximize firm value (Kaplan and Stromberg, 2009; Boucly et al., 2011). These incentives do not necessarily imply operational changes if, for example, managers rely on leverage and tax strategies to generate returns (Axelson et al., 2013). Alternatively, managers may be particularly good at screening, and choose targets that are on trajectories toward better outcomes (Guo et al., 2011; Acharya et al., 2013).

However, there is now a large body of evidence that private equity managers actively intervene in portfolio company management. This work has found largely positive implications for product quality, employees, and consumers (Davis et al., 2014; Agrawal and Tambe, 2016; Bernstein and Sheen, 2016; Davis et al., 2019; Fracassi et al., 2020; Gornall et al., 2021). We also observe active intervention in operations. Our findings that reporter employment and local news content decline are consistent with more nuanced effects of private equity in sectors characterized by public good provision. In the context of education and healthcare, which are characterized by both public goods provisions as well as intensive government subsidy, Eaton, Howell and Yannelis (2019) and Gupta et al. (2020) found negative effects on student and patient outcomes, respectively, after private equity buyouts. Turkel et al. (2021) also examines the impact of financial investors on newspaper investigative journalism, but finds little impact, as part of a broader analysis of newspaper textual content. We differ by providing a much larger and more systematic analysis of that question, and find more substantial evidence for the impact of private equity buyouts.

Finally, there is a literature related to high-powered incentive compensation, which is important for the key mechanism underlying our focus on ownership type: high-powered incentives impact product outcomes. A traditional view of convex compensation schemes—corresponding to the option-like profits for private equity fund managers—is that they should lead to greater risk-taking (Grinblatt and Titman, 1989; Jensen and Meckling, 1976; Palomino and Prat, 2003). In our context, we might observe more highly successful newspaper chains under private equity ownership, but also more failures and shut-downs. In contrast, we observed that the probability of closure declines. Carpenter

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(2000) presents a theory consistent with these results, showing that when a manager is paid with an option he cannot hedge, the option compensation does not lead to more risk seeking, especially when the evaluation date is far away. This is in part because leverage magnifies the manager's exposure to the asset volatility.[8]

In sum, this paper offers to our knowledge the first evidence of private equity's effect in the media industry. Our conclusions support the view that even in a distressed industry, changes wrought by private equity extend beyond financial engineering to operational engineering. Our findings are more nuanced than previous work, suggesting that – contrary to media reports – there are fewer closures after buyouts but there are also problematic declines in reporter employment and local government news content.

2 Data & Descriptive Statistics

We use three primary data sources in this paper. In this section, we discuss each data source in turn and outline how we constructed a dataset for analysis. First, we use Editor & Publisher International Yearbooks data on newspapers (Section 2.1) supplemented with newspaper audit data from the Alliance for Audited Media. Second, we collect PitchBook data on private equity deals (Section 2.2). Third, we use NewsLibrary data on article content (Section 2.3). Fourth, we acquire employment data from LinkedIn (Section 2.4). Finally, we use multiple sources of data on political participation (Section 2.5). Descriptive statistics and a targeting analysis are presented in Section 2.6.

2.1 Editor & Publisher Data

We digitize 17 years of Editor & Publisher (E&P) International Yearbooks of daily newspapers from 2001–2017, which contain basic information on essentially every daily newspaper in the U.S.[9] E&P data are traditionally used primarily by advertisers, and for

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[8] Also see Goetzmann et al. (2003) and Kouwenberg and Ziemba (2007).

[9] E&P also tracks weekly newspapers, but we focus on dailies as they are more likely providing consistent, up-to-date local news coverage. For this reason, we also drop USA Today and the Wall Street Journal from our sample.

this reason have audited circulation coverage. By circulation we generally refer to print circulation unless we specify digital circulation instead. We combine these digitized records with a digital version of the data in 2018 and 2019 provided by E&P. The resulting dataset includes 1,610 unique newspapers.

An example of the structure of these books is in Appendix Figure A.1. The variables we obtained from E&P are newspaper name, parent (or "group") name, circulation, and advertising rates. Circulation refers only to print subscriptions. We supplemented the E&P circulation data with information provided by the Alliance of Audited Media. Their database tracks both print and digital media subscriptions, while also providing geographic coverage of the former. Advertising rates are calculated as the dollars charged per open inch, which is the price that a new advertiser, who does not have existing discounts, would be charged for one square inch.[10] During the computer reading of the images, some text proved to be unreadable, and despite a great deal of manual cleaning, there are missing newspaper-years for some variables. This is one reason for different sample sizes across variables from E&P.

The group names in E&P do not always reveal ultimate newspaper ownership structure and in turn, ownership type. In some cases, a local newspaper is assigned to a group that is itself owned by a parent group. To address this issue, we supplement the list of group-year data with an index of newspaper groups from the appendix of some of the E&P yearbooks, which contain indices listing parent group, subsidiaries, and newspapers. These data provide information on full ownership structure and help to fill in the gaps from the machine-reading of the PDFs. Next, E&P also has lags in its tracking of ownership changes. For all instances of group name changes, we hand-checked the ownership change and searched for exact dates of such changes. This step is crucial for the non-private equity ownership changes because there is no commercial data provider, like PitchBook, tracking buyouts or mergers of newspaper companies.

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[10]We do not use data on price for two reasons. First, it is not recorded consistently in the E&P data, for example with some newspapers having only monthly data and others daily. Second, there is widespread tiered pricing and discounts, with some newspapers having many price levels depending on the nature of the subscription. Therefore, it is impossible to obtain a consistent price measure even if we observed all the price levels, because we do not observe the distribution of prices across subscribers.

2.2 Private Equity Deal and Other Ownership Data

Our primary source of data on private equity transactions is a proprietary list of deals compiled by PitchBook Inc., a leading market intelligence firm. To create the list, we search PitchBook for all U.S.-based newspaper or media acquisitions through 2019 that involved a private equity sponsor. We merge the targets of these deals, which are typically parent companies, to the E&P newspaper data using the group or ultimate parent name, and in some cases merged by hand. In sum, we identify 56 deals in which 168 unique newspapers were acquired. The now private equity-owned chains subsequently acquired an additional 94 newspapers. Therefore, we observe a total of 262 newspapers under private equity ownership at some point during our sampling period from 2001–2019.[11]

Measured by number of newspapers acquired, the most active private equity firms in our sample are Leonard Green Partners, Blackstone, Fortress Investment Group, Versa Capital Management and Providence Equity Partners. All are traditional private equity firms except for Fortress, which has a range of strategies including private equity. Among them, only Providence has a significant focus on media, while the remaining invest in a range of industries and geographies. For example, around the time that Versa Capital created Civitas Media to purchase U.S. newspapers, it purchased a restaurant chain, storage company and wireless provider. In nearly all the deals we observe, the private equity firm obtains majority or full ownership of the newspaper or newspaper chain via a holding company. These layered ownership structures complicate our efforts to assign newspapers to private equity ownership, and almost certainly lead us to underestimate the number (and share) of newspapers that are private equity-owned.

We supplement the PitchBook data with manual identification of owner type for each newspaper-year in our data. This process involved hand-checking the ownership type and historical ownership changes of each newspaper. We assign newspapers to one of the following mutually exclusive categories: family, independent, non-profit, hedge fund, other financial firm, partnership, pension fund, private chain, private equity, and public company.

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[11]The 2019 data on private equity deals is only used for the first two figures in the paper. Other information for that year is a work-in-progress.

The family status takes precedence over other ownership types; that is, if a chain is family-owned, we call it family-owned and not part of a private chain. Independent newspapers have standalone (i.e., non-chain) ownership and are not family-owned.

We do not treat hedge funds as private equity as they have a different incentive structure, including long-term holding periods. We also do not consider them on their own as there is only one hedge fund in the data: Alden Capital, primarily through its ownership of MediaNews Group. Further, hedge funds differ from private equity in the open-ended nature of their investment horizon period, which does not result in the same incentives for short-term profit seeking. Prior literature on the impact of hedge fund interventions on corporate value emphasize resulting operational improvements in labor productivity and innovation, including Brav et al. (2015). We observe similar results when combining private equity and hedge fund owned newspapers.

2.3   NewsLibrary Data

We obtain data on textual frequency of local news content using the NewsLibrary dataset, as in Gentzkow and Shapiro (2010). We can identify 745 of our 1,610 unique newspapers in the NewsLibrary data, which represents 44.5% of total U.S. circulation as of 2018. To identify content, we first manually code a random subset of articles, and then search for words identified with certain types of content across the whole dataset. We use automated scripts to assess the frequency of words associated with these categories of news.[12]

First, we are interested in articles in a newspaper that contain local policy and governance content. As explained in Section 1.1, this type of coverage is strongly associated with higher civic engagement, and a more robust democracy. We construct a set of articles that contain what we term "Local Policy - Government" content. These articles include any of the following words: city council, city hall, mayor, state senate, state legislature, zoning or planning board. We also consider obituaries, which in local newspapers predominantly concern the deaths of local citizens and thus tend to require more local employee time. We identify obituaries as articles including any of the following

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[12]We restrict analysis of all news content variables to newspapers that have at least 300 articles.

words: died, finally at peace, or passed away.

We are interested in evidence of non-local content that could be syndicated across multiple newspapers, potentially achieving cost savings. The obvious choice here is national politics content, which we define as including any of the following words: Bush, Congress, Obama, Trump, White House, Democrat, Republican. Newspaper groups could create this cross-newspaper content in-house, or they could purchase content from the wire syndication companies. To assess this latter possibility, we identify articles from the Associated Press wire service. While there are other wire services, the Associated Press is the most easily observable in the content data and not conflated with other topics that might have the same name as the wire service.

We also construct two supplementary categories. One is "Local Policy - School", which includes the words: board of education, school board or school district. Second, as a proxy for international news coverage, we locate articles including either of the words China or Russia. For all of these categories, the principal variable of interest is the share of a newspaper's articles with a certain type of content. We also consider the total number of articles by content type.

2.4 LinkedIn Data

To augment our sample with employment information, we use LinkedIn data.[13] The data include information on over 300 million individuals with public LinkedIn profiles as of May 2017. Crucially for our purposes, LinkedIn profiles contain detailed work histories, and so capture extended data prior to the study period for individuals with public profiles. We can identify 766 of our 1,610 unique newspapers in the LinkedIn data with at least one reporter.

We extract job titles from the LinkedIn data for all individuals identifying themselves as employed at the newspaper as of a given year. This allows us to identify the number of people with certain job titles on a panel basis for each newspaper. We create a "Reporters" variable which includes all people with the word reporter or journalist in their job title. We

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[13]These data were originally scraped by a commercial analytics firm. Legal precedent in *hiQ Labs v. LinkedIn* protects the rights of academics and other third-parties to use scraped data from publicly available LinkedIn profiles.

also identify "Editors" as people with the word Editor in their job title, and "Interns and Freelancers" as people with either of those words in their job titles. Finally, we consider all employees as well.

2.5   Politics Data

To investigate changes in political participation at local levels, we use two sources of data. The first is county-level election data, which we acquire from the Local Elections in America Project (LEAP) at Rice University. This has been used in the political science literature, for example in de Benedictis-Kessner and Warshaw (2020). We consider vote totals in three types of local elections. First and most important are county legislative elections. These units of government, including county commissions and councils, collectively bear oversight of local county governments including local government, local taxes, and other local administrative services including infrastructure and judicial functions. Elections to these offices, as a result, are likely to be very local races for which we expect local news commentary to be most important.

Next, we examined mayoral elections. While these are sparser and do not always map to a newspaper area, they are an important election for city governments. Third, we consider sheriff elections, which are even sparser. We convert voting totals to turnout percentages using county-year population data from the U.S. Census Bureau. The election data exist only for a subset of newspaper years, both because elections do not happen every year and because not every county has election data reported in the LEAP files.

As an alternative source of real political outcomes, we examine survey responses from the Cooperative Congressional Election Study (CCES) across the 2006—2019 waves. CCES is a national survey administered by YouGov, with over 50,000 individuals surveyed annually, using a stratified sample procedure. We focus on variables related to news interest and whether an individual has any opinion about their elected representatives. For these variables, we develop a treatment measure of whether there are any private equity-owned papers in the county-year.

2.6 Descriptive Statistics and Targeting

This section summarizes the data, and reports the characteristics of newspapers that robustly predict buyouts. Statistics on the outcome variables employed in this analysis are shown in Table 1. The top two sets concern the share and number of articles in a given newspaper-year that cover particular content areas, as defined in Section 2.3. The next set contains data on employment from LinkedIn. The following two sets report variables from E&P, with the maximum number of newspaper-years in the data on closure. Specifically, we observe print circulation and advertising rates, both of which have large standard deviations. As can be seen in the examples in Appendix Figure A.1, some newspapers charge only a few dollars per open inch, while others charge hundreds of dollars. Finally, the last set contains election data, which exists only for a subset of newspaper-years as mentioned previously. These variables are summarized in levels, but we usually consider log transformations in analysis.[14] The table indicates that private equity-owned newspapers are on average smaller than other types of newspapers, with about 60% of the total number of articles, 69% of the employees, and 82% of the circulation.

We begin by documenting the rise of private equity ownership in the newspaper industry. In Figure 1 we show the share of newspapers and the total number of newspapers owned by private equity firms each year. While there is both entry and exit, on average private equity ownership increased from just under 5% in 2002 to 21% in 2019. We place this increase into the broader industry context in Figure 2 Panel A. This figure documents industry ownership dynamics by charting the number of newspapers owned under each of the major categories in each year. As there are very few partnerships and non-profits, we grouped these together with the unknown ownership category. We combined pension funds, the single hedge fund, and other financial firms into a single category called "Other Financial Firms." A clear trend is the marked decline in the share of newspapers that are part of private chains. Inspecting

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[14]Note that the data samples differ for the first three sets of variables, as only a subset of newspapers match to each external source, as explained previously. With E&P, we could not parse circulation and advertising for all newspaper-years. All variables that are unbounded above (including the total number of articles, employee counts, circulation, and total votes) are winsorized at 2.5% level on both sides, which is a restriction we make throughout the paper.

the data, we find that many of the transitions to private equity, hedge fund, or public company ownership are from private chain status.

The figure yields two other noteworthy insights. First, while the total number of newspapers was roughly constant around 1,500 until 2012, subsequently we see a steady decline. Second, the share of family-owned and independent newspapers has been, perhaps surprisingly, constant over time with the latter even increasing slightly. The increase in independent newspapers seems to stem from cases in which a chain of two to three newspapers breaks apart, either because one of the newspapers are purchased by a larger company, for example a publicly listed entity such as the McClatchy Company, or because one closes, leaving a single standalone newspaper.

Panel B of Figure 2 provides basic information about the major ownership types with three means calculated across all newspaper-years: the share of total newspaper-years, the share of content that concerns local policy, and the number of reporters per ten articles (excluding individuals who identify themselves as interns). Private equity is characterized, on average, by the lowest share of articles on local policy, at 32%. The highest share is for other financial-owned newspapers (e.g., by pension funds), at 46%. Interestingly, the number of reporters per ten articles published, which is related to the degree of syndication, centralization, and investigative effort, is highest among newspapers owned by private chains, at nearly 30%. As we will subsequently explore, there does not seem to be a clear relationship between greater separation of ownership and control on scale and newspaper outcomes. What is clear is that private equity-owned newspapers have far fewer reporters per ten articles, at just 2%. The next-lowest is publicly listed companies. Of course, there are many possible structural reasons for these differences. Notably, private equity ownership tends to occur later in the study period, after newspaper revenue and attention share had in general declined substantially. This change highlights the need for a within-newspaper comparison that also controls for the year.

2.6.1 Predictors of Private Equity Ownership

What predicts a newspaper's ownership change to private equity? One hypothesis is that private equity firms purchase struggling papers. Alternatively, these investors may seek out newspaper groups that have the assets or sales to support changes in capital structure. In Table 2 we consider predictors of private equity ownership. The dependent variable is a binary indicator that equals one if a newspaper-year switches to private equity ownership in that year. For this analysis, we then stop tracking the paper after that year. Column 1 includes covariates but no fixed effects. Columns 2–7 introduce fixed effects and additional controls.

Across most specifications, we find that the transition to private equity ownership is correlated with the newspaper previously having relatively low circulation and high advertising rates. The lower circulation is consistent with private equity firms targeting distressed newspapers. A challenge to this interpretation is that circulation audits might be more likely to occur around buyout years, which would result in less stale circulation measurements. Nonetheless, the relationship persists when controlling for whether an audit occurred in the previous year, and when including only observations with circulation that is not stale, meaning that it changed from the previous year (column 5).

Relative to the excluded category of "Other financial firms," private equity firms target newspapers owned by all other ownership forms. They are most likely to target newspapers owned by publicly traded companies, private chains, and families. Independent newspapers are less likely to transition to subsequent private equity ownership. These patterns are understandable in the context of a generally distressed industry. Both public and private chains faced considerable challenges in managing groups of struggling newspapers, and private equity is a natural buyer in such cases. Many family-owned chains faced succession issues with ownership within families, as in other industries.

3 Empirical Strategy

For each outcome, we present two differences-in-differences regression estimates: one that compares the post-buyout period to the pre-buyout period, and one that estimates the dynamic effect for each year around the buyout. Both approaches include newspaper and year as fixed effects. In other words, we compare newspapers after versus before private equity ownership to other newspapers that never come under private equity ownership, while allowing for an average effect on the whole industry of being in each year. The first regression model is:

$$y_{it} = \alpha_i + \alpha_t + \beta PE_{it} + \varepsilon_{it} \tag{1}$$

Here, y_{it} represents an outcome such as the log number of reporters. α_i and α_t are two vectors of fixed effects controlling for the average of the particular newspaper and year respectively. The coefficient of interest β represents the relative differences of private equity ownership. We cluster standard errors by newspaper.

The dynamic differences-in-differences specification in Equation 2 follows a standard event-study design as in Autor (2003) and Almond et al. (2011). This second approach separately estimates coefficients for each year around the buyout using the following equation:

$$y_{it} = \sum_{s=-19}^{t=19} \beta_t \mathbf{1}\{t = s\} + \alpha_i + \alpha_t + \varepsilon_{it} \tag{2}$$

We fully saturate the model to account for all years before and after the deal date. The omitted category is $\mathbf{1}\{t = -1\}$, reflecting the year prior to deal. All other aspects of the equation are as defined previously. We show the results graphically by plotting the coefficients β_t for the years immediately around the buyout. In a robustness test, we also show the raw means of key outcome variables for target newspapers in the years around the buyout.

Although the event studies and other robustness tests allow us to assess pretrends and rule out certain confounding factors, it remains the case that PE firms clearly do not pick targets at random, and our empirical design does not approximate a random experiment. Our

causality argument focuses on treatment effects for the treated, rather than external validity to a random firm in the economy. This interpretation is important for social welfare as PE expands its footprint in the economy and in the newspaper sector in particular; even to the degree that target newspapers "need" LBOs because they are, for example, mismanaged, we shed light on real outcomes of that buyout.

4   Results

We focus first on private equity ownership in Section 4.1, then compare the major ownership types to one another (Section 4.2). Robustness tests are presented in Section 4.3.

4.1   Effects of private equity ownership

News Content. Our first outcome is the share of news articles mentioning local policy issues. Table 3 uses Equation 1 to assess the effect of buyouts on the share (Panel A) and the number (Panel B) of a newspaper's articles that cover a specific topic. The share measure is informative about the allocation of reader's attention within the newspaper across content types. We find a significant negative effect of private equity buyouts on the share of articles concerning local government policy. Specifically, these decline by 3.6 percentage points, or 10.8% of the mean (Panel A column 1). There is also a negative effect on the share of articles that are obituaries, which is 9.4% of the mean (Panel A column 2). These results suggest that reader attention is diverted away from local content.

In Panel B, we continue to see significant declines in local content when measured as the absolute number of articles. (Here and below, we report the exponentiated coefficients when the outcome is logged.) There is a 23% decline in local government articles and a 29% decline in obituaries (columns 1-2).[15] More articles on other topics do not compensate for these negative effects. Instead, we see a 16.7% decline in the total number of articles (column 5).

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[15]As an example of the interpretation, in the case of local government articles we calculate the effect as $23 = (\exp(-0.256) - 1) \times 100$.

We next consider content that can be more easily shared across newspapers, creating opportunities for cost efficiencies. Here we find an increase in the share of articles about national politics of 1.3 percentage points or 8.3% of the mean (column 3). In contrast, there is no change in the number of Associated Press articles (column 4), suggesting that PE ownership does not lead to more use of national wire services. When it comes to the number of articles, we see no significant effect on national politics, and a negative effect on Associated Press articles (Panel B columns 3-4). Overall, these changes in article content are consistent with cost-cutting measures by private equity firms, because they disproportionately reduce articles which are more expensive to produce (i.e., local journalism) while shifting content towards more syndicated and national content which is easier to share across newspapers.

Figure 3 Panels A-C presents the event study differences-in-differences results. We find minimal pre-trends before the deal, none of which are statistically significant. In the years immediately following the deal year, the coefficients for local content (local government and obituaries) drop discontinuously (Panels A and B), while there is an upward trend for national politics (Panel C). The event study supports the assumption that the effects we observe in Table 3 are unlikely to be driven by pre-existing trends in local content shifting, and instead can be attributed to changes to private equity operations beginning in the years after the deal.

We consider supplementary outcomes in Appendix Table A.2. We see no change in the share but a significant decline in the raw number of articles about school policy. The absence of an effect on share could reflect substantial demand among readers for information about local schools, where the importance of knowledge may be more immediately salient, especially for parents. We do not see significant effects on articles about China or Russia. The visual event studies for these outcomes as well as for AP Wire content share are in Appendix Figure A.3. A complication for the AP Wire outcome is that use of wire services trends down in our sample over time. As a result, control newspapers, included in the -1 years before the deal, push the coefficient on that control year upwards. We also report the visual event studies for all outcomes using the log number of articles in Appendix Figure

A.2. The regression results for school policy content should be taken with some caution, as we do not see a meaningful effect in the event study.

Employment. We next assess a plausible mechanism which would result in decreases in local news coverage: changes in employment. In Table 4, we consider the log number of employees at the newspaper using the LinkedIn data. We find large and statistically significant decreases in key occupations associated with generating new, local content.

Specifically, following private equity buyouts the number of reporters declines by 7.3%, though this effect is significant only at the .1 level (column 1). The number of editors, who would typically be more highly paid, declines by 8.9% (column 2). This effect is particularly robust, significant at the .01 level. We see no effect of private equity buyouts on the number of interns and freelancers, who are typically less costly, as they earn less per hour, do not receive benefits, and do not have long-term contracts. As we would expect, the number of total employees also declines, by 7.1% (column 4). The event studies analysis in Figure 3 Panels D-F confirm these effects. The plots reveal a steady and statistically significant decrease in employment in the years after a buyout and exhibit no evidence of pre-trends in the years prior to the buyout.

The employment effects, combined with the decline in absolute local news coverage, suggest a private equity operational strategy of reducing costs by cutting local reporting staff. The near-zero marginal cost of non-local news dissemination may allow the private equity-owned newspapers to partially make up for the resulting decline in local content with relatively more national content that is syndicated from other newspapers.

Operations. While less centrally related to our question of local news production, we are also interested in operational outcomes. First, Table 5 Panel A considers variables connected to how the newspaper treats demand curves on its two-sided platform. We find negative effects on the number of print newspaper subscribers. The data include many instances in which circulation is the same from year-to-year, suggesting imputed and possibly stale data. Therefore, we present two models: one with all the data (Panel A column 1), and one restricted to newspaper-years in which circulation changes from year to year, in case the absence of change represents stale data (Panel A column 2). The results indicate declines of

9.8–11.1%. In contrast, in column 3 we see a dramatic increase of 44% in digital circulation. Unfortunately, we do not observe subscriber prices.

The other side of the newspaper's platform consists of advertisers. The effect on the advertising rate appears negative but is imprecisely measured (columns 5–6). Here, we use the same approach to address possibly stale data, though it is more likely that menu costs make advertising rates sticky, as opposed to circulation which we do not expect to be the same year-to-year. The negative effects on both circulation and advertising could potentially point to private equity firms reducing prices for advertisers in an environment of increasing competition with online advertising opportunities, while increasing prices for subscribers. This could increase overall profits if prices rise sufficiently relative to the declines in subscriptions. The increase in digital circulation is consistent with evidence from other sectors that private equity investors make IT investment in their portfolio firms (Agrawal and Tambe, 2016). These results should be interpreted with some caution because the data do not permit clear event studies. The event studies, in Appendix Figure A.3 Panels D-F, suggest a decline in print circulation, but it is very noisy.

We find a second benefit of private equity ownership in the form of reduced closure. Following Gao et al. (2019), we consider the outcomes of the newspaper shutting down entirely, merging and changing the newspaper name, or transitioning to a weekly newspaper. All these outcomes represent major changes in newspaper operation. While the annual rates of closure are small, we find that private equity-owned newspaper are much less likely to close newspapers. The results are reported in Table 5 Panel B. Column 2 shows that within year and state, private equity-owned newspapers are 0.3% less likely to shut down, relative to a mean of 0.4%, implying a 75% reduction relative to the mean. They are also less likely to become a weekly newspaper, shown in column 4. This effect is 60% relative to the mean. In contrast, we find no evidence that private equity ownership leads to a "rolling up" of newspapers into single entities with the same name, shown in column 3.

We can calculate what this result means for averted closures. If private equity-owned newspapers closed at the same rate as other newspapers, there would be about 11 additional

closures, which is just 0.7% of the overall sample of 1,610 newspapers.[16]

Political Outcomes. As explained in Section 1.1, local newspapers provide residents in the area with key information relevant for civic engagement. People learn from the newspaper – and the TV, radio, and social media sources that subsequently share this content – about the fact that a local election will occur, who the candidates are, and what, if anything, their platforms contain. The negative effect of private equity ownership on local government news content is important if it has real implications in the form of political participation. To assess this, we examine local political races. As de Benedictis-Kessner and Warshaw (2020) explain, local offices are responsible for providing local public goods yet are not very salient elections and, in recent decades, suffer from low turnout. To conduct our analysis, we exploit the geographic boundaries around newspaper coverage areas. Specifically, we assume that county residents are most likely to read their own county's newspaper for information. This allows us to analyze the impact of private equity ownership on political outcomes at the local county level.

We consider three types of local elections: legislative councils, mayors, and sheriffs. The broadest coverage exists for council elections, and it is here we find the strongest effects, shown in columns 1–3 of Panel A in Table 6. First, total votes decline by about 3,000 relative to a mean of about 32,000 (9%) when there is a private equity-owned newspaper in the county. The effect is similar, at 12.4%, when we use the log of total votes in column 2. Most important is the third dependent variable, which is turnout measured as the number of votes divided by the county's population. Here we see a decline of 0.82%, which is 9.4% of the mean.[17]

One way to assess whether the results in Table 6 Panel A are spurious is to test whether effects occur in the same direction for different outcomes. The pattern is similar for mayoral elections, where there is less coverage (Table 6 columns 4–6). Total votes declined by 16%,

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[16]This reflects the following calculation. Among newspapers that are never private equity-owned, 6.5% close ultimately. This figure is 2.3% for private equity-owned newspapers. 6.5% of the 262 ever private equity-owned newspapers is 17, minus the actual six ever-private equity closures yields 11.

[17]We do not show visual event studies for these outcomes because of the nature of the county-year level election data, where observations occur only every two to four years in a given locality. In practice, like the other outcomes they contain no pre-trends, but are very noisy and thus not especially informative.

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and turnout also appears to decline, though this effect was not significant. In Appendix Table A.6 Panel A, we further consider sheriff elections. Here we have far fewer observations, and the results are not statistically significant. However, the coefficients are negative across all models. For example, in column 1 the nearly-significant coefficient implies a decline of 7% in sheriff election votes.

Finally, in Panel B of Table 6, we consider a different type of real political outcome, information about news interest and political engagement based on survey responses in the Cooperative Congressional Election Study (CCES), across 2006–2019. First, we ask whether private equity buyouts lead to a change in interest in news generally. We find that they do not (column 1), although the coefficient is negative. Next, we ask whether the individual has an opinion about the elected official who represents them in the U.S. House of Representatives. Here we find a strong effect; having a private equity-owned paper in the county increases the chances of "No Opinion" by 2 percentage points, about 11% of the mean. As a control comparison, we consider in columns 3–5 higher levels of government, which are more likely to be independently covered by TV and other news outlets (Senator, Governor, and President). In all cases, there are no effects. Collectively, these results lend some credibility to the results in Table 6 Panel A. This link is also supported by the large body of literature establishing that local newspapers in the U.S. have been measurably important to political participation, discussed in Section 1.1.

Discussion. Overall, our results suggest declining participation in local democracy after private equity buyouts. While people appear to become less engaged with their local representatives, they are no less interested in politicians with a broader state- or nation-wide presence. This result is consistent with the idea that deteriorating local news coverage impacts accountability in government at the local level. Our results highlight important trade-offs associated with private equity ownership and paint a nuanced picture of newspapers after buyouts. While local content deteriorates under private equity ownership, papers may avoid closure and may even increase digital reach under private equity ownership. In sum, the welfare effects are ambiguous and deserve further research.

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4.2 Ownership Types Beyond Private Equity

While this paper is primarily concerned with private equity, it is useful to explore how private equity compares with other ownership types, both to understand how private equity fits into the industry's broader context, and to assess whether the effects of private equity reflect corporatization or scale. As depicted in Figure 2 Panel B, 21% of newspaper-years in our sample occur under private chain ownership, 14% under public ownership, 31% under family ownership, and 16% under independent ownership. In Table 7, we assess the relationships between our main outcomes and these other major types of ownership. In all cases, the base (omitted) group is private equity, so the coefficients should be interpreted relative to private equity. We show two models for each outcome. The first excludes newspaper fixed effects. In this case, the coefficient indicates the average for each ownership type in the whole sample relative to private equity. The second column includes newspaper fixed effects, thus the coefficient is identified only off of newspapers that change to or from the ownership type, but is still relative to private equity.

Panel A of Table 7 reports estimates for the local and national policy content of articles, with share in columns 1–4 and log number in columns 5–7. All other ownership types have a significantly higher share of local articles than private equity. In the models with newspaper fixed effects, we find that transitions to independent and family ownership are accompanied by significant increases in both the share and number of articles about local government (columns 2 and 6). In these within-newspaper models, we do not find that any other ownership types have consistent, significant relationships to national content.

The patterns are somewhat similar for employees in occupations responsible for local content production, shown in Panel B of Table 7. Except for other financial firms, all other ownership types are on average associated with more employees, particularly public companies. Within-newspaper, we find that independent and private chain newspapers have significantly more reporters (column 2). Specifically, transitions to independent ownership lead to about 10% more reporters. Family ownership leads to more editors in particular (column 4). In the models with newspaper fixed effects, the strong positive correlations for

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public companies disappear, suggesting that these correlations reflect fixed features of the types of newspapers that public firms tend to target.

The other operational outcomes are reported in Panel C of Table 7. The other major types of ownership appear correlated with lower digital circulation, higher print circulation, and higher rates of closure. The negative within-newspaper coefficients for digital circulation in column 2 indicate that transitions to private equity ownership increase digital circulation more than any other ownership type. Meanwhile, transitions to family ownership are associated with largest increases in print circulation relative to private equity transitions (column 4).

Finally, in Panel D we consider the key political outcome of voter turnout for council elections (columns 1–2) and mayoral elections (columns 3–4). The other ownership types are strongly correlated with higher turnout. However, when we look within-newspaper (columns 2 and 4), we see no strong evidence of effects from any other types of ownership, although the coefficient is large and significant at the 0.1 level for other financial firms. However, given the small sample these results should be interpreted with caution.

In sum, this analysis is generally consistent with our results on private equity; suggesting that alternative ownership types are associated with local news coverage, more newspaper employment, and higher local turnout—but higher closure rates. These results are relevant to understanding ownership types in media. First, private equity ownership impacts newspapers in ways that are not mirrored by any other ownership type, suggesting the results do not simply reflect corporatization or scale. To the contrary, public firms and chains are associated with significantly more employees and local government news coverage. Second, our results add to the existing literature on family firms. This is particularly relevant because family ownership has traditionally been a dominant form for newspapers worldwide. Consistent with non-pecuniary benefits from governance that family ownership might entail, family firms do have more employees – especially senior ones. This contributes to the debate in the literature about labor contracts in family firms (Bertrand and Schoar, 2006; Villalonga and Amit, 2006; Sraer and Thesmar, 2007; Bach and Serrano-Velarde, 2015).

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4.3 Robustness Tests

In this section, we describe a number of robustness tests on the main results from Section 4.1. First, we conduct a placebo test. We replace the true buyout year with one five years previously, and drop observations after the true buyout. The results are presented in Table 8. There are no significant effects except for circulation, where we see evidence of a large pre-trend; circulation appears to have been declining pre-buyout at target newspapers. This suggests that the smaller negative effect on circulation we saw in Table 5 could actually be interpreted as a mitigation; in other words, it is possible that circulation would have declined even more in the absence of the buyout. The data are too sparse in advance of the buyout to assess digital circulation with any degree of confidence.

Second, we conduct robustness with respect to the staggered difference-in-differences empirical design in Table A.1, using the Sun and Abraham (2021) and Callaway and Sant'Anna (2021) estimators. Our coefficients on the impacts of PE investment on local news content, employment, and circulation maintain the same signs. Our main estimates on article content remain economically and statistically significant. Our estimates on employees and operations are quantitatively very similar but slightly weaker due to power issues in the specification, and our magnitudes remain substantial.

Third, we examine the raw mean changes in key variables around buyouts, within the target sample of firms. Observing similar results using this simple event study confirms that nothing about our parametric models biases the general direction of effects. Appendix Figure A.4 shows the mean of the outcome variable for each year around the year of the buyout for four key variables. Panel A contains the share of articles on local government. Similar to the dynamic differences-in-differences results, we see no pre-trends and a discontinuous decline after the buyout. In Panel B, the share of articles on national politics does not exhibit the same strong upward trend, suggesting that the comparison with other newspapers is important to the regression estimate. Newspapers have generally increased their national content over time, which muddies the waters for this figure. For employees, we observe a marked decline in the first three years after the buyout (Panel C). Last, in

Panel D, there is a significant decline in circulation after the buyout, which appears to begin in year three, but we also see some evidence of the pre-trend discussed previously. This is helpful given the noise in the dynamic differences-in-differences model (Figure A.3 Panel D).

We also consider endogeneity in acquisition by private equity, and partially address this issue by adding deal fixed effects in Appendix Table A.3. The inclusion of these additional controls means that our analysis now compares changes in local news outcomes among newspapers bought by a private equity company, against other newspapers bought by that same firm as part of the same overall transaction. This specification allowed us to control for all unobserved characteristics in common with newspapers commonly purchased (at the potential cost of "overcontrolling") for part of the treatment effect itself. Despite the strong nature of this control, we continued to observe large changes for all our main outcome variables.

Our next robustness tests concern article content. In Appendix Table A.4 Panel A, we show the results using a fractional logit GLM, following Papke and Wooldridge (2008). This addresses the concern with binary outcome variables in a panel data setting. The results are robust to this approach, and the effect on news content about international issues (using the words "China" and "Russia" as a proxy) grows stronger (column 3). A second concern with the content results is that given the different match rates to employment and article data, our employment results could stem from a different set of newspapers than the content results. In Appendix Table A.4 Panel B, we show that the effects on local governance article content are robust to restricting the sample to those papers in which we also observed employment, though the national politics result is not. We also show that the results in which we log the outcome variables are robust to using levels in Appendix Table A.5.

Finally, we conduct a robustness test of the political participation results. We are concerned that because these outcomes are defined at the county level, and there may be more than one newspaper in a county, it is possible that our results reflect some spurious factor at the county level. Therefore, in Appendix Table A.6 Panel B, we add county level fixed effects and remove newspaper fixed effects. The results become weaker without the

newspaper effects. However, the coefficients remain large and negative, and the key county council turnout effect remains significant at the 0.1 level.

Overall, these tests together with the dynamic difference-in-differences event studies support the main results on news content and employees. The operational results around circulation and closure are less compelling, because either the event study or control test is suggestive of a pre-trend, or the event study does not clearly indicate a discontinuous change post-buyout. We are relatively more confident in the political participation results, as they offer consistent results in terms of coefficient direction across many alternative outcomes that are measured at different times and using different geographies. They are, however, sparse and somewhat noisy.

Finally, we conduct heterogeneity tests to better understand which parts of the sample drive the main effects on employment and local government news content. One reason this is important is that since our results are estimated in-sample on the set of newspapers targeted by private equity firms, they may not generalize broadly to the set of all newspapers —that is, in a counterfactual experiment where private equity investors randomly acquired newspapers. We therefore divide the sample around the median in two dimensions. The first is on print circulation, where we take the average for each newspaper across its life and then calculate the median across newspapers. The second dimension is local news share, which is the ratio of news items which are local compared with national news. We similarly compare newspapers that are below and above median in this local news ratio across their life. Panel A of Table A.7 shows that private equity ownership reduces employment more at newspapers with a smaller local news share and below-median circulation. Panel B shows that local government news content is more negatively affected at newspapers with below-median circulation but above-median local news shares. These results suggest that the consolidation motives for private equity may be felt especially strongly for papers at a smaller scale, and which were previously supplying a high degree of local news content.

5 Conclusion

The importance of media to political outcomes in the U.S. has never been more apparent. The newspaper industry has been in decline for decades, and newspaper failures have accelerated over the past ten years. These failures have generated substantial alarm among political scientists; for example, following the January 2021 insurrection at the U.S. Capitol, Timothy Snyder wrote that "the financial crisis of 2008 did to American newspapers what the Great Depression did to German ones" (Snyder, 2021). While much attention falls on partisan ownership (e.g. DellaVigna and Kaplan (2007)), and despite a large literature on the role of competition in media markets (e.g. Cagé (2020)), there has been little focus on how the intensity of profit-maximizing incentives affects information provision.

Private equity brings exceptionally high-powered and short-term incentives to increase firm value. This paper offers the first assessment, to our knowledge, of how private equity ownership affects media content. We find that following buyouts of daily newspapers, there is a shift in the composition of news away from local government issues and toward national politics topics. The absolute amount of local news declines as well. We document real effects of these changes, in the form of lower voter turnout and lower awareness of local politicians. This civic engagement result is unambiguously negative, as voter knowledge of local policy issues and participation in the political process are crucial for local government accountability and, ultimately, a functioning democracy.

At the same time, however, we find that private equity buyouts reduce the chances that a newspaper closes, and seem accompanied by higher digital subscriptions, suggesting increased investment in digital platforms. These results point to a more nuanced welfare picture, as the newspaper's survival and reader's utility from the changing mix of content may be substantially beneficial. It is beyond the scope of this paper to quantify these opposing forces. Moreover, further research is needed both to confirm our results using higher-quality data on outcomes and to understand whether alternative business models being suggested for the newspaper industry, such as non-profits—as exemplified by the Salt

Lake Tribune's conversion in 2019—might be able to achieve better outcomes (Times, 2020).

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Figure 1: **Private Equity Ownership of Daily Newspapers (2001–2019)**
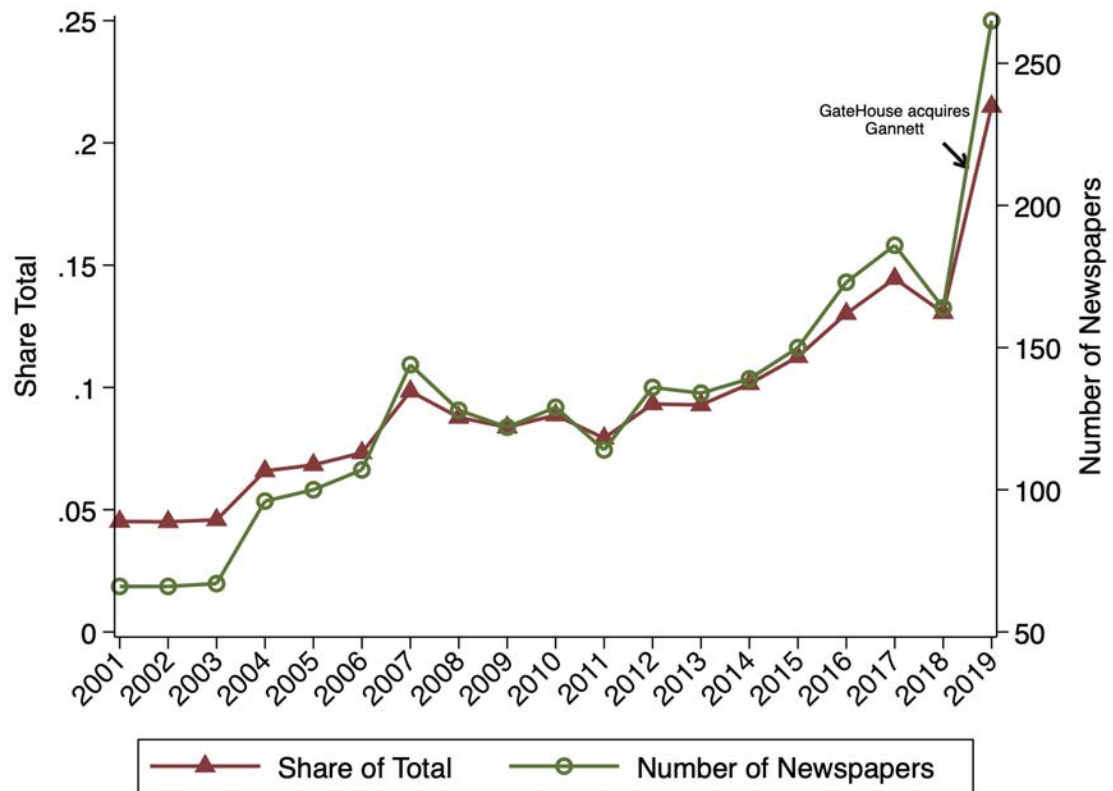
Note: This figure shows the share of all newspapers and the number of newspapers owned by private equity firms over time in our sample of daily newspapers.

Figure 2: **Private Equity Compared with Other Major Ownership Types (2001–2019)**
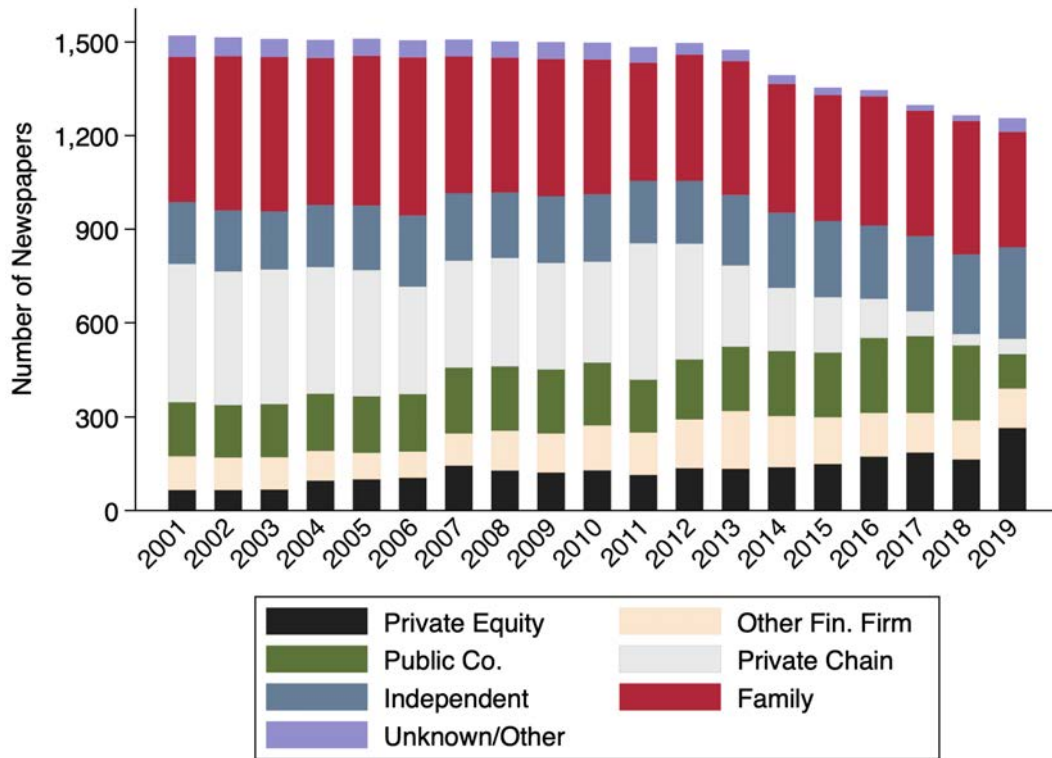
A. Major Ownership Types as Fraction of Total in Study Sample
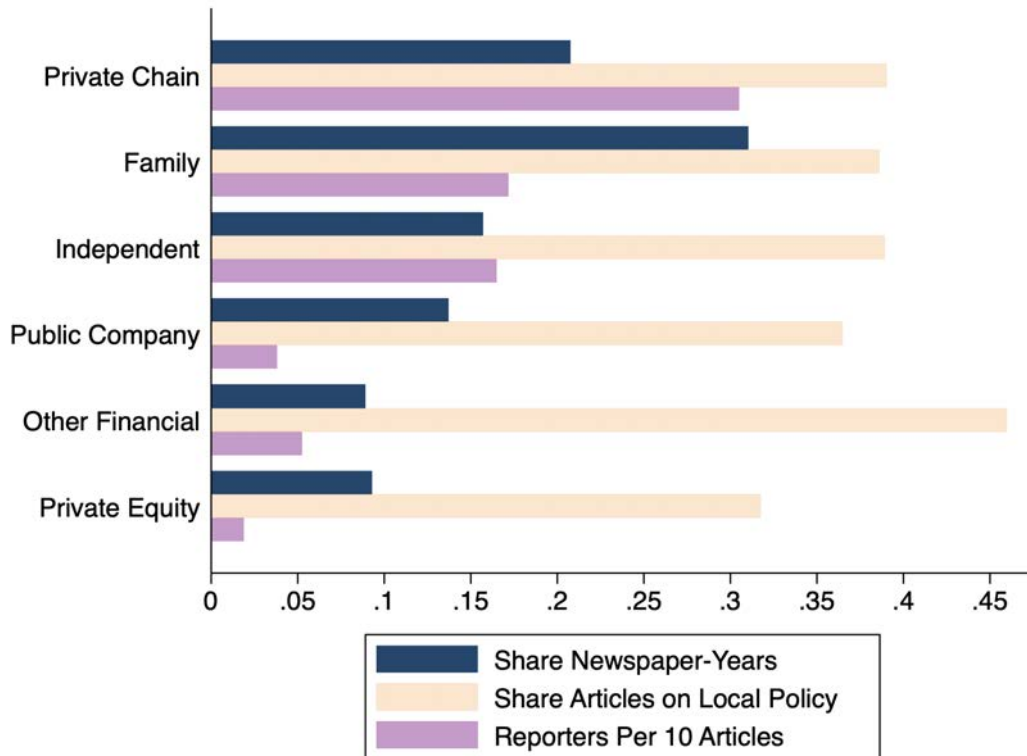
B. Comparison of Key Statistics Across Ownership Types

Note: This figure shows ownership dynamics and key relative characteristics in our sample of daily newspapers. We include the major ownership types. Ownership types are mutually exclusive. If a newspaper is identified as family-owned, that status takes precedence vis-a-vis chain or independent status.

Figure 3: **Difference-in-differences Event Studies on Effects of Private Equity Ownership**
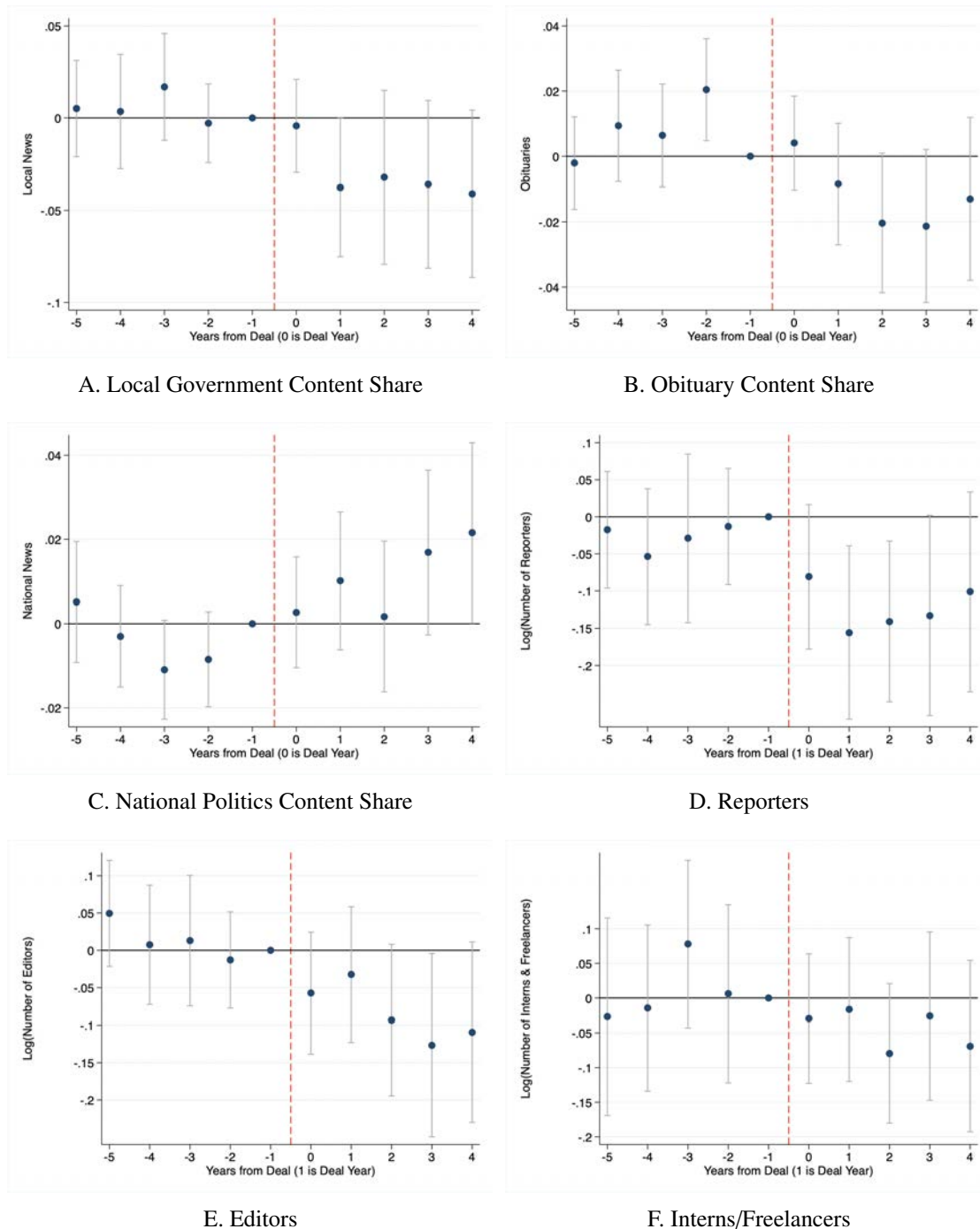
A. Local Government Content Share

B. Obituary Content Share

C. National Politics Content Share

D. Reporters

E. Editors

F. Interns/Freelancers

Note: This figure presents the differences-in-differences event studies around the time a newspaper experiences a private equity buyout. We leave out the year before the deal (−1). The regression includes year and newspaper fixed effects, as well as dummies for each year around the buyout (34 total dummies). Only the coefficients for the years immediately around the buyout are shown in the graph. Article content outcomes are in Panels A-C. Local policy articles (Panel A) include any of the following words: city council, city hall, mayor, state senate, state legislature, zoning, planning board, board of education, school board, school district, municipal, sheriff, police, local policy. Obituaries (Panel B) include any of the following words: died, finally at peace, or passed away. National politics articles (Panel C) include any of the following words: Bush, Congress, Obama, Trump, White House, Democrat, Republican. Employees by occupation are in Panels D-F. In each case, the dependent variable is the log number of employees in a certain occupational category. 95% confidence intervals shown.

Table 1: **Summary Statistics**

	All		Non-Private Equity		Pre-Private Equity		Post-Private Equity	
	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Share Articles:								
Local Government	11449	0.33 (0.17)	7681	0.34 (0.18)	1331	0.35 (0.19)	2220	0.28 (0.13)
Obituaries	11449	0.14 (0.10)	7681	0.14 (0.10)	1331	0.15 (0.10)	2220	0.13 (0.09)
National Politics	11449	0.16 (0.17)	7681	0.16 (0.17)	1331	0.15 (0.15)	2220	0.16 (0.19)
AP Wire	11449	0.05 (0.08)	7681	0.05 (0.09)	1331	0.06 (0.09)	2220	0.03 (0.05)
Local Policy - Schools	11449	0.05 (0.03)	7681	0.05 (0.03)	1331	0.05 (0.03)	2220	0.05 (0.03)
China/Russia	11449	0.02 (0.01)	7681	0.02 (0.01)	1331	0.01 (0.01)	2220	0.02 (0.02)
Number Articles:								
All	11449	13999 (14026)	7681	14924 (14669)	1331	17462 (15029)	2220	8894 (9217)
Local Government	11449	4346 (4678)	7681	4658 (4799)	1331	5778 (5381)	2220	2433 (2880)
Obituaries	11449	1831 (2210)	7681	1947 (2259)	1331	2425 (2507)	2220	1120 (1625)
National Politics	11449	2273 (2911)	7681	2484 (3177)	1331	2500 (2521)	2220	1447 (1907)
AP Wire	11449	1072 (2432)	7681	1185 (2568)	1331	1547 (2958)	2220	376 (883)
Local Policy - Schools	11449	580 (592)	7681	622 (629)	1331	718 (573)	2220	356 (369)
China/Russia	11449	277 (385)	7681	305 (416)	1331	309 (378)	2220	165 (234)
Reporters	13122	5.46 (8.74)	10819	5.60 (8.98)	885	6.36 (8.40)	1369	3.77 (6.70)
Editors	13122	6.69 (10.98)	10819	6.72 (11.12)	885	9.27 (11.96)	1369	4.70 (8.55)
Interns and Freelancers	13122	1.57 (3.06)	10819	1.58 (3.10)	885	1.77 (2.88)	1369	1.31 (2.81)
Employees	13122	36.47 (60.31)	10819	37.14 (61.63)	885	45.11 (60.83)	1369	25.58 (47.10)
Circulation	22792	22037 (28021)	17066	20933 (27454)	3005	35667 (32547)	2721	13910 (20037)
Digital Circulation	3419	32392 (217200)	2333	37412 (258649)	643	14558 (33155)	443	31841 (98274)
Advertising (Max open inch rate)	22192	46.51 (86.21)	16745	43.93 (86.90)	2858	72.47 (89.82)	2589	34.48 (70.94)
Closed	27474	0.01 (0.10)	20697	0.01 (0.11)	3511	0 (0.02)	3050	0.01 (0.10)
Shut Down	27933	0.003 (0.06)	21060	0.004 (0.06)	3512	0 (0)	3053	0.003 (0.05)
Merged & Changed Name	27856	0.003 (0.05)	21013	0.003 (0.06)	3511	0 (0.02)	3052	0.004 (0.07)
Changed to Weekly	27781	0.005 (0.07)	20918	0.01 (0.08)	3512	0 (0)	3051	0.004 (0.06)
County-Level Elections:								
Council Votes (Thou)	2119	32.35 (36.81)	1714	34.12 (37.70)	191	32.66 (32.70)	214	17.93 (29.17)
Council Turnout	2117	8.72 (12.19)	1712	8.86 (12.06)	191	12.04 (16.34)	214	4.66 (6.69)
Mayor Votes (Thou)	1960	26.11 (58.65)	1663	25.76 (58.35)	127	36.44 (68.31)	170	21.85 (52.96)
Mayor Turnout	1960	4.64 (5.53)	1663	4.72 (5.54)	127	5.44 (6.78)	170	3.24 (4.05)
Sheriff Votes (Thou)	487	47.55 (57.14)	389	47.23 (56.98)	47	62.82 (67.25)	51	35.89 (44.95)
Sheriff Turnout	487	30.01 (7.43)	389	30.17 (7.54)	47	30.13 (7.34)	51	28.62 (6.54)

Note: This table shows summary statistics about our data at the newspaper-year level. Variables are defined in Section 2. The left-most three columns include the whole sample, the middle three columns include newspaper-years under private equity ownership, and the right-most three columns include newspaper-years not under private equity ownership (including targets pre-buyout). The samples differ based on matching to the source of characteristic data, which is content from NewsLibrary (first two blocks of variables), employment outcomes (third block), circulation and advertising where populated in E&P (fourth block), closure (fifth block), and political variables (sixth block).

Table 2: **Predictors of Private Equity Ownership**

Dependent Variable: Private Equity $t + 1$

	(1)	(2)	(3)	(4)	(5)	(6)
Circulation t-1	-0.007***	-0.002	-0.002	-0.054***	-0.009***	-0.007***
	(0.002)	(0.002)	(0.002)	(0.008)	(0.003)	(0.003)
Circ. audit t-1	0.005***	0.006***	0.007***	0.004*	0.000	0.006**
	(0.002)	(0.002)	(0.002)	(0.002)	(.)	(0.003)
Log(Advertising Rate)	0.007***	0.004*	0.003*	-0.002	0.010***	0.007***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Public Co.	0.033***	0.031***	0.032***	0.012*	0.034***	0.031***
	(0.004)	(0.004)	(0.004)	(0.007)	(0.004)	(0.005)
Private Chain	0.012***	0.016***	0.016***	0.014***	0.016***	0.016***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Independent	0.004***	0.003**	0.002	0.005	0.005***	0.004***
	(0.001)	(0.001)	(0.002)	(0.007)	(0.002)	(0.001)
Family	0.016***	0.015***	0.015***	0.011**	0.018***	0.016***
	(0.002)	(0.002)	(0.002)	(0.005)	(0.002)	(0.002)
Unknown/Other	0.013	0.013	0.017	0.008	0.004***	0.018
	(0.011)	(0.012)	(0.013)	(0.011)	(0.001)	(0.015)
Log(Number of Employees)						-0.001
						(0.001)
Observations	14351	14351	14351	14351	9981	9058
R^2	0.010	0.039	0.046	0.053	0.009	0.008
Year FE	No	Yes	Yes	Yes	Yes	Yes
State FE	No	No	Yes	No	No	No
Newspaper FE	No	No	No	Yes	Yes	Yes
Outcome Mean	0.014	0.014	0.014	0.014	0.017	0.015

Note: This table shows the OLS regression estimates where the dependent variable is one if a newspaper transitions to private equity ownership in the next year. After this transition, the newspaper is no longer tracked. The controls include circulation, the log of advertising rates and dummy variables of the current year ownership type. "Year FE", "State FE" and "Newspaper FE" are fixed effects for the year, newspaper state and newspaper, respectively. State FE are not identified separately for models with newspaper FE, so we list them as excluded. Column (5) subsets on non-stale circulation data. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value <.05, and * denotes p-value <.1.

Table 3: **Private Equity Ownership and Article Content**

Panel A: Share of Articles

Dependent Variable:	Local Government	Obituaries	National Politics	AP Wire
	(1)	(2)	(3)	(4)
Post deal X PE	-0.036**	-0.013*	0.013**	-0.008
	(0.014)	(0.007)	(0.007)	(0.007)
Observations	10952	10952	10952	10952
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	0.332	0.139	0.157	0.050

Panel B: Log Number of Articles

Dependent Variable:	Local Government	Obituaries	National Politics	AP Wire	Total
	(1)	(2)	(3)	(4)	(5)
Post deal X PE	-0.256***	-0.345***	-0.122	-0.240*	-0.183***
	(0.054)	(0.081)	(0.081)	(0.129)	(0.054)
Observations	10952	10952	10952	10952	10952
Year FE	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	7.895	6.930	6.972	5.274	9.122

Note: This table shows the effect of private equity buyouts on the share (Panel A) and log number (Panel B) of a newspaper's total articles that fall into a particular topic area (a single article can cover multiple topics). Local policy "government" articles (Panel A, column 1) include any of the following words: city council, city hall, mayor, state senate, state legislature, zoning, and planning board. Obituaries (column 23) are articles including any of the following words: died, finally at peace, or passed away. National politics articles (column 3) include any of the following words: Bush, Congress, Obama, Trump, White House, democrat, or republican. AP Wire (column 4) refers to syndicated articles from the Associated Press. Total articles are in Column B, column 5. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table 4: **Private Equity Ownership and Employees**

Dependent Variable:	Reporters	Editors	Interns & Freelancers	Employees
	(1)	(2)	(3)	(4)
Post deal X PE	-0.076*	-0.093***	-0.004	-0.074**
	(0.040)	(0.035)	(0.041)	(0.038)
Observations	12641	12641	12641	12641
R^2	0.092	0.045	0.130	0.181
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	1.188	1.717	0.518	2.531

Note: This table shows the effect of private equity buyouts on the logged number of employees. The sample is restricted to newspaper-years with at least one reporter. Employee data are from LinkedIn, and occupations are derived from job titles. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value <.05, and * denotes p-value <.1.

Table 5: **Private Equity Ownership and Operations**

Panel A: Circulation & Advertising

Dependent Variable:	Circulation				Advertising Rate	
	No Stale	All	Digital	All	No Stale	All
	(1)	(2)	(3)	(4)	(5)	(6)
Post deal X PE	-0.084***	-0.118***	0.363*	-0.066***	-0.034	-0.042*
	(0.016)	(0.019)	(0.206)	(0.019)	(0.031)	(0.024)
Observations	15039	22792	3292	3419	10549	22192
R^2	0.594	0.426	0.101	0.754	0.093	0.087
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	9.775	9.427	5.033	10.101	3.200	3.183

Panel B: Closure or Change of Status

Dependent Variable:	Any Closure	Shut Down	Merged & New Name	Became Weekly
	(1)	(2)	(3)	(4)
Post deal X PE	-0.004**	-0.002**	0.001	-0.003**
	(0.002)	(0.001)	(0.001)	(0.001)
Observations	26720	26736	26730	26730
R^2	0.024	0.008	0.008	0.016
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Outcome Mean	0.011	0.004	0.003	0.005

Note: Panel A of this table shows the effect of private equity buyouts on log print circulation (number of subscribers) and log advertising rate (dollars per open inch, which is the rate charged to a new advertiser who does not have an existing discount per square inch). In column 1 and 3, the sample is restricted to newspaper-years in which circulation or advertising rates change from year to year, in case the absence of change represents stale data. Panel B of this table shows the effect of private equity buyouts on three newspaper outcomes: closure (columns 1–2), merger and change of name (columns 3–4), and a switch from being a daily newspaper to a weekly (column 5–6). Note only dailies, not weeklies, comprise the main sample. We show models both with and without newspaper fixed effects as these events can happen only once in a newspaper's life. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table 6: **Private Equity Ownership and Political Outcomes**

Panel A: Local Election Participation

Election Type:	County Council			Mayor		
Dependent Variable:	Total Votes	Log Total Votes	Turnout (%)	Total Votes	Log Total Votes	Turnout (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Post deal X PE	-3.005*	-0.133*	-0.821**	-1.545	-0.175*	-0.198
	(1.730)	(0.079)	(0.407)	(4.094)	(0.098)	(0.293)
Observations	2124	2124	2122	1960	1960	1960
R^2	0.299	0.196	0.076	0.155	0.083	0.034
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	32.283	9.492	8.745	26.111	8.848	4.637

Panel B: Survey-Based Measures of News Interest and Government Knowledge

Dependent Variable:	High News Interest	No Opinion Of			
		House Rep	Senator	Governor	President
	(1)	(2)	(3)	(4)	(5)
PE Paper in County	-0.013	0.020***	0.004	0.006	0.002
	(0.009)	(0.008)	(0.008)	(0.006)	(0.003)
Observations	22170	22170	22170	22170	22170
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	0.500	0.183	0.182	0.102	0.030

Note: This table shows the relationship between private equity ownership and political outcomes. In Panel A, we consider two types of local elections: county legislature (columns 1-3) and mayoral (columns 4–6) elections. Total votes are in thousands. Turnout is defined as total votes divided by the local population (based on U.S. Census data). The specification is the same as in previous tables. In Panel B, we examine survey responses from the Cooperative Congressional Election Study (CCES) across the 2006–2019 waves. Column 1 asks individuals if they have a strong ideology; column 2 asks about high news interest; and columns 3–6 examine response rates of individuals who have "No Opinion" about a range of elected officials from their district. The key independent variable is whether newspapers serving that county-year are owned by private equity. In this panel, standard errors are clustered at the county level. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table 7: **Private Equity Relative to Other Types of Ownership**

Panel A: Article Content by Ownership Type with Private Equity as Base Group

Dependent Variable:	Share of Articles on				Number of Articles on			
	Local Government		National Politics		Local Government		National Politics	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent	0.072***	0.042**	0.003	-0.014**	0.604***	0.121*	0.562***	-0.064
	(0.017)	(0.018)	(0.018)	(0.006)	(0.084)	(0.063)	(0.126)	(0.089)
Family	0.063***	0.030**	-0.011	-0.010*	0.755***	0.144***	0.659***	0.008
	(0.011)	(0.013)	(0.015)	(0.006)	(0.084)	(0.051)	(0.111)	(0.074)
Private Chain	0.057***	0.023	0.024	-0.006	0.644***	0.110**	0.729***	0.026
	(0.013)	(0.014)	(0.018)	(0.006)	(0.084)	(0.052)	(0.108)	(0.074)
Public Co.	0.045***	0.018	0.005	-0.008	0.936***	0.105	0.970***	-0.012
	(0.014)	(0.019)	(0.022)	(0.007)	(0.094)	(0.070)	(0.130)	(0.083)
Other Fin. Firm	0.153***	0.056***	0.018	0.005	0.560***	0.046	0.336***	-0.070
	(0.015)	(0.020)	(0.023)	(0.009)	(0.089)	(0.066)	(0.126)	(0.098)
Observations	10892	10886	10892	10886	10892	10886	10892	10886
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	No	Yes	No	Yes	No	Yes	No	Yes
Outcome Mean	0.380	0.380	0.157	0.157	8.045	8.045	6.972	6.972

Panel B: Employees by Ownership Type with Private Equity as Base Group

Dependent Variable:	Reporters		Editors		Interns & Freelancers	
	(1)	(2)	(3)	(4)	(5)	(6)
Independent	0.168	0.098**	0.059	0.083*	0.092	0.080*
	(0.120)	(0.046)	(0.127)	(0.043)	(0.080)	(0.046)
Family	0.319***	0.055	0.255**	0.073**	0.084	0.002
	(0.105)	(0.039)	(0.110)	(0.036)	(0.068)	(0.039)
Private Chain	0.344***	0.080**	0.279**	0.058*	0.182***	0.007
	(0.106)	(0.036)	(0.112)	(0.033)	(0.068)	(0.037)
Public Co.	1.046***	0.069	0.989***	0.003	0.648***	0.013
	(0.139)	(0.047)	(0.151)	(0.049)	(0.101)	(0.053)
Other Fin. Firm	0.027	-0.013	-0.048	-0.068	0.051	-0.003
	(0.120)	(0.048)	(0.122)	(0.050)	(0.080)	(0.050)
Observations	12550	12542	12550	12542	12550	12542
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	No	Yes	No	Yes	No	Yes
Outcome Mean	1.187	1.187	1.148	1.148	2.526	2.526

Note: This table shows the relationship between major newspaper ownership types and article content in Panel A, and employment in Panel B. Private equity ownership represents the base group. For each outcome, the first column does not include newspaper fixed effects, so the coefficients show the average for each ownership type in the whole sample. The second column includes newspaper fixed effects, which means that the coefficient is identified only from newspapers that change to or from the ownership type. The dependent variables are either the share of articles with a particular type of content in Panel A columns 1-4. The dependent variables in Panel A columns 5-8 are the log number of articles. The dependent variables in Panel B are log employees of a certain occupation. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Panel C: Operations by Ownership Type with Private Equity as Base Group

Dependent Variable:	Digitial circulation		Circulation		Shut Down	
	(1)	(2)	(3)	(4)	(5)	(6)
Independent	-0.757	-0.339	0.090	0.078***	0.006***	0.008*
	(0.756)	(0.296)	(0.095)	(0.022)	(0.002)	(0.004)
Family	-1.329**	-0.251	0.200**	0.096***	0.003**	0.006***
	(0.574)	(0.272)	(0.079)	(0.019)	(0.001)	(0.002)
Private Chain	-0.554	-0.463*	0.226***	0.066***	0.013***	0.010***
	(0.628)	(0.251)	(0.083)	(0.019)	(0.002)	(0.003)
Public Co.	-0.383	-0.424**	0.629***	0.080***	0.003*	0.003
	(0.553)	(0.214)	(0.084)	(0.019)	(0.002)	(0.003)
Other Fin. Firm	-1.757**	-0.854**	0.001	0.027	0.002	-0.000
	(0.783)	(0.382)	(0.092)	(0.032)	(0.002)	(0.003)
Observations	3286	3244	15217	15111	26858	26827
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	No	Yes	No	Yes	No	Yes
Outcome Mean	5.036	5.087	9.777	9.783	0.007	0.006

Panel D: Local Election Participation

Election Type:	County Council		Mayor	
Dependent Variable:	Turnout (%)	Turnout (%)	Turnout (%)	Turnout (%)
	(1)	(2)	(3)	(4)
Independent	4.447***	-0.207	0.579	-0.210
	(1.428)	(0.869)	(0.658)	(0.415)
Family	5.918***	0.106	2.939***	0.129
	(1.291)	(0.565)	(0.701)	(0.330)
Private Chain	3.714***	0.277	0.259	0.199
	(1.055)	(0.401)	(0.619)	(0.295)
Public Co.	4.699***	0.627	1.903**	0.421
	(1.388)	(0.648)	(0.820)	(0.344)
Other Fin. Firm	4.196**	1.476*	0.808	0.671*
	(1.764)	(0.808)	(0.665)	(0.373)
Observations	2145	2123	1988	1963
R^2	0.094	0.823	0.107	0.656
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	No	Yes	No	Yes
Outcome Mean	8.770	8.735	4.679	4.677

Note: This table shows the relationship between major ownership types and operations in Panel A, and political participation in Panel B. Private equity ownership represents the base group. For each outcome, the first column does not include newspaper fixed effects, so the coefficients show the average for each ownership type in the whole sample. The second column includes newspaper fixed effects, which means that the coefficient is identified only from newspapers that change to or from the ownership type. The dependent variables in Panel A are the advertising rate in log dollars per open inch in columns 1–2, log print circulation in columns 3–4, and an indicator for the newspaper closing in a particular year in columns 5–6. The dependent variables in Panel B are voter turnout in county legislative council elections (columns 1–2) and mayoral elections (columns 3–4). Turnout is defined as total votes divided by the local population (based on U.S. Census data). Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table 8: **Placebo Tests**

Panel A: Article Content

Dependent Variable:	Share of Articles on		Number of Articles on	
	Local	National	Local	National
	(1)	(2)	(3)	(4)
Post Placebo Deal X PE	0.002	-0.001	0.035	0.015
	(0.011)	(0.004)	(0.045)	(0.057)
Observations	8730	8730	8730	8730
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	0.393	0.156	8.191	7.101

Panel B: Employees and Operations

Dependent Variable:	Reporters	Editors	Circ	Circ No Stale
	(1)	(2)	(3)	(4)
Post Placebo Deal X PE	-0.017	0.003	-0.140***	-0.090***
	(0.039)	(0.036)	(0.014)	(0.013)
Observations	11753	11753	20045	13550
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	2.571	1.213	9.482	9.810

Panel C: Local Election Participation

Election Type:	County Council		Mayor	
Dependent Variable:	Log Total Votes	Turnout (%)	Log Total Votes	Turnout (%)
	(1)	(2)	(3)	(4)
Post Placebo Deal X PE	0.058	1.013	0.062	0.725
	(0.084)	(0.753)	(0.092)	(0.513)
Observations	1905	1903	1790	1790
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	9.589	9.176	8.895	4.770

Note: This table shows placebo tests for the main outcomes. We replace the true buyout year with one five years previously, and drop observations after the true buyout. Standard errors are clustered by newspaper. *** denotes p-value< .01, ** denotes p-value < .05, and * denotes p-value < .1.

Appendix: For Online Publication

Figure A.1: Example of E&P Raw Data

Wire Ed. — Melissa Cosper
Women's Ed. — Catherine Downing

PRODN./OPNS.

Prodn. Mgr. — Jerry Thornton
Prodn. Mgr., Distr. — Tom LaPlant
Prodn. Foreman, Pressroom — Jimmy Box

Market Information: TMC; Split run; Electronic edition.
Mechanical available: Offset; Black and 3 ROP colors; insert accepted - preprinted; page cutoffs - 22".
Mechanical specifications: Type page 11 5/8" x 21 1/4"; E - 6 cols, 2 1/16", 1/8" between; A - 6 cols, 2 1/16", 1/8" between; C - 9 cols, 1 3/8", 1/16" between.
Commodity consumption: Newsprint 2,255 short tons; widths 12 1/2", 25"; black ink 50,242 pounds; color ink 5,645 pounds; single pages printed 10,221; average pages per issue 30(d), 62(S); single plates used 25,288.
Equipment: EDITORIAL: Front-end software — Microsoft/Windows, Microsoft/Word. CLASSIFIED: Front-end software — Baseview/Classified. DISPLAY: Layout software — MEI; Ad make-up applications — Microsoft/Word, APP/Mac Appleshare. PRODUCTION: Pagination software — QPS 4.1, Aldus/PageMaker 6.5; Optical character recognition software — Caere/OmniPage; Typesetters — HP/4MV Printer, AG/Avantra 25 XTS, Taipan/RIP; Photomechanical plate exposure units — 1-Nu/Flip Top FT40APRNS, 1-Nu/Flip Top FT40V6UPNS; Plate processors — 1-Nat/A-340; Electronic picture desk — Lf/AP Leaf System; Scanners — HP/ScanJet IV, Copy Dot Scanner.
PRESSROOM: Line 1 — 6-G; Folders — 1-G; Reels and Stands — 6-Cline. MAILROOM: Counter stackers — 2-RKW/257, G; Inserters and stuffers — 2-Mueller/227; Bundle tying machines — 3-Strapack; Other equipment — MM/Minuteman. WIRE SERVICES: News — AP; Receiving dishes — AP.

ATHENS
Limestone County
'00 U.S. Census- 18,967; E&P '09 Est. 20,348
ABC-CZ(00): 18,967 (HH 7,742)
ABC-RTZ(00): 46,709 (HH 16,946)

The News-Courier
(m-tues to sat; S)
The News-Courier, 410 W. Green St., 35611; PO Box 670, Athens, AL 35612; gen tel (256) 232-2720; gen fax (256) 233-7753; adv email advertising@athensnews-courier.com; web site http://www.enewscourier.com.
Group: Community Newspaper Holdings, Inc.
Circulation: 6,411(m); 6,411(m-sat); 7,557(S); ABC Sept. 30, 2008.
Price: $0.35(d); $0.35(sat); $1.00(S); $52.00/yr (local), $78.00/yr (elsewhere).
Advertising: Open inch rate $10.42(m); $10.42(m-sat); $10.92(S).
News Services: AP.
Politics: Independent. **Established:** 1968.
Advertising not accepted: Beer and liquor.
Special Editions: Senior Citizens (Quarterly).
Special Weekly Sections: Business, Home Solutions (Tues); Farm Page, Food Day (Wed); Kid's Corner (Thur); Church Page, School Zone, TV Times (Fri).
Magazines: TV Tab (Fri); USA WEEKEND Magazine (S); Relish (Monthly); American Profile (Weekly).

CORP. MGMT./GEN. MGMT.
Pub. — Ann Laurence
ADVERTISING SALES MGMT.
Adv. Mgr., Classified — Angela McElyea
CIRCULATION MGMT.
Circ. Mgr. — Connie Witt
NEWS EXECUTIVES
Ed. — Kelly Kazek

Market Information: TMC; Zoned editions.
Mechanical available: Offset; Black and 3 ROP colors; insert accepted - preprinted; page cutoffs - 22 3/4".
Mechanical specifications: Type page 13" x 21 1/2"; E - 6 cols, 2 1/16", 1/8" between; A - 6 cols, 2 1/16", 1/8" between; C - 8 cols, 1 3/4", 1/8" between.
Commodity consumption: Newsprint 44 short tons; widths 14", 28"; black ink 13,000 pounds; color ink 1,750 pounds; single pages

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printed 4,784; average pages per issue 24(d), 48(S); single plates used 9,000.
Equipment: EDITORIAL: Front-end software — QPS/QuarkXPress 4.0, Adobe/Photoshop 5.0. CLASSIFIED: Front-end software — Baseview. DISPLAY: Ad make-up applications — Multi-Ad/Creator 4.0, Adobe/Photoshop 5.0. PRODUCTION: Optical character recognition software — Caere/OmniPage 6.0. WIRE SERVICES: News — AP.

AUBURN
See OPELIKA

BIRMINGHAM
Jefferson County
'00 U.S. Census- 242,820; E&P '09 Est. 235,090
ABC-CZ(00): 723,248 (HH 286,938)
ABC-RTZ(00): 669,519 (HH 263,891)

The Birmingham News
(m-mon to fri; m-sat; S)
The Birmingham News, 2201 4th Ave. N., 35203; PO Box 2553, Birmingham, AL 35202; gen tel (205) 325-2222; adv tel (205) 325-2261; ed tel (205) 325-2444; gen fax (205) 325-2283; adv fax (205) 325-3217; web site http://www.bhamnews.com.
Group: Advance Publications, Inc.
Circulation: 131,133(m); 134,410(m-sat); 163,825(S); ABC Sept. 30, 2008.
Price: $0.35(d); $0.35(sat); $1.50(S); $135.20/yr (m&S).
Advertising: Open inch rate $176.75(m); $183.60(m-fri); $183.60(m-sat); $198.60(S).
Representatives: Metro Suburbia Inc./Newhouse Newspapers.
News Services: AP, Independent News Service, MCT, NNS.
Politics: Independent. **Established:** 1888.
Advertising not accepted: NC-17 movies.
Special Editions: Bridal Guide (Jan); Alabama Inc., Prime Time Living (Mar); Aarons 499/Talladega, Bruno's Memorial Golf Classic, Spring Gulf Coast Guide (Apr); Summer Go Guide (May); Prime Time Living (Jun); Fall Gulf Coast Guide, FLW Fishing Championship, Football (Aug); Best of Birmingham, EA Sports 500/Talladega, Prime Time Living (Sept); Holiday Gift Catalog (Nov); Prime Time Living (Dec).
Special Weekly Sections: City Scene-entertainment (Fri); Punch-TV listing (S).
Magazines: Parade (S).

CORP. MGMT./GEN. MGMT.
Pub. — V.H. Hanson, III
Vice Pres., Sales/Mktg. — Maggie Krost
Dir., HR — Ellen Williams
Credit Mgr. — Milicent Yeager
Mgr., Purchasing — Wade Walker
Recruitment Team Leader — Victoria Howell
Research Mgr. — Stephanie Y. Handy
ADVERTISING SALES MGMT.
Adv. Dir. — Roland Weeks
Adv. Dir., Bus. Devel. — Carl Bates
MARKETING MGMT.
Mktg. Dir. — Robert West
CIRCULATION MGMT.
Circ.Vice Pres. — Troy Niday
Circ. Asst. Dir. — Jim Keeble
Circ. Mgr., South Zone — Patti Bearden
Circ. Mgr., State — Jerry Reynolds
NEWS EXECUTIVES
Ed. — Thomas V. Scarritt
Exec. Ed. — Hunter George
Asst. Mng. Ed. — Pamela Dugan
Asst. Mng. Ed. — Scott Walker
EDITORIAL MGMT.
Art Dir. — Wayne Marshall
Bus./Finance Ed. — Jerry Underwood
Editorial Page Ed. — Bob Blalock
Features Ed. — Alec Harvey
Librarian — Ann Hobbs
Metro Ed. — Wayne Hester
News Ed. — Stan Diel
Photo Ed. — Walter Stricklin
Sports Ed. — Tom Arenberg
State Ed. — Glenn Stephens
MIS/INTERACTIVE SERVS.
Mgmt. Info Servs. Mgr. — David Ferrell

Mgmt. Info Servs. Dir. — Dayne Romaine
Data Processing Mgr. — David Ferrell

PRODN./OPNS.
Prodn. Dir., Opns. — Thomas P. Grillo
Prodn. Asst. Dir., Opns. — Mimi M. Allen
Prodn. Mgr., Dispatch — Pam Yarley
Prodn. Mgr., Mailroom/Post Press — Shane Weeks
Prodn. Mgr., Maintenance — Jackie Nivens
Prodn. Mgr., Pressroom/Newsprint — Alan Pidcock

Market Information: TMC; Split run; Zoned editions; Operate database; Operate audiotex.
Mechanical available: Offset; Black and 3 ROP colors; insert accepted - preprinted; page cutoffs - 22 3/4".
Mechanical specifications: Type page 12 1/2" x 21 3/4"; E - 6 cols, 2 1/16", 1/8" between; A - 6 cols, 2 1/16", 1/8" between; C - 10 cols, 1 3/8", 1/16" between.
Commodity consumption: Newsprint 33,500 short tons; widths 25", 31 1/4", 43 3/4", 50"; black ink 742,000 pounds; color ink 189,000 pounds; single pages printed 39,000; average pages per issue 58(d), 140(S); single plates used 183,219.
Equipment: EDITORIAL: Front-end software — HI/Informix Database. CLASSIFIED: Front-end software — PPI/Classified 3.0. DISPLAY: Layout software — 4-HI/8900 Display Ad Sys, 6-HI/Workstation, 2-HI/2100; Ad make-up applications — GEAC/Advertising 8.01. PRODUCTION: Pagination software — HI; Typesetters — 2-AU/3850, 1-AU/APS 6; Photomechanical plate exposure units — 2-WL/III, 1-BKY; Plate processors — 2-W/38D; Electronic picture desk — Lf/AP Leaf Picture Desk; Scanners — 2-ECR/Autokon 1000, 1-LE/480, Kk/RSF 2035+; Automatic film processors — 2-LE/LD24, 1-LE/LD24A, 1-LE/LD24AC, 2-LE/24L, Micro/3; Film transporters — 2-C.
PRESSROOM: Line 1 — 21-G/Metroliner w/12 half decks; Press Drives — Fin; Folders — 4-G/3:2; Pasters — 21-G; Press control system — EAE/Print 4 System; Press registration system — Micro Trak (3 per press). MAILROOM: Counter stackers — 3-HL/DUK-Carriers, 4-HL/Monitor, 6-QWI/401; Inserters and stuffers — 3-S/72P; Bundle tying machines — 14-Dynaric/1500, 4-Power Strap. WIRE SERVICES: News — AP, PR Newswire; Syndicate — AP; Receiving dishes — AP.

CLANTON
Chilton County
'00 U.S. Census- 7,800; E&P '09 Est. 8,155

Clanton Advertiser
(m-tues to sat; S)
The Clanton Advertiser, 1109 Seventh St. N.; PO Box 1379, Clanton, AL 35046; gen tel (205) 755-5747; gen fax (205) 755-5857; gen email newsroom@clantonadvertiser.com; web site www.clantonadvertiser.com.
Group: Boone Newspapers, Inc.
Circulation: 5,000(m); 5,000(m-sat); 5,000(S); Est. Mar. 29, 2006.
Price: $70.20; $26.73/3mo, $39.96/6mo.
Advertising: Open inch rate $11.95(m); $11.95(m-sat); $11.95(S).
Special Editions: Bridal Guide (Jan); Progress (Feb); Life in the South (Mar); Senior Scene (Apr); Graduating Seniors (May); Peach Festival (Jun); Faces and Places (Jul); Football Preview (Aug); Home Folks (Sept); Holiday Cookbook (Oct); Christmas Songbook (Nov); Christmas Greetings (Dec).
Magazines: American Profile (Weekly).

CORP. MGMT./GEN. MGMT.
Pres./Pub. — Michael R. Kelley
Office Mgr. — Peggy Kelley
ADVERTISING SALES MGMT.
Adv. Dir. — Zack Bates
Adv. Mgr., Classified — Sheryl Smith
CIRCULATION MGMT.
Circ. Dir. — Michelle Price
NEWS EXECUTIVES
Mng. Ed. — Brent Maze
EDITORIAL MGMT.
News Ed. — Scott Mims
Sports Ed. — Stephen Dawkins
PRODN./OPNS.
Prodn. Mgr. — Jimmy Ruff
Prodn Supvr., Mailroom — Teresa Patterson

Mechanical specifications: Type page 11 5/8" x 21 1/2"; E - 6 cols, 1 5/6", 1/8" between; A - 6 cols, 1 5/6", 1/8" between; C - 10 cols, 1 1/16", 7/64" between.
Equipment:
PRESSROOM: Line 1 — G/Community.

CULLMAN
Cullman County
'00 U.S. Census- 13,995; E&P '09 Est. 14,179
ABC-CZ(00): 13,995 (HH 6,059)
ABC-RTZ(00): 70,998 (HH 27,702)

The Cullman Times
(m-tues to fri; m-sat; S)
The Cullman Times; 300 4th Ave. SE, Cullman, AL 35055-3611; gen tel (256) 734-2131; gen fax (256) 737-1020; adv fax (256) 737-1006; gen email cullman@cullmantimes.com; adv email ads@cullmantimes.com; ed email news@cullmantimes.com; web site http://www.cullmantimes.com.
Group: Community Newspaper Holdings, Inc.
Circulation: 11,086(m); 9,963(m-sat); 10,584(S); ABC Mar. 31, 2007.
Price: $0.35(d); $0.50(sat); $1.25(S); $9.00/mo; $118.00/yr.
Advertising: Open inch rate $14.33(m); $14.33(m-sat); $16.70(S).
News Services: AP.
Politics: Independent. **Established:** 1901 1961 (daily).
Special Editions: Better Business Bureau, Cullman On Sale, Prime Times (Jan); Bridal Guide, Sweetheart Tab (Feb); Profile, Relay For Life, Spring Fashion (Mar); Better Business Bureau, Consumer How To Guide, Home, Lawn & Garden, Prime Times (Apr); Classic Cullman, Graduation (May); Home Owned Business, Reader's Choice Awards (Jun); Back-To-School, Better Business Bureau, Prime Times, Summer Clearance (Jul); Football Fever, Sound Off (Aug); Fall Fashion, Hunting & Fishing, Oktoberfest (Sept); Better Business Bureau, Prime Times, Salute To Industry (Oct); Christmas Open House, Consumer How To Guide, Holiday Entertainment, Thanksgiving Day (Nov); Christmas Greetings, Holiday Gift Guide, Super Santa Ideas (Dec); Alabama Auto Guide (Monthly).
Special Weekly Sections: Outdoors (Tues); Best Food Day-Farm Page, Lifestyle (Wed); Business Page, Nascar Page, Opinion Page (Thur); Church Page, TV Spotlight (Fri); Business Profile Page, Used Auto Buyers Guide (Sat); Lifestyle, Opinion Page, Wedding Directory (S).
Magazines: USA WEEKEND Magazine (S); Relish (Monthly); American Profile (Weekly).

CORP. MGMT./GEN. MGMT.
Pub. — Bill Morgan
Bus. Mgr. — Pete Lewter
ADVERTISING SALES MGMT.
Adv. Dir. — Kathy McLeroy
Retail Adv. Mgr. — Burl Wilson
CIRCULATION MGMT.
Circ. Mgr. — Sam Mazzara
NEWS EXECUTIVES
Mng. Ed. — Derek Price
EDITORIAL MGMT.
Lifestyles Ed. — Tiffany Green
News Ed. — Amanda Shavers-Davies
Sports Ed. — Justin Graves

Market Information: TMC; ADS.
Mechanical available: Offset; Black and 3 ROP colors; insert accepted - preprinted, hi-fi; page cutoffs - 22 3/4".
Mechanical specifications: Type page 12" x 21 1/2"; E - 6 cols, 1 7/8", 1/8" between; A - 6 cols, 1 7/8", 1/8" between; C - 8 cols, 1 1/3", 1/8" between.
Commodity consumption: Newsprint 1,189 short tons; widths 12 1/2", 25"; black ink 16,000 pounds; color ink 2,150 pounds; single pages printed 7,500; average pages per issue 20(d), 10(sat), 60(S); single plates used 11,000.
Equipment: EDITORIAL: Front-end software — Microsoft/Word 6.1, APP/Mac Write Now 4.0, QPS/QuarkXPress. CLASSIFIED: Front-end software — 5-Baseview/Ad Manager Pro, 2-Baseview/Class Flow. DISPLAY: Layout software — 6-APP/Mac. PRODUCTION: Typesetters — Pre Press/Panther Plus Imagesetter; Digital platesetting (CTP) — Graham Subtractive, GNS-28; Photomechanical plate exposure units — 1-Nu, Nu/FlipTop FT40APRNS; Plate proces-

Note: This figure shows a page from the digitized E&P Yearbooks. This representative page concerns newspapers in Alabama in 2009.

Figure A.2: **Difference-in-differences Event Study of Private Equity Ownership and Number of Articles by Content**
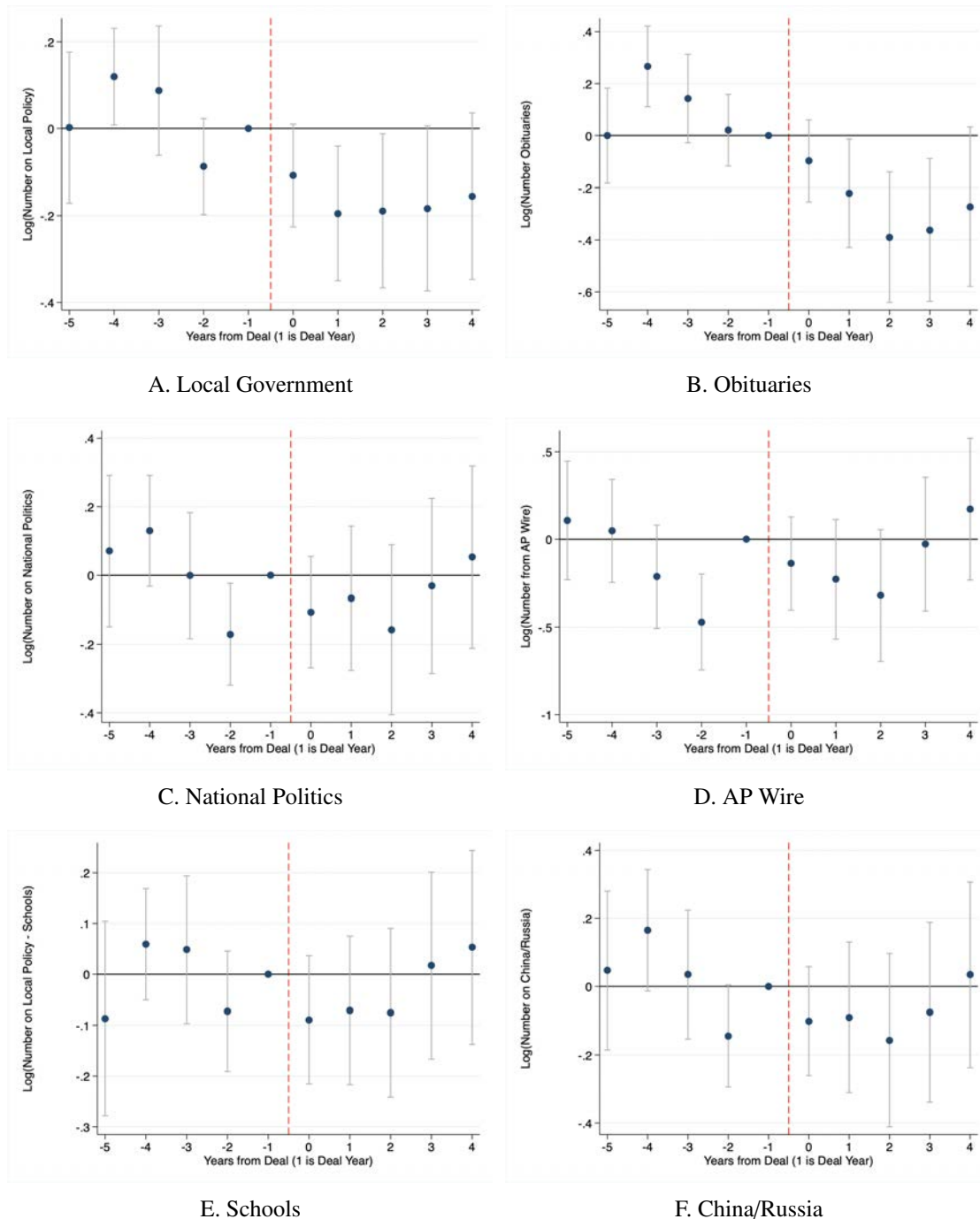
A. Local Government

B. Obituaries

C. National Politics

D. AP Wire

E. Schools

F. China/Russia

Note: This figure presents the differences-in-differences event studies around the time a newspaper experiences a private equity buyout. We leave out the year before the deal (−1). The regression includes year and newspaper fixed effects, as well as dummies for each year around the buyout (34 total dummies). Only the coefficients for the years immediately around the buyout are shown in the graph. Local policy articles (Panel A) include any of the following words: city council, city hall, mayor, state senate, state legislature, zoning, planning board, board of education, school board, school district, municipal, sheriff, police, local policy. Obituaries (Panel B) include any of the following words: died, finally at peace, or passed away. National politics articles (Panel C) include any of the following words: Bush, Congress, Obama, Trump, White House, Democrat, Republican. AP Wire (Panel D) refers to syndicated articles from the Associated Press. Schools (Panel E) report the share of articles that have any mention of: board of education, school board, school district. China/Russia articles (Panel F) include any mentions of China or Russia. The final graph shows the total number of articles. For parsimony, we show the most important outcomes in our analysis. 95% confidence intervals shown.

Figure A.3: **Supplementary Difference-in-differences Event Studies on Effects of Private Equity Ownership**
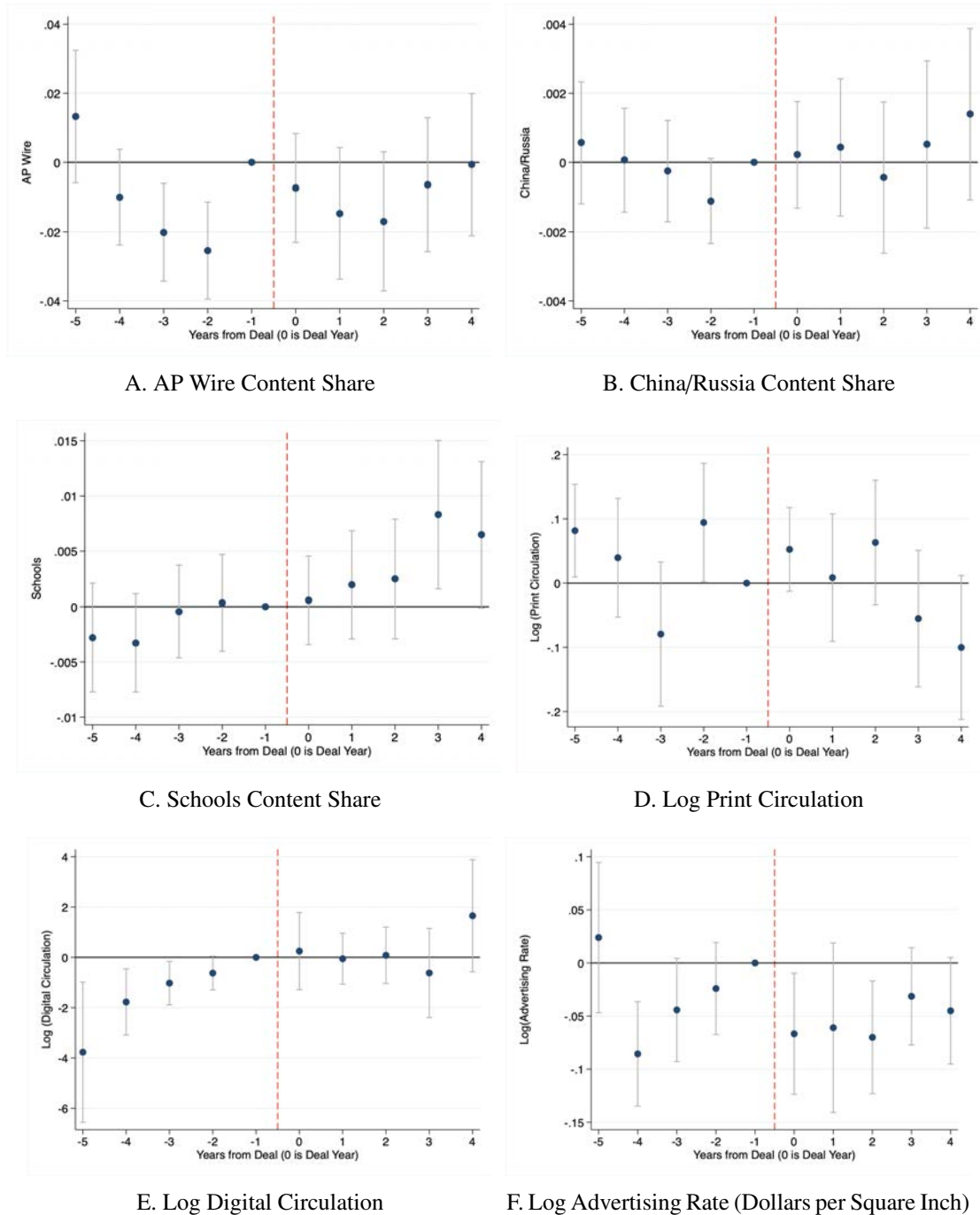
A. AP Wire Content Share

B. China/Russia Content Share

C. Schools Content Share

D. Log Print Circulation

E. Log Digital Circulation

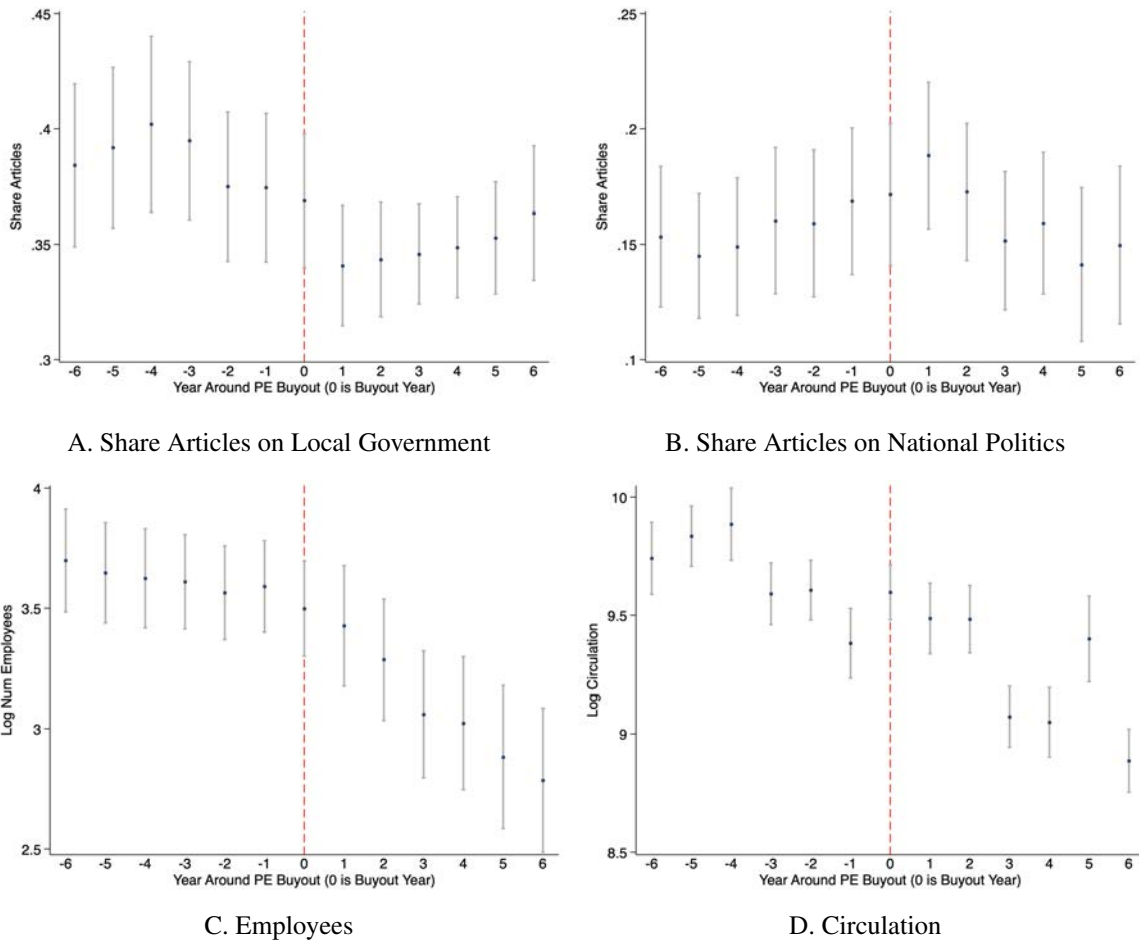F. Log Advertising Rate (Dollars per Square Inch)

Note: This figure presents the differences-in-differences event studies around the time a newspaper experiences a private equity buyout. We leave out the year before the deal (−1). The regression includes year and newspaper fixed effects, as well as dummies for each year around the buyout (34 total dummies). Only the coefficients for the years immediately around the buyout are shown in the graph. Article content outcomes are in Panels A-C. AP Wire (Panel A) refers to syndicated articles from the Associated Press. China/Russia articles (Panel B) include any mentions of China or Russia. Schools (Panel C) report the share of articles that have any mention of: board of education, school board, school district. Operational outcomes are in Panels D-F. In Panel D, the dependent variable is log print circulation. In Panel E, it is digital circulation. As there is concern that circulation are imputed from year to year, leading to stale data, we estimate the effects in the sample in which there is an observed change in circulation from the previous year. In Panel C, the dependent variable is the log advertising rate in dollars per open inch. 95% confidence intervals shown.

Figure A.4: **Raw Mean Event Study Private Equity Ownership for Key Outcomes**

A. Share Articles on Local Government

B. Share Articles on National Politics

C. Employees

D. Circulation

Note: This figure presents the event studies around the time a newspaper experiences a private equity buyout. The graph shows raw means of the dependent variable. For parsimony, we show only key outcomes, though results are similar to the main findings for other outcomes. The sample is restricted to newspapers acquired by private equity firms. 95% confidence intervals shown.

Figure A.5: **Difference-in-differences Event Study of Private Equity Ownership and Share of Articles by Content (longer time series)**

A. Local Gov't

B. Schools

C. Obituaries

D. National Politics
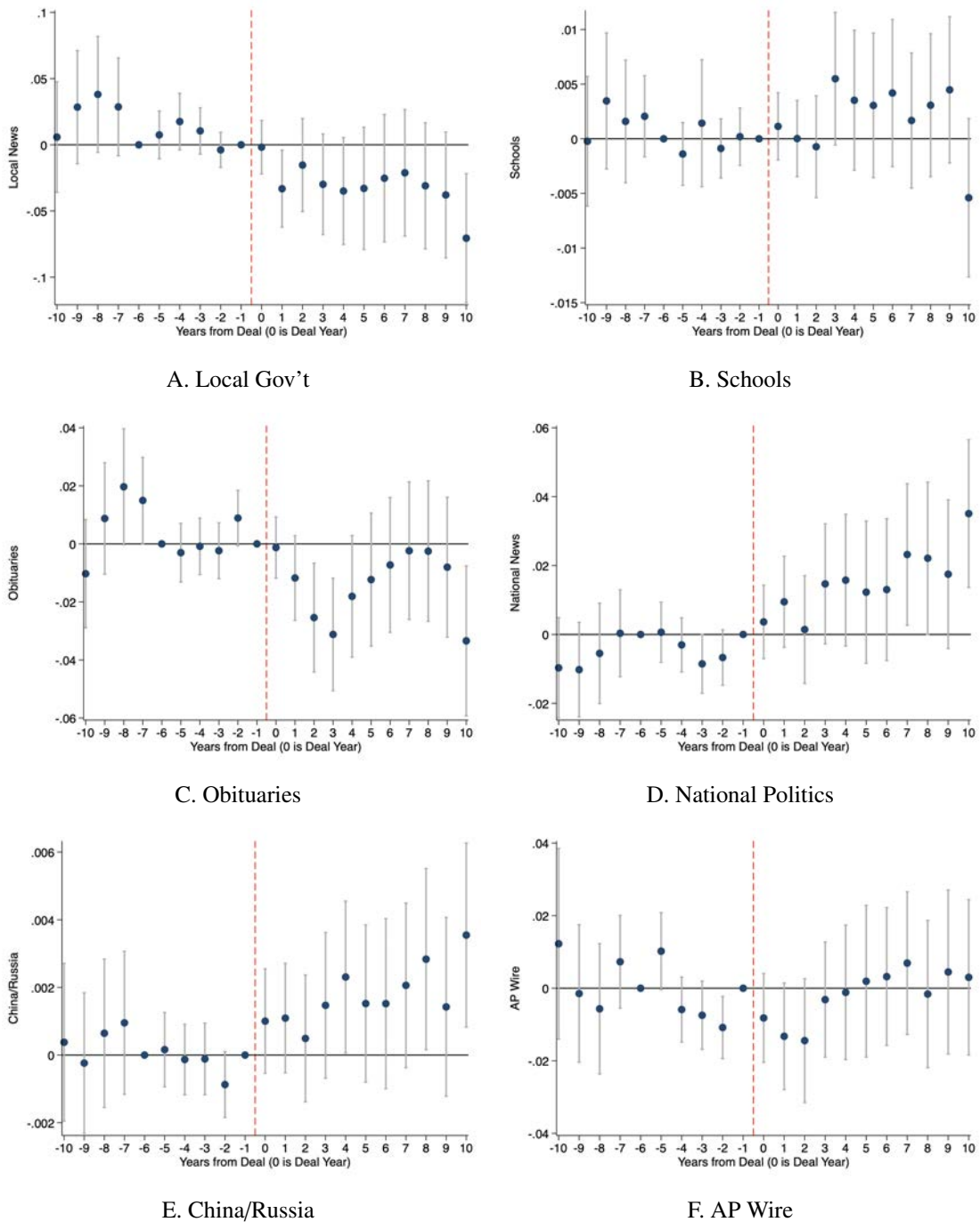
E. China/Russia

F. AP Wire

Note: This figure presents the differences-in-differences event studies around the time a newspaper experiences a private equity buyout. We leave out the year before the deal (−1). The regression includes year, newspaper, and deal fixed effects, as well as dummies for each year around the buyout (34 total dummies). Only the coefficients for the years immediately around the buyout are shown in the graph. In each figure, the dependent variable is the log number of articles with particular element of content, defined as in Figure 3. The final graph shows the total number of articles. For parsimony, we show the most important outcomes in our analysis. 95% confidence intervals shown.

Table A.1: **Staggered Difference-in-Differences Robustness**

Panel A: Article Content

Dependent Variable:	Sun and Abraham (2020):				Callaway and Sant'Anna (2020):			
	Share of Articles on		Number of Articles on		Share of Articles on		Number of Articles on	
	Local	National	Local	National	Local	National	Local	National
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post deal X PE	-0.065***	0.005	-0.059	0.165	-0.062***	0.005**	-0.062	0.156
	(0.022)	(0.004)	(0.092)	(0.106)	(0.022)	(0.002)	(0.092)	(0.106)
Observations	10,957	10,957	10,957	10,957	10,957	10,957	10,957	10,957
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	0.332	0.157	7.895	6.972	0.332	0.157	7.895	6.972

Panel B: Employees and Operations

Dependent Variable:	Sun and Abraham (2020):				Callaway and Sant'Anna (2020):			
	Reporters	Editors	Circ	Circ No Stale	Reporters	Editors	Circ	Circ No Stale
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post deal X PE	-0.067	-0.063	-0.069	-0.029	-0.069*	-0.065	-0.078	-0.054
	(0.042)	(0.043)	(0.091)	(0.102)	(0.042)	(0.043)	(0.092)	(0.103)
Observations	12,641	12,641	22,792	15,039	12,641	12,641	22,792	15,039
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	1.188	1.279	9.427	9.775	1.188	1.279	9.427	9.775

Note: The table reports two alternative difference-in-difference specifications using the Sun and Abraham (2021) and Callaway and Sant'Anna (2021) estimators. All specifications are otherwise identical to those in Tables 3 - 5. *** denotes p-value< .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.2: **Private Equity Ownership and Article Content, Supplementary Outcomes**

Dependent Variable:	Schools		China/Russia	
Measure:	Share	All	Share	All
	(1)	(2)	(3)	(4)
Post deal X PE	0.002	-0.127**	0.001	-0.120
	(0.002)	(0.051)	(0.001)	(0.084)
Observations	10952	10952	10952	10952
R^2	0.613	0.746	0.742	0.753
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	0.049	5.926	0.017	4.809

Note: This table shows the effect of private equity buyouts on the share (columns 1, 3) and log number (columns 2, 4) of a newspaper's total articles that fall into a particular topic area (a single article can cover multiple topics). Local policy "school" articles (columns 1-2) include: board of education, school board, and school district. China/Russia (columns 3-4) articles include either the words China or Russia. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.3: **Main Results with Deal Fixed Effects**

Panel A: Article Content

Dependent Variable:	Share of Articles on		Number of Articles on	
	Local	National	Local	National
	(1)	(2)	(3)	(4)
Post deal X PE	-0.030**	0.013**	-0.226***	-0.120
	(0.014)	(0.007)	(0.053)	(0.082)
Observations	10952	10952	10952	10952
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes	Yes
Outcome Mean	0.380	0.157	8.046	6.972

Panel B: Employees and Operations

Dependent Variable:	Reporters	Editors	Closed	Print Circ	Digital Circ
	(1)	(2)	(3)	(4)	(5)
Post deal X PE	-0.077*	-0.094***	-0.114***	-0.006***	0.379*
	(0.040)	(0.035)	(0.019)	(0.002)	(0.207)
Observations	12633	12633	22767	26707	3250
Year FE	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	2.531	1.188	9.428	1.226	5.084

Panel C: Local Election Participation

Election Type:	County Council		Mayor	
Dependent Variable:	Total Votes	Turnout (%)	Total Votes	Turnout (%)
	(1)	(2)	(3)	(4)
Post deal X PE	-2.956*	-0.805**	-1.640	-0.214
	(1.729)	(0.402)	(4.107)	(0.295)
Observations	2124	2122	1960	1960
R^2	0.299	0.077	0.155	0.035
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes	Yes
Outcome Mean	32.283	8.745	26.111	4.637

Note: This table shows the main results but including private equity deal fixed effects. Otherwise, models are as described in the main tables. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.4: **Robustness Tests of Private Equity Ownership and Article Content**

Panel A: Fractional Share GLM

Dependent Variable:	Local Government	Obituaries	China/Russia	National Politics	AP Wire
	(1)	(2)	(3)	(4)	(5)
Post deal X PE	-0.182***	-0.110*	0.087*	0.106*	-0.177
	(0.068)	(0.064)	(0.052)	(0.058)	(0.140)
Observations	10952	10952	10952	10952	10952
Year FE	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	0.332	0.139	0.017	0.157	0.050

Panel B: Sample with Employment Data

Dependent Variable:	Local Government	Obituaries	China/Russia	National Politics	AP Wire
	(1)	(2)	(3)	(4)	(5)
Post deal X PE	-0.040**	-0.013	0.001	0.009	-0.009
	(0.016)	(0.008)	(0.001)	(0.007)	(0.007)
Observations	7865	7865	7865	7865	7865
Year FE	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	0.334	0.134	0.018	0.159	0.055

Note: This table shows the effect of private equity buyouts on the share of a newspaper's total articles that fall into a particular topic area. The model in Panel A is fractional logit GLM. Panel B restricts the sample to that for which we observe employment outcomes. Content topic areas are defined above. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.5: **Private Equity Ownership and Levels of Employees & Operations**

Panel A: Employment

Dependent Variable:	Reporters	Editors	Interns & Freelancers	Employees
	(1)	(2)	(3)	(4)
Post deal X PE	-0.778***	-0.901**	-0.023	-4.917***
	(0.279)	(0.374)	(0.132)	(1.632)
Observations	16466	16466	16466	16466
R^2	0.930	0.923	0.829	0.960
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	1.268	1.794	0.585	2.637

Panel B: Circulation & Advertising

Dependent Variable:	Circulation			Advertising Rate	
	No Stale	All	Digital	No Stale	All
	(1)	(2)	(3)	(4)	(5)
Post deal X PE	-3787.656***	-4013.069***	4966.516	-0.326	-1.716
	(958.889)	(830.142)	(11871.322)	(3.240)	(2.494)
Observations	14931	22764	3369	10470	22152
R^2	0.933	0.930	0.495	0.788	0.848
Year FE	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes
Outcome Mean	9.781	9.427	5.261	3.200	3.183

Note: This table shows the effect of private equity buyouts on the level number of employees in key occupations and operational outcomes, rather than logs as in our main specification. Standard errors are clustered by newspaper. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.6: **Robustness Tests of Private Equity Ownership and Political Outcomes**

Panel A: Local Participation in Sheriff Elections

Fixed Effects:	Newspaper			County		
Dependent Variable:	Total Votes	Log Total Votes	Turnout (%)	Total Votes	Log Total Votes	Turnout (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Post deal X PE	-3.305	-0.017	-0.208	-1.953	-0.003	-0.160
	(2.531)	(0.052)	(1.338)	(2.148)	(0.044)	(1.180)
Observations	489	489	489	461	461	461
R^2	0.263	0.466	0.537	0.983	0.986	0.835
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	No	No	No	Yes	Yes	Yes
Outcome Mean	47.368	10.253	29.964	47.467	10.254	29.954

Panel B: Local Election Participation with County Fixed Effects

Election Type:	County Council			Mayor		
Dependent Variable:	Total Votes	Log Total Votes	Turnout (%)	Total Votes	Log Total Votes	Turnout (%)
	(1)	(2)	(3)	(4)	(5)	(6)
Post deal X PE	-1.492	-0.065	-0.401*	-1.980	-0.125*	-0.220
	(0.914)	(0.040)	(0.208)	(2.402)	(0.064)	(0.178)
Observations	2112	2112	2110	1947	1947	1947
R^2	0.781	0.838	0.830	0.481	0.770	0.651
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Outcome Mean	32.364	9.499	8.749	26.188	8.850	4.628

Note: This table shows the relationship between private equity ownership and political outcomes. In Panel A, we consider sheriff elections, where the data are much sparser. The first three columns use the main specification with newspaper fixed effects, while the latter three use county fixed effects. In Panel B, we consider two types of local elections: county legislature (columns 1–3) and mayoral (columns 4–6) elections. Total votes are in thousands. Turnout is defined as total votes divided by the local population (based on U.S. Census data). The specification includes county fixed effects. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.

Table A.7: **Robustness Tests of Heterogeneity**

Panel A: Employment Effects by Distribution

	Circulation		Local Govt Share	
Sample:	< Median	≥ Median	< Median	≥ Median
	(1)	(2)	(3)	(4)
Post deal X PE	-0.087	-0.048	-0.144***	-0.068
	(0.063)	(0.046)	(0.055)	(0.055)
Observations	5731	6850	3687	3555
R^2	0.276	0.153	0.179	0.228
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	1.527	3.360	3.160	2.175

Panel B: Local News Content Changes Effects by Distribution

	Circulation		Local Govt Share	
Sample:	< Median	≥ Median	< Median	≥ Median
	(1)	(2)	(3)	(4)
Post deal X PE	-0.316***	-0.194***	-0.158**	-0.348***
	(0.082)	(0.070)	(0.068)	(0.087)
Observations	5456	5485	5473	5479
R^2	0.693	0.644	0.731	0.735
Year FE	Yes	Yes	Yes	Yes
Newspaper FE	Yes	Yes	Yes	Yes
Outcome Mean	7.305	8.481	8.269	7.520

Note: This table shows the impact of private equity ownership and employment and news outcomes across the distribution. In Panel A, we consider employment outcomes and in Panel B we examine changes in local news content. We estimate the average circulation for newspapers over their life, and divide the sample into below and above median circulation. Similarly, we measure the ratio of news items which are local compared with national news, and compare newspapers which are below and above median in this local news ratio across their life. *** denotes p-value < .01, ** denotes p-value < .05, and * denotes p-value < .1.