
Aniket Panjwani (Northwestern University)

November 10 2018*

Abstract

In 1950, 80% of American newspapers were owned by independent families. By 1980, only 30% of American newspapers were owned by independent families. Between 1950 and 1980, the majority of independent newspapers were purchased by newspaper chains, firms owning several newspapers. I use newly collected data to study the effects of transitions from independent to chain ownership on news content. I find that while chain transitions have little effect on news content, chain transitions lead to a larger newspaper by approximately 4.2 pages, but approximately 15% fewer words per page, indicating that chains are able to finance a new printing technology and add more advertising to the newspaper. Additionally, I find that transitions to chain ownership lead to a 12% increase in the share of advertisements which are for chain or publicly-owned businesses, as opposed to local businesses.1

*The most recent version is available here.

1I thank my dissertation committee - Joel Mokyr, Joseph Ferrie, and Ben Jones - for their support on this project. Additionally, many thanks to the Economic History Association and the Balzan foundation for supporting this project.
1 Introduction

News media plays an important role in shaping political preferences, beliefs about the world, and attitudes towards voting. Because of the centrality of the media in the political process, it is important to understand how media providers determine their content provision choices. One characteristic of a news outlet often scrutinized for its effect on media outlet’s content choices is a media outlet’s ownership. In the 20th and 21st centuries, the media has become increasingly concentrated, and this has lead to increased regulatory concerns about the roles of media owners in the provision of news (Djankov et al., 2003). In this paper, I ask, what are the consequences of media consolidation? In particular, how does media consolidation affect news content?

I ask this question in the context of the American newspaper industry between 1950 and 1980. In this time period, the American newspaper industry experienced a dramatic shift in ownership from being primarily owned by independent families local to the area where the newspaper is published, to being owned primarily by newspaper chains: corporations owning several newspapers. In the regulatory environment of post-WW2 America, few mergers in the newspaper industry faced any oversight by antitrust regulators. As a result, the ownership transformation was sharp and swift. In 1950, there were close to 1800 daily newspapers spread throughout the United States, but only 20% of the newspapers belonged to chains. At the time, the industry was largely composed of independent, family-owned newspapers. In 1980, there remained about 1800 daily newspapers in the United States, but chains now owned 70% of them.

During the years of consolidation, potential differences between chain-owned and independent-owned newspapers were the source of considerable debate. Congressman Morris Udall led a faction which perceived chains as homogenizing newspaper’s content. When introducing a bill in April 1977 to halt the newspaper industry’s consolidation, Udall said, “I fear that the quest for profits and higher
dividends for [chains'] growing list of stockholders will transcend their responsibility to maintain an independent and dedicated influence in the community” (Hill, 1977a). Allen Neuharth, the president of the Gannett chain, responded to Udall: “It matters not whether newspapers are owned by individuals . . . What matters is what those owners do with them and how well the newspaper serves a town or city. So let’s cut out the baloney being peddled by critics who equate all bigness as badness and think small automatically means beautiful.” (Hill, 1977b).

This paper revisits this debate. Specifically, I ask the following question: how did newspapers’ transitions from independent to chain ownership affect newspapers’ content? Contrary to the worries of Udall, I find that chain transitions have little effect on the quantity of local or national news content. Instead, newspaper chains’ primary changes made to the newspaper is to both increase the size of the newspaper and increase the amount of advertising. I find that chains increase the size of the newspaper on average by about 4 pages, and decreased the number of words per page by 15%. This indicates that chains are able to better finance new printing technologies which allows them to expand the size of the newspaper, and they use the extra space to add in more advertising, which take up many fewer words per page. Additionally, I directly sample advertisements from newspapers and study whether there are changes in the content of newspapers’ advertisements. I find that after a chain ownership transition, newspapers tend to print a greater proportion of advertisements from chain stores compared to locally-owned stores. This suggests that newspaper chains may purchase independent newspapers due to their comparative advantage in meeting the advertising needs of other chain-owned businesses.

To answer my research questions, I construct a panel dataset of all daily newspapers between 1950 and 1980 and their ownership status. Furthermore, I develop a new method for estimating the local content of newspapers directly using the text of newspapers in two newspaper databases: Newspapers.com and NewspaperArchive.com. These newspaper databases allow users to search for
particular words, and see the pages of the newspaper on which these words appeared. For each newspaper I am able to match to the database, I construct yearly measures of local and national content of the newspapers using counts of mentions of several local and national words.

In studying the effect of newspaper ownership transitions on news content, I face a potential endogeneity problem - chain acquisitions of independents may be selected on those locations whose preferences are tending towards a certain type of news content. In this case, there may be a spurious correlation between chain acquisitions and changes in news content.

In order to ameliorate endogeneity concerns, I construct a novel instrument leveraging an exogenous element of the industry’s transition from primarily independent-owned to primarily chain-owned. After World War 2, the federal estate tax reached its highest marginal tax rate and lowest marginal tax brackets in U.S. history. As a consequence, the heirs of owners of small businesses were frequently compelled to sell their business upon owners’ deaths in order to meet an onerous estate tax liability (Bosland, 1963). I use independent newspaper owners’ deaths as an instrument for transitions from independent to chain ownership.

Early papers developed descriptive evidence on the consolidation in the newspaper industry (Neiva, 1996, Dertouzos and Thorpe (1982)), but this is the first paper to study the effects of consolidation on news content, and to do so within a causal framework. Other researchers studying the economic history of the American newspaper industry have studied the effect of entry and exit of newspapers on voting patterns (Gentzkow et al., 2011), and the historical relationship between advertising revenue and newspapers’ political affiliations (Petrova, 2011).

While relatively little work has been done on historical trends in media consolidation, several researchers have studied media consolidation and ownership in a more modern context. In an early paper, George (2007) used a panel data analysis to study the relationship between concentration in a newspaper market
and product variety. Fan (2013) developed a structural model of newspaper’s content provision choices, and uses the model to understand the effects of a proposed merger of newspapers in a single market. Gentzkow and Shapiro (2010) also use a structural model, but study a different topic - the relationship between owners’ political ideology and newspapers’ political slant. Martin and McCrain (2018) study the effects of ownership changes of local TV news stations, finding that when a conglomerate owner purchases news stations, the news tends to become more nationalized. Dellavigna and Hermle (2017) use a novel difference-in-differences design to study whether media conglomerates owning both newspapers and movie studios tend to have biased reviews in favor of their own movies, and find no evidence of bias.

2 Historical Background

The American newspaper industry is composed of hundreds of daily and weekly newspapers. Newspaper chains have existed since at least the late 19th century, when the New York World’s owner, Joseph Pulitzer, and The New York Journal’s owner, William Randolph Hearst, began to purchase other newspapers in the midst of their New York City circulation battles. However, rapid growth in the number of chain-owned newspapers began in earnest only towards the end of World War 2.

In the 20th century, the newspaper industry underwent several transformational changes. First, in the beginning of the 20th century, there was a significant increase in the number of single-newspaper municipalities, leading to most mid-sized newspapers having local monopolies.\(^2\)

Second, after World War 2, there was a significant increase in acquisitions of newspapers by newspaper chains. From Figure 1, we see that the number of newspapers in chains grew steadily from 1952 to 1984. In the mid-20th

\(^2\)Genesove (2000) develops some hypotheses for the causes of the growth of local monopolies.
century, some chains were privately-owned corporations, and often initially owned primarily by families. However, over time, chains began to become publicly-owned and larger in size. Additionally, the transition from individual to chain-ownership was not geographically concentrated (see Figure 2 and Figure 3).

Third, also after World War 2, newspapers began to update their typesetting technologies from antiquated Linotype machines to newly-developed Phototypesetting machines. Between the late 19th century and the mid 20th century, newspapers almost exclusively used Linotype-style machines to typeset their newspapers. Linotype-style machines required a skilled operator to use a keyboard to set lines of hot-metal type inside molds. The lines of type could then be arranged for use in a letterpress printing press (Romano, 2014a). In the late 1950s, a competing printing technology - the Phototypesetter, began to gain adoption. The Phototypesetter used photography-based technology to set type. The Phototypesetter operator set type by exposing individual characters to film. The film was then developed, and cut into pieces which were arranged by hand on a paste-up board. The paste-up board is then photographed with a special camera which creates a full-sized negative which can be used to create a printing plate for an offset printer.

Linotype machines were laborious to use. In 1950, the Linotype Comet linecaster boasted a record maximum potential speed of 6 characters set per second. In 1954, the entry-level Photon Phototypesetter was able to typeset 12 characters per second, with several more type sizes and interchangeable fonts than were available with any Linotype machine (Neiva, 1996).3 By the late-1960s, once phototypesetters began to include CRT monitors, phototypesetters became capable of setting as many as 1000 characters per second (Romano, 2014b).

The first phototypesetters with CRT monitors, which provided significant pro-

---

3While it is true that Phototypesetters often increased the range of available font sizes, newspapers were not constrained by Linotypes in terms of font sizes. Linotype machines made in the 1940s and 1950s could supply most type sizes from 4 pt to 14 pt, with up to four font sizes available to the Linotype operator at once without needing to interrupt the machine’s operation. (Romano, 2014a).}
ductivity improvements over earlier phototypesetters, cost upwards of $300,000 in 1968. Chains were able to better finance the large fixed cost of purchasing phototypesetters, because they had better access to external financing from banks, and they could more easily shift resources from one newspaper to pay for another newspaper’s phototypesetter (Neiva, 1996). By installing phototypesetters, newspapers could greatly increase typesetters’ productivity, let go of expensive, skilled Linotype operators, and increase the length of the newspaper.

3 Economics of Chain Acquisitions

Chains may have purchased independent newspapers for several reasons, but a close reading of the historical record reveals two primary motivations for chains to purchase independents. First, chains had economies of scale over independents across several dimensions. Second, onerous estate tax liabilities on the heirs of independent newspaper owners provided opportunities for chains to purchase independents’ newspapers.

3.1 Economies of Scale

Modern mergers of media conglomerates receive significant oversight by regulators in the Department of Justice and Federal Trade Commission. Because daily newspapers are typically local monopolies, the acquisition of a newspaper does not lead to a change in local market structure. However, newspaper chains can still potentially take advantage of several economies of scale to reduce costs in spite of the geographically disperse nature of many newspaper chains.
3.1.1 Content Production

Newspaper chains can potentially scale content production by producing news content once, and then reproducing it throughout their constituent newspapers. Certain types of content are more scalable than others. In particular, newspaper chains are more likely to have economies of scale in national or international content than they are in local content, because local content needs to be produced by local journalists. Contemporary reformers were particularly worried that chain acquisitions of independent newspapers would lead to a decrease in the amount of local content produced by newspapers, due in part to chains’ comparative advantages in producing national or international content (Hill, 1977a).

Both independent and chain newspapers could acquire cheap access to national and international news through the wire services: cooperative organizations providing national and international news on a subscription basis. However, newspaper chains could potentially negotiate better rates with them, or even eliminate their subscription fees by implementing their own news service. For example, the Gannett Corporation developed their own news service to replace subscriptions to the Associated Press and United Press International wire services (Bagdikian, 1997).

3.1.2 Advertising

Chains also have potential economies of scale in advertising. Growing national corporations may find it easier to negotiate an advertising contract with a single geographically disperse chain newspaper than to advertise in individual newspapers. In a similar vein, newspaper chains’ ability to easily provide significant amounts of advertising gives them an advantageous negotiating position in determining advertising rates. When Gannett corporation purchased the morning and evening newspaper in Salem, Oregon in 1974, it immediately consolidated them into one newspaper and raised advertising rates. When a major advertiser
- K-Mart balked at the higher prices, Gannett threatened dropping K-Mart ads in other newspapers if K-Mart started advertising in another newspaper in the Salem market (Bagdikian, 1997).

### 3.1.3 Printing and Distribution

If co-owned newspapers are geographically close to each other, the newspapers are able to share resources used in distributing newspapers: newsrooms, printers, delivery vehicles and staff. Newspaper chains may also have economies of scale in the purchasing of raw inputs such as paper and ink. However, independent daily newspapers in competing markets also occasionally shared printing resources. For example, the 1976 Editor & Publisher’s International Yearbook notes that while the Birmingham Post-Herald and Birmingham News are corporately and editorially separate, the Birmingham News provides printing and delivery services for the Birmingham Post-Herald (Editor & publisher international yearbook, 1976).

### 3.2 Estate Tax Liabilities

The second primary force influencing chains’ acquisitions of independent newspapers was estate tax obligations on the heirs of independent newspaper owners. Between 1942 and 1976, the federal estate tax brackets were at their all-time lows, the marginal estate tax rates were at their all time high, and the brackets were not indexed for inflation until 1997 (Jacobson et al., 2007).

Estate tax incentives induced consolidation in several industries in the 2nd half of the 20th century. In 1962, the Small Business Administration recognized that several industries had undergone significant consolidation since World War 2. It wanted to know why. So, it commissioned a survey of small businesses which had consolidated. From 401 survey respondents, 165 said estate taxes were “very
important” in their decision to sell off or merge, 87 said “moderately important”, and 149 said “not important” (Bosland, 1963).

Newspaper chains recognized the influence of estate tax incentives in independents’ decisions to sell. One chain representative even attended the funeral of a newspaper owner to get a head start on making a sales pitch to the owner’s heir (Writer, 1979). A 1982 survey of the remaining Illinois independent newspaper owners found that most were concerned about the estate tax burdens to be faced by their heirs (Helle, 1983-1984).

3.3 Incentives to Acquire

While estate tax laws created an incentive for daily newspaper owners’ heirs to sell their inherited newspapers, corporate tax law creates additional incentives for newspaper chains to purchase independents. Corporations are subject to a corporate tax, and earnings which are distributed as dividends are taxed as income. If earnings are retained, they are subject to a surcharge if it is determined that the accumulation is “improper”, and not needed for current business needs. Corporate law prevents the corporation from shielding its stockholders from paying taxes on dividends.

However, if a newspaper chain has a history of purchasing independent newspapers, it can use that history as evidence that its retained earnings are appropriate. For example, at the end of 1979, the Gannett newspaper chain had over half a billion dollars in retained earnings (Dertouzos and Thorpe, 1982).

3.4 Effects of Acquisitions

Theoretical studies of horizontal mergers in two-sided markets have largely been constrained to cases of firms in the same market (e.g. Armstrong, 2006). However, local newspapers acquired by corporate chains rarely lead to increased
concentration in local markets, because newspapers are typically local monopolies. Even contemporary mergers between large corporate chains rarely affect much change in market power.

Chandra and Collard-Wexler (2009) developed a structural model to study the effects of mergers between several large Canadian newspaper chains in the mid to late 1990s. They found little increase on either advertising or subscription prices, which seems like what one might expect, given that they also find little increase in concentration of local markets as a result of the merger. The authors do argue that a documented increase in multimarket contact of newspaper chains may sustain collusion (Bernheim and Whinston, 1990), but empirically this does not turn out to be the case.

Fan (2013) develops a structural model of competition in two-sided markets in which firms choose both prices and content variety. The model is used to conduct merger simulations of an ownership consolidation of two newspaper in Minneapolis which was blocked by the Department of Justice. The simulations find the merger would have led to decreased news content quality, a lower local news ratio, and content variety, along with an increase in subscription price. However, as discussed earlier, these effects are predicated on changes in local market structure which are not typically present in our context.

Instead, the effects of chain acquisitions are likely to be driven either by changes in costs, and by differences in the nature of family firms and public corporations. In particular, two differences between family firms and public corporations are particularly salient: the longer-term outlook of family-owned newspapers, and the motivating factors of legacy and ties to the local community (Bertrand and Schoar, 2006). As family-owned businesses are not beholden to stock holders, they can potentially better resist short-term demands to increase profits. Since family businesses also often have closer ties to the local community, they may be more likely than public corporations which are not profit-maximizing, but nevertheless benefit the local community.
In our context, these differences between family-owned and chain newspapers could have potential effects in two ways. First, family-owned newspapers may in fact make earlier switches to take up new production technology than newspaper chains, if they have no intention to sell and see long-term benefits from taking up the new technology. Second, family-owned newspapers may inefficiently invest in content benefiting the local community past what is profit-maximizing. Bagdikian (1997) notes, for example, that the free, local classified section was often cut when the Hearst chain purchased a newspaper.

4 Data

4.1 US Newspaper Panel

The U.S. Newspaper Panel (Gentzkow et al., 2014) provides information on the name and location of all U.S. daily newspapers in every presidential election year between 1869 and 2004. The data for 1932 through 2004 come from the Editor and Publisher Yearbook. I use the years between 1948 and 1984 in my analysis.

4.2 Newspaper Content Data

I use two newspaper databases - Newspapers.com and NewspaperArchive.com to construct newspaper-related outcomes. In this subsection, I describe the databases and how I use them to construct various outcomes.

4.2.1 Newspaper Databases

Newspaper databases consist of digitized newspapers, their parsed text through Optical Character Recognition (OCR), and a search engine which allows users to query for hits of words within parsed text. Subscribers often use newspaper
databases for historical research or family genealogical research. Users can input search terms into the database’s query engine, and receive the page number, date, and name of the newspaper on which the search term appeared in the database.

Importantly, however, the newspaper databases do not provide newspapers’ text disambiguated at the article level. Instead, the databases only allow users to search for particular words in the database, and receive a set of results of pages on which the words appeared.

For example, Figure 4 shows the results of a search for “Mayor Gonzales” in NewspaperArchive.com. The database allows us to see that this particular search hit comes up in the February 18, 1968 edition of the Santa Fe New Mexican. By inspecting the HTML metadata of the search, I can additionally parse out the page number on which the search hit occurred. Figure 5 provides an example of the raw, OCRed text in the newspaper databases.

4.2.2 Index Definition

I use the newspaper databases to construct indices which allow me to develop proxy measures for the amount of different types of content in newspapers. The proxy measures are all either of the following form:

\[
L_{it} = \sum_{\text{word} \in \text{words}} \text{Counts of word in paper } i \text{ in year } t, \quad (1)
\]

i.e. the total number of words in the word basket in year \( t \), or of the form

\[
\bar{L}_{it} = \frac{\sum_{\text{word} \in \text{words}} \text{Counts of word in paper } i \text{ in year } t}{\text{Num. pages of paper } i \text{ in year } t \text{ in database}}, \quad (2)
\]

i.e. the average number of words in the word basket in year \( t \). In particular,
I construct two proxy measures - local content and national content - using baskets of both local words and national words. Ideally, I would like to be able to take a data-driven approach to selecting the word which go into the word basket. Such an approach would involve sampling newspaper articles from the newspaper database, finding the words which are most disproportionately used in local as opposed to national articles (and vice versa), and constructing indices using counts of those particular words. However, this is difficult to do, because the OCRed text in the newspaper databases is only disambiguated at the level of an individual article.

4.2.3 Index Construction and Validation

I manually select a basket of words which intuitively tend to refer to local issues, and a basket of words which refer to national issues. Specifically, I use the following two word baskets:

- Local: mayor, city hall, municipal, sewage, sheriff, commissioner, main street, school board
- National: president, Supreme Court, Congress, White House, Department of Justice, Secretary of State

I validate that this is a “good” basket of words by searching for these words in newspaper databases, and then assessing whether the articles in which the words turn up are indeed local articles, or whether they are indeed national articles. I sampled 400 articles for which my basket of local words yielded a hit in the database, and a sample of 400 articles for which my basket of national words yielded a hit in the database. Of these articles, 384 of the 400 potential local articles were indeed local articles, and 369 of the 400 potential national articles were indeed national articles.
4.2.4 Newspaper Advertising Measures

I create both direct and indirect advertising measures to estimate aspects of newspapers’ advertising.

4.2.4.1 Indirect Measures

Advertisement uses fewer words than news content, so an implication of an increased amount of advertising on a newspaper’s page is fewer total words per page. Additionally, newspaper chains may increase the amount of advertising simply by increasing the number of pages in a newspaper.

From Newspapers.com and NewspaperArchive.com, I am able to acquire the number of pages in each newspaper in the database. Additionally, I scrape the raw text of pages in the newspaper and count the number of words in sampled newspaper pages. For an example of raw newspaper text, see Figure 5.

4.2.4.2 Direct Measures

In addition to the indirect measures of advertising content, I construct some direct measures of advertising content. To construct these measures, I sampled five newspaper dates from each newspaper year in each newspaper matched to some other newspaper in Newspapers.com or NewspaperArchive.com. For each of these five newspaper dates, I measured the following from the first three pages of each newspaper date:

1. The number of advertisements.
2. The amount of space allocated to advertisements.
3. The number of advertisements belonging to local and non-local businesses.

Measuring the number of advertisements is straightforward - it just requires counting. To measure the amount of space allocated to advertisements, I asked
freelancers to use software to manually cut out any portion of the page dedicated to advertising.

Finally, I asked freelancers to determine whether advertisements belonged to local or non-local businesses. I define a non-local business as either a national brand (e.g. American Airlines or Pepsi), or a physical local business which is part of a national chain (e.g. McDonald’s or Sears). A local business is a business local to the area where the newspaper is published.

4.3 Newspaper Ownership

The U.S. Newspaper Panel does not contain detailed information on newspaper ownership. I combine several sources to create detailed information on newspaper ownership.

Since 1932, each year of the Editor and Publisher’s newspaper industry yearbook contains a section listing each newspaper chain and the newspapers owned by the chain. I digitized this section of the yearbooks every four years from 1948 to 1984 to create a yearly panel of chain ownership.

Second, I use the Editor and Publisher’s Yearbooks to make an educated guess at the identity of the newspaper owner. I do this by selecting the highest-ranking executive officer listed under the newspaper’s management section, and designating him as the newspaper’s “Main Owner”. For example, in Figure 6, I choose “Abraham Kofman” as the newspaper’s “Main Owner”. Specifically, I select “Main Owners” according to the following hierarchy:

1. If a single individual is both the President and Publisher of the newspaper, select that person.
2. If a single individual is either the President or the Publisher, and the other title does not exist, select that person.
3. If there are both a President and the Publisher, select the President.
4. If there are two Presidents/Partners/Publishers, select the one listed first.
5. If there is a Chairman of the newspaper, select him.
6. If there is only a Business Manager, select that person.

In general, cases that fit into the first two categories reflect strong certainty that the correct “Main Owner” selected, while cases 3-6 have more uncertainty. From Table 1, we see that of 7,284 observations of independent newspaper-years between 1948 and 1980, 6,101 are in the first two categories.

After identifying the newspaper owner, I use a combination of online newspaper databases (i.e. Newspapers.com and NewspaperArchive.com) and other online resources (e.g. individual families’ genealogical websites) to identify the time at which the newspaper owner died.

Finally, I collect one additional data source pertaining to newspaper owners: Statements of Ownership, Management, and Circulation. These are official forms required by law to be filled out by any publication having second class mail privileges and published once a year in some issue the publication (“U.S. Code,” n.d.). In the forms, newspapers must state the identities of all owners, the names of the publisher and editors, and some information on the circulation of the newspaper. I downloaded all newspaper pages in two newspaper databases (Newspapers.com and NewspaperArchive.com) which contain a Statement of Ownership, Management, & Circulation, and counted and digitized the number of owners listed under the “owner” field of each statement.

### 4.4 Geographical Controls

I collect county-level census aggregates from 1940, 1950, 1960, 1970, and 1980 from IPUMS to use as control variables in all regressions. In particular, I use the white population share, foreign population share, urban population share, male population share, and share of manufacturing employment.
5 Empirical Framework

5.1 Main Specification

Let $i$ index newspapers and $t$ index years. Then, $y_{it}$ can be some newspaper-related outcome, such as news content or length of the newspaper.

The primary specification used is

$$Y_{it} = \alpha_i + \gamma_t + \beta \cdot C_{it} + \epsilon_{it}, \quad \text{(3)}$$

where $Y_{it}$ is some outcome of interest for newspaper $i$ in time period $t$ and $C_{it}$ is a newspaper $i$’s chain ownership status in time period $t$. We are interested in $\beta$, the effect of chain ownership transitions on newspaper-related outcomes.

5.2 Identification

Estimating Equation 3 faces a potential endogeneity problem. Chain ownership transitions may be correlated with some unobservables effecting some outcome of interest. This endogeneity problem is most salient in the context of content-related outcomes. For example, it could be the case that chain newspapers have a comparative advantage in the production of national news, and so they try to purchase newspapers in locations whose preferences are moving away from local news and towards national news.

To deal with this endogeneity problem, I use the death of an independent newspaper owner as an instrument for transitions $C_{it}$ from individual ownership to chain ownership. Specifically, I estimate the following first-stage equation:

$$C_{it} = \alpha_i + \gamma_t + \beta \cdot D_{it} + \epsilon_{it}, \quad \text{(4)}$$
where $D_{it}$ is equal to 1 if the owner of the newspaper died in the previous four years. The first-stage Equation 4 is estimated jointly with Equation 3 in a traditional Panel IV framework.

The exclusion restriction for this instrument requires that a newspaper owners’ death effects the outcome of interest only through the chain ownership transition. On net, the death of a newspaper owner is a relatively exogenous event (see Dittmar and Seabold (2018) for a similar instrument). There are some concerns with using owners’ deaths as an instrument, but these concerns either change interpretation of coefficients or work against me rather than affect the validity of the instruments.

One concern is that some independent newspaper owners anticipate their deaths, and so are able to make preparations to meet liquidity requirements for their heirs to be able to meet their estate tax liabilities. In the language of treatment effects, such owners are never takers, and so the IV estimates do not apply to such owners’ newspapers. Instead, the IV estimates only apply to those newspapers who become chain-owned only if their owner dies, and not otherwise.

To some extent, I can directly test the plausibility of this story. Table 4 displays the results of a regression specification similar to Equation 4, but I replace the instrument with an indicator equal to 1 if the owner died in the following four years, rather than the previous four years. I find no “first-stage” effect with this instrument on transition likelihood.

A second concern is that the death of a newspaper owner may have an effect on outcomes simply through a transition away from an older owner to a younger owner, who may be less hesitant to implement changes to a newspaper or adopt new technologies. If this was the case, we would expect to see there to be some effect of transitions from independent newspaper owners to other independent newspaper owners on our outcomes of interest.

In Table 5, I estimate Equation (3) by OLS, replacing the chain ownership
indicator \( C_{it} \) with an indicator for an independent newspaper to independent newspaper transition. I find little effect of independent-to-independent transitions across all our main outcomes defined in the previous section, suggesting that this second potential threat to validity is not a concern in the current context.

6 Results

6.1 Matching

In order to jointly estimate Equations 3 and 4, I have to construct a dataset which matches newspapers to newspaper owners and their dates of death. This sample is constructed through the following process. For each daily, independent newspaper between 1948 and 1980,

1. Identify the “Main Owner” of the newspaper.
   - Find the “Main Owner”’s date of death.
   - Use the Statements of Ownership, Management, and Circulation to identify the total number of owners of the newspaper.

2. Find a match of the newspaper to a newspaper in either Newspapers.com or NewspaperArchive.com.

In this matching process, there are several reasons why some observations may not get matched. First, an observation may not be matched if the “Main Owner”’s date of death cannot be found in genealogical records or in an article in a newspaper database. Second, an observation may not be matched if a “Statement of Ownership, Management, and Circulation” cannot be found for a given newspaper-year. Third, an observation may not be matched if the newspaper is not found in an online newspaper database.

As a result of this matching process, 7,284 newspaper-year observations across
the eight presidential election years between 1952 and 1984 get matched to a total of 4158 newspaper years. As in all empirical work involving construction of a matched sample, there is a concern that the matched newspapers may be systematically different from unmatched newspapers. In Table 2, I compare the matched and unmatched samples along several dimensions. I find that there is little difference between the matched and unmatched groups, except that the matched group has a larger share of the constituent population employed in manufacturing.

6.2 First-Stage

Table 3 displays results for estimation of Equation 4 for three different samples. The first sample consists of all independent daily newspapers between 1948 and 1980. The second sample consists of only those newspapers whose “Main Owner” is either so-identified on account of being the Publisher and President of the newspaper, or by being the lone President or Publisher. Finally, the third sample consists of those newspapers whose owner is one of 5 or fewer newspaper owners as transcribed from the “Statements of Management, Circulation, and Ownership”.

While the first stage is not strong in the first sample, it improves in strength in the second and third sample, achieving an F-Statistic of 7.37. In moving between each sample, we reduce the sample size, but we decrease measurement error related to identification of the incorrect newspaper owner. In the final sample, we also limit ourselves to owners who are likely to have a large share of the ownership of the company, on account of there being relatively few owners. In the rest of the paper, I use the third sample in all regressions.
6.3 OLS/IV

I estimate the main specification, Equation 3, for three different types of outcomes: newspaper content, newspapers’ physical features, and newspaper advertising.

6.3.1 Newspaper Content

In Table 6, I estimate the change in local and national content per page. The results are insignificant and negative across all specifications. Local and national content are defined according to the procedure and word baskets defined in Section 4.2. The results are similar in Table 7 for the total amount of content per page: the results are insignificant and positive. On net, the estimates indicate that chain newspapers do not make significant changes to the amount of news content in the newspaper. In Column 5 and Column 6 of both Table 6 and Table 7, I also study how chain ownership effects the ratio of local news relative to the sum of local news and national news, as measured by my constructed indices. I find no change in this ratio either in terms of content per page, or in terms of total content.

6.3.2 Newspaper Features

In Table 8, I estimate the change in number of pages and the change in the log of the word count due to chain ownership. From the IV regressions, I find that the number of pages increase by 4.2 pages per day, and the word count decreases by 15% per day. One benefit of Phototypesetting printing technology is that it greatly reduced the time to set type. The increase in the number of pages is indicative of the takeup of Phototypesetting technology by chain newspapers. However, the decrease in number of words suggests that the amount of space dedicated to advertising has increased.
6.3.3 Newspaper Advertising

The results of estimating Equation 3 for various newspaper features suggest that chain transitions induced take up of new printing technology, due to the change in the size of the newspaper. While a change in the word count in the newspaper allows speculation that the nature of newspapers’ advertising also changed, in order to be more certain, we need to directly examine newspapers’ advertising.

As discussed in 4.2.4, I directly sampled advertisements from newspapers in newspaper databases, and measured three aspects of these advertisements: the number of advertisements, the space dedicated to advertisements, and whether the advertisements come from a locally-owned business or a chain store. We can estimate Equation 3 for these outcomes to understand more directly the effects of ownership transitions on newspaper advertising.

Due to practical data collection constraints, I did not collect data on all advertisements in the newspaper. Therefore, this exercise does not allow us to directly evaluate the effects of ownership transitions on total advertising. However, we are able to study the effects of ownership transitions on the most important advertisements - those which come early in the newspaper. Additionally, we’re able to study whether the types of businesses advertising in these advertisements coming early in the newspaper are changing from local businesses to chain-owned businesses.

Table 9 displays the results of estimates of Equation 3 for three new outcomes: the number of advertisements in the first three pages of the newspaper (OLS in Column 1 and IV in Column 2), the space dedicated to advertisements in the first three pages of the newspaper (OLS in Column 3 and IV in Column 4), and the proportion of advertisements which are chain-owned (OLS in Column 5 and IV in Column 6). While there is little change in the number of advertisements or proportion of space used for advertisements, there is a significant increase in the proportion of the newspaper’s advertisements which come from chain businesses.
or publicly traded companies. Specifically, according to the IV results, a chain transition results in a 12.7% higher chance that a given advertisement in the first three pages of the newspapers belongs to a non-local business.

6.3.4 Discussion/Caveats

Broadly, the results indicate that chain ownership transitions had little effect on news content. Instead, chain ownership primarily influenced through two mechanisms. First, newspaper chains were likely able to increase the size of the newspaper by financing a new printing technology. Second, newspaper chains increased the amount of advertising in newspapers, and they specifically increased the proportion of advertising for non-local businesses. The period of study between 1950 and 1980 both involved a large consolidation of the American newspaper industry, but also a large increase in the number and market share of chain stores and national brands. The results indicate that chain newspapers may have had a comparative advantage in negotiating advertising contracts with concurrently growing chain stores and brands.

Interpretation of the news content results requires some caveats. First, while I am able to estimate a proxy measure for news quantity, I am not able to develop a measure for news quality, and so I cannot make strong welfare statements. In order to develop better measures of news quality, I would need a dataset which is disambiguated at the level of an individual story. Second, while the number of words found in newspapers’ text from the word baskets did not change significantly, the length of each story may have still decreased. This would be possible, if, for example, a story about a local crime always contains the word “police” in the first paragraph, but the word “police” is used infrequently in future paragraphs.
7 Conclusion

Media observers have long worried that increased consolidation may lead to deleterious outcomes for the quality of the news media. In particular, a focus of debate of both recent mergers and of the post-World War 2 trend of chain-building in the newspaper industry has been whether the geographical orientation of news would change. One prominent media critic, Ben Bagdikian, observed that when the Gannett chain purchased the Santa Fe New Mexican in 1976, “Local news was cut, as it usually is, and replaced by inexpensive syndicated matter from afar” (Bagdikian, 1997).

In this paper, I put media critics’ hypotheses to the test, and directly evaluate whether there appears to be a change to news content. I find that there is no significant change to the quantity of either local or national news content. However, I do find evidence that chains are implementing technological changes which allow them to increase the size of their newspapers, increase the amount of advertising, and increase the proportion of advertising which belongs to public companies or chain-owned businesses.

Overall, the results indicate the need to evaluate both sides of a two-sided market when studying the consequences of a change in market structure in that market. While contemporary media reformers such as Ben Bagdikian and Senator Morris Udall were focused most keenly on the implications of consolidation for news content, this episode teaches us that it is also critical to also study changes in advertising markets to develop a full understanding of the implications of changes in the industrial organization of media markets.
8 Figures

Figure 1: Daily Newspapers by Year
Figure 2: Cities in 1952 with Chain Newspapers
Figure 3: Cities in 1984 with Chain Newspapers

Figure 4: Example Search in Newspaper
Figure 5: Example of OCR'd Newspaper Text
Figure 6: Example E&P Yearbook Entry
Figure 7: Example Obituary
Figure 8: Example Statement of Ownership, Management, and Circulation
Table 1: Owners by Category in Editor and Publisher’s Yearbooks

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Num. Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>President and Publisher.</td>
<td>3276</td>
</tr>
<tr>
<td>2</td>
<td>Either President or Publisher, and other title doesn’t exist.</td>
<td>2725</td>
</tr>
<tr>
<td>3</td>
<td>President when Publisher exists.</td>
<td>676</td>
</tr>
<tr>
<td>4</td>
<td>Two Presidents</td>
<td>102</td>
</tr>
<tr>
<td>5</td>
<td>Chairman</td>
<td>453</td>
</tr>
<tr>
<td>6</td>
<td>Business Manager</td>
<td>52</td>
</tr>
</tbody>
</table>

Table contains counts of individual newspaper owners according to the criterion by which they were identified as newspaper owners from the listing of the management structure in the Editor’s and Publisher’s International Yearbooks.

Table 2: Covariate Balance for Newspapers Matching

<table>
<thead>
<tr>
<th>Variable</th>
<th>All Independents</th>
<th>Match Owner Death</th>
<th>Fewer than 5 Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulation</td>
<td>23870.56</td>
<td>18873.99</td>
<td>20321.14</td>
</tr>
<tr>
<td>Share male</td>
<td>.4831</td>
<td>.4855</td>
<td>.4802</td>
</tr>
<tr>
<td>Share white</td>
<td>.9266</td>
<td>.9280</td>
<td>.9302</td>
</tr>
<tr>
<td>Share foreign</td>
<td>.1390</td>
<td>.1533</td>
<td>.1483</td>
</tr>
<tr>
<td>Share manufacturing</td>
<td>.1171</td>
<td>.1503</td>
<td>.1529</td>
</tr>
<tr>
<td>Total Number</td>
<td>7,284</td>
<td>5,801</td>
<td>4,158</td>
</tr>
</tbody>
</table>

Table contains newspapers’ average circulation and average demographic characteristics of counties containing the newspapers. Circulation comes from the American Newspaper Panel, and demographic characteristics come from census. “Match Owner Deaths” refers to independent newspapers for whom the owner’s date of death was found, and “Fewer than 5 Owners” refers to independent newspapers who are found to have less than 5 total owners.
Table 3: First Stage Regressions

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership Transition</td>
<td>0.0471</td>
<td>0.0922**</td>
<td>0.1222***</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(0.041)</td>
<td>(.045)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>7284</td>
<td>5801</td>
<td>4167</td>
</tr>
<tr>
<td>F Statistic</td>
<td>2.64</td>
<td>5.05</td>
<td>7.37</td>
</tr>
</tbody>
</table>

Notes:  
***Significant at the 1 percent level.  
**Significant at the 5 percent level.  
*Significant at the 10 percent level.

This table estimates Equation ?? “Likely Owner” refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. “Fewer than 5 Owners” refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in 4.3. Standard errors are clustered at the county level.
Table 4: First Stage Regressions - Placebo

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership Transition</td>
<td>0.013</td>
<td>-.026</td>
<td>-.023</td>
</tr>
<tr>
<td></td>
<td>(0.018)</td>
<td>(0.041)</td>
<td>(.028)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>7284</td>
<td>5801</td>
<td>4167</td>
</tr>
<tr>
<td>F Statistic</td>
<td>.001</td>
<td>0.3559</td>
<td>0.64</td>
</tr>
</tbody>
</table>

Notes: ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

“Likely Owner” refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. “Fewer than 5 Owners” refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in 4.3. Standard errors are clustered at the county level.
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ind. Ownership Transition</td>
<td>-.289</td>
<td>.156</td>
<td>.353</td>
<td>.075</td>
<td>.412</td>
<td>-.028</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>(0.228)</td>
<td>(0.212)</td>
<td>(.457)</td>
<td>(.442)</td>
<td>(1.02)</td>
<td>(.024)</td>
<td>(.046)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>7284</td>
<td>7284</td>
<td>7284</td>
<td>7284</td>
<td>7284</td>
<td>7284</td>
<td>7284</td>
</tr>
</tbody>
</table>

**Notes:**

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

This table estimates Equation (3) for various outcomes, replacing the chain ownership indicator with an indicator for independent newspaper owner to independent newspaper owner transitions. Column (1) and Column (2) are the amount of local and national content per page. Column (3) and Column (4) are the total amounts of local and national content. Column (5) is the number of pages in the newspaper. Column (6) is the log of the number of words in the newspaper. Column (7) is the proportion of advertisements which are non-local. Standard errors are clustered at the county level.
### Table 6: OLS and IV Regressions - Content (Per Page)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership Transition</td>
<td>-.2263</td>
<td>-.258</td>
<td>-.172</td>
<td>-.168</td>
<td>-.012</td>
<td>-.010</td>
</tr>
<tr>
<td></td>
<td>(0.279)</td>
<td>(0.391)</td>
<td>(.285)</td>
<td>(.403)</td>
<td>(.054)</td>
<td>(.074)</td>
</tr>
<tr>
<td>Clumped S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
</tr>
</tbody>
</table>

**Notes:**

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Column (1) and Column (2) are the local index measure for OLS and IV, respectively. Column (3) and Column (4) are the national index measure for OLS and IV, respectively. Column (5) and Column (6) are the ratio of local to local news and national news for OLS and IV, respectively. "Likely Owner" refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. "Fewer than 5 Owners" refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in Section 4.3. Standard errors are clustered at the county level.
<table>
<thead>
<tr>
<th>Ownership Transition</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.5471</td>
<td>.3622</td>
<td>.6222</td>
<td>.4563</td>
<td>.016</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>(0.529)</td>
<td>(0.641)</td>
<td>(.545)</td>
<td>(.633)</td>
<td>(.045)</td>
<td>(.064)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
</tr>
</tbody>
</table>

Notes:

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

Column (1) and Column (2) are the local index measure for OLS and IV, respectively. Column (3) and Column (4) are the national index measure for OLS and IV, respectively. Column (5) and Column (6) are the ratio of local to local news and national news for OLS and IV, respectively. “Likely Owner” refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. “Fewer than 5 Owners” refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in Section 4.3. Standard errors are clustered at the county level.
Table 8: OLS and IV Regressions - Newspaper Features

<table>
<thead>
<tr>
<th></th>
<th>N.P (OLS)</th>
<th>N.P (IV)</th>
<th>Log N.W. (OLS)</th>
<th>Log N.W. (IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ownership Transition</td>
<td>3.55***</td>
<td>4.212**</td>
<td>-.126***</td>
<td>-.154***</td>
</tr>
<tr>
<td></td>
<td>(1.29)</td>
<td>(1.72)</td>
<td>(.034)</td>
<td>(.046)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
</tr>
</tbody>
</table>

Notes:  
***Significant at the 1 percent level.  
**Significant at the 5 percent level.  
*Significant at the 10 percent level.  

“N.P.” stands for “Number of Pages”. “N.W.” stands for Number Of Words. “Likely Owner” refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. “Fewer than 5 Owners” refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in Section 4.3. Standard errors are clustered at the county level.
Table 9: OLS and IV Regressions - Newspaper Advertising

<table>
<thead>
<tr>
<th>Ownership Transition</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.219</td>
<td>0.332</td>
<td>0.023</td>
<td>0.035</td>
<td>.112**</td>
<td>.127**</td>
</tr>
<tr>
<td></td>
<td>(.536)</td>
<td>(.712)</td>
<td>(.038)</td>
<td>(.057)</td>
<td>(.045)</td>
<td>(.058)</td>
</tr>
<tr>
<td>Clustered S.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Year F.E.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Likely Owner</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fewer than 5 Owners</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>N</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
<td>3458</td>
</tr>
</tbody>
</table>

Notes:

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

In Column (1) and Column (2), the dependent variable is the average number of advertisements in the first three pages of the newspaper. In Column (3) and Column (4), the dependent variable is the space dedicated to advertisements in the first three pages of the newspaper. In Column (5) and Column (6), the dependent variable is the proportion of advertisements which are non-local. “Likely Owner” refers to independent newspapers whose owners fit under Category 1 or Category 2 as described in Section 4.3. “Fewer than 5 Owners” refers to the number of newspaper owners as counted from the Statements of Management and Ownership, also as described in Section 4.3. Standard errors are clustered at the county level.
References


Editor & publisher international yearbook, 1976. Editor & Publisher Co.

Fan, Y., 2013. Ownership consolidation and product characteristics: A study of

Genesove, D., 2000. Why are there so few (and fewer and fewer) two-newspaper towns.


Hill, I.W., 1977a. Media concentration deplored by udall. Editor & Publisher.

Hill, I.W., 1977b. Neuharth stresses quality of group papers in debate. Editor & Publisher.


U.S. Code: Title 39 - postal service, n.d.. LII / Legal Information Institute.