

**No News is Bad News:  
The Internet, Corruption, and the Decline of the Fourth Estate**

Ted Matherly and Brad N. Greenwood  
Forthcoming, *Management Information System Quarterly*

### **Abstract**

The rise of the internet has upended numerous industries, but none more so than news production. The connectivity fostered by digitization has seen the emergence of content aggregation, the proliferation of fake news, and the extended geographic reach of industry leaders; all of which has served to hollow local reporting capacity. In this work, we examine the result of changes wrought by the internet on an outcome of theoretical and practical significance: corruption. Inasmuch as newspapers are viewed as an important investigative arm of local communities, it is possible that corrupt local actors will be emboldened in their absence. To test this hypothesis, we employ a difference in difference approach, exploiting the phased closure of major daily newspapers across the country. Results indicate a significant and positive correlation between federal corruption charges and newspaper closure. Further, we observe no evidence that the rise in online newsvendors or the democratization of the press ameliorates this effect. This suggests a key issue with the increased geographic reach of digitized firms in the form of “information blindness” to local issues.

Key Words:        *Difference in Differences, Media, News, Corruption*

## Introduction

*“The day I run into a Huffington Post reporter at a Baltimore zoning board hearing is the day that I will be confident that we have reached some sort of equilibrium. The next 10 or 15 years in this country are going to be a halcyon era for state and local political corruption. It is going to be one of the great times to be a corrupt politician. I really envy them.”*

David Simon, Creator of HBO’s *The Wire*  
Senate Hearing on the Future of Journalism  
May 6, 2009

The rise of the internet and the digitization of news delivery has indelibly changed the face of journalism. Weekly and Sunday circulation topped 62mm households as recently as 1990.<sup>1</sup> It now stands at less than half; obliterated by classified advertisers like Craigslist (Gao et al. 2020, Seamans and Zhu 2013), competition from remote providers (Clemons et al. 2002), and the proliferation of social media (Aral et al. 2013, Aral and Zhao 2019). Yet, despite a large body of IS scholarship investigating the origins of declining reporting capacity, and the questionable quality of news that has filled the void in the absence of institutionalized media (e.g., fake news (Kim and Dennis 2019, Kitchens et al. 2020, Wang et al. 2018)); less work has been devoted to the downstream implications of digitizing news delivery (with some notable exceptions (Gao et al. 2020, George and Waldfogel 2006)). This is concerning, because if dominant media outlets like the *New York Times* are displacing local vendors (Clemons et al. 2002, George and Waldfogel 2006), and not back filling local reporting capacity, coverage gaps may emerge. In this work, we highlight a worrying consequence of this knowledge gap: corruption. In doing so, we respond to recent calls to better understand the effects of the internet as it relates to media, politics, and public policy (Kitchens et al. 2020, Miranda et al. 2016, Wattal et al. 2010).

Corruption is a global scourge. It undermines the stability of prices, the ability to trade, and the ability to modernize economies (Mauro 1995). Yet, why might the decline of investigative

---

<sup>1</sup> <https://www.journalism.org/fact-sheet/newspapers/>

journalism be associated with levels of corruption? On the one hand, research emphasizes the investigative capability newspapers have (Abernathy 2018, Mahone and Napoli 2020, Turkel et al. 2021). Given traditional conceptualizations of press as a watchdog for the public interest (Coronel 2010), it is possible that its absence might lead people to engage in corrupt practices. Further, as the press plays a role in vetting elected officials, corrupt persons who otherwise might not have run may no longer be filtered out in the election process, meaning incumbent officials may be replaced with less scrupulous ones (Hirano and Snyder 2014, Larreguy et al. 2020). Finally, without the fear of having scandals appear on the front page, actors may feel emboldened to risk corrupt behavior, safe in the knowledge that it may all just “blow over.”

On the other hand, the democratizing effects of digitization might offset the loss of these newspapers by facilitating citizen journalism. Other contexts attest to such benefits. In finance, democratized peer-to-peer lenders often outperform their institutional counterparts (Lu et al. 2021). In innovation, outsourcing capital acquisition to the crowd is a viable alternative to early stage financing (Burtch et al. 2014, Lin et al. 2022). In media, work recognizes the obsolescence of gatekeepers following the success of self-published novels (e.g. *50 Shades of Gray*) and self-promoted artists (e.g. Macklemore) (Dewan and Ramaprasad 2012). And in journalism itself, Darnella Frazier’s recording of the murder of George Floyd sparked outrage and reforms, eventually earning her a Pulitzer Prize. This suggests that a hollowing of local newspapers may have little effect on the perceptions of government officials that they are under scrutiny.

We investigate this tension by exploring the relationship of newspaper closure and federal corruption charges using a difference in difference design. We hypothesize that the closure of a major daily newspaper will be associated with an increase in corruption charges filed by prosecutors. Data on charges of corruption are drawn from the Federal Judicial Center and data

on newspaper closures are drawn from the UNC News Deserts database. Results indicate that the closure of newspapers is associated with increases in the per capita number of corruption cases filed (7.32%), charges brought (6.80%), and defendants indicted (6.04%). Further, we observe no attenuating effect from the introduction of alternate content provision models. This undermines hopes that citizen journalism will counteract the declining ranks of professional journalists by increasing the diversity of sources (Carpenter 2010), but is consistent with research on the limited effectiveness of citizen journalists (Anderson et al. 2015, Miller 2018). Finally, limited evidence suggests these relationships may be due to risk adjustments made by corrupt actors following newspaper closure, who erroneously perceive lower risk of discovery, though further work is needed in this space to uncover the mechanism driving these changes.

## **Related Literature**

### ***The Changing Media Landscape***

The rise of the internet and the downfall of the newspaper industry has upended the world of journalism. Indeed, numerous scholars have laid the downfall of the newspaper industry at the feet of the internet (Aral et al. 2013, Cho et al. 2016). Three reasons have been put forward: advertising, reach, and competition. And although these are not mutually exclusive, they are largely seen as collectively exhaustive (Hayes and Lawless 2021). Regarding advertising, researchers have long noted that news generation is a public subsidy, as is evidenced by factors like the provision of reserved frequencies and the collective accessibility of costless media. As the internet undermines the efficacy of the advertising subsidy (Anderson et al. 2015, Angelucci and Cagé 2019), through both increased competition for dollars and more efficient ad targeting (Gentzkow 2014, Seamans and Zhu 2013), newsrooms have been scaled back.

Scholars have also noted that newspapers no longer exclusively serve their local community (George and Waldfogel 2006). As it is costless to digitally transmit information, better funded

newspapers like the *Wall Street Journal* can reach beyond their markets (George and Waldfogel 2006), which puts pressure on local newspapers. And while this increased reach is accompanied by superior financial performance for news vendors who can achieve it, it does not create an incentive to generate local coverage in newly entered areas. Finally, *de novo* competition. This ranges from the increased reach dominant papers have, to online-only entrants (Mahone and Napoli 2020), to increased competition for classified advertising dollars (Djourelouva et al. 2021, Gao et al. 2020, Seamans and Zhu 2013), to competition from content aggregators (Clemons et al. 2002, Dellarocas et al. 2013). These shifts in costs have led to a belt tightening effect, wherein newsrooms have shrunk and costly investigative journalism has been scaled back (Anderson et al. 2015, Miller 2018, Peterson 2021). As Jeff Zucker of CNN put it, journalists are trading “analog dollars” for “digital pennies.”

This raises the question of how newspapers are responding to the new digital environment. The internet is not the first phenomenon to threaten newsprint. Indeed, television had similar implications in the 1940s and 1950s (Angelucci and Cagé 2019, Park et al. 2018). As newspapers found their revenue streams thinning, they focused on smaller market segments with a higher willingness to pay. This scaling back led to both changes in the size of newsrooms and the amount of content which can be produced (Miller 2018, Peterson 2021). And, unfortunately for local communities, the content which is most strongly undermined is costly investigative coverage (Claussen et al. 2021, Peterson 2021), leading to predictable declines in quality.

Yet, what is most striking is the limited attention which has been devoted to the downstream societal implications of declining print media (with some notable exceptions). Gao et al. (2020), for example, find that reduced monitoring of public sector finance increases the cost of municipal borrowing, suggesting newspapers play a role in governmental accountability. Further,

Jiang and Kong (2021) examine willingness to contravene local regulations, finding polluters are less likely to be discovered after a local newspaper closes.

Thus, while extensive research has been devoted to the implications of emerging digital forms (e.g., classified advertisers (Chan and Ghose 2014, Seamans and Zhu 2013), home stay networks (Cui et al. 2016, Horton 2015, Zervas et al. 2017)), limited work has been devoted to the societal implications of hollowing media and the increased reach of dominant media players (Gao et al. 2020, George and Waldfogel 2006, Jiang and Kong 2021). This is concerning given the role journalists play in holding governmental actors to account. To the extent that digitization had yielded smaller newsrooms which are less able to produce in-depth local content (Anderson et al. 2015, Miller 2018), there is a *prima facie* case that the internet's deleterious effect on the newsprint industry may yield changes in the decision making of economic agents.

### ***Investigative Journalism and Corruption***

The decreased costs of information and the proliferation of digital alternatives has fractured the audience for news, making it less attractive to advertisers, decreasing revenue, and causing papers to close. Those local outlets that remain have been forced to redirect resources, with investigative journalism being first on the chopping block due to its costs (Hamilton 2016). Research has highlighted that the entry of Craigslist into US markets has led to declines in political coverage (Djourelouva et al. 2021), siphoned off advertising dollars (Seamans and Zhu 2013), and decreased monitoring (Gao et al. 2020).

There is also little evidence that the expansion of the internet has filled the gap caused by the closure of local news outlets by democratizing access to information through amateur journalists (Anderson et al. 2015, Miller 2018). While anecdotal evidence exists that digital journalists have been able to impact the electorate (e.g. the murder of George Floyd), systematic scholarship showing these effects is limited. Wider internet access has not expanded access to local news

(Hindman 2008), and broadband access decreases incumbency advantages for political candidates by shifting attention to national issues (Trussler 2020). In turn, as the thirst for national news has grown, interest in local news has withered, receiving a quarter of the page views and a sixth of the per-capita minutes of national news sites (Hindman 2011). Taken together, this suggests that the growth of the internet has: i) decreased the quantity and quality of local reporting and ii) has not provided suitable digital replacements, despite the potential for democratization (Burtch et al. 2014, Kim and Hann 2019, Lin et al. 2022, Lu et al. 2021). The result is local areas where there is either a real or perceived decline in public oversight of governance, with multiple pathways by which corruption might rise. We discuss three.

First, lowered oversight of local governance may affect the cohort of candidate who run for office, creating a selection effect. Newspaper endorsements are a signal of quality (Hirano and Snyder 2014), and are key sources for the public to learn about elected officials (Larreguy et al. 2020). As a result, losing a newspaper that informs voters may impact who chooses to seek office. On the one hand, media is often supportive of incumbents (Kahn 1993), and the loss of a newspaper may embolden challengers. On the other hand, closure might encourage individuals who would otherwise shy away from scrutiny into running in an un-scrutinized race. When fewer resources are available to inform the public, those who are more likely to engage in corrupt acts may seek office and unseat previously vetted incumbents.

Second, investigative journalism can serve an auditing function of government, and by doing so, investigative reporting may suppress corruption. Prior work has shown that increased access through Freedom of Information laws stimulates arrests for public corruption (Cordis and Warren 2014) and a decline in media decreases accountability (Gao et al. 2020). Further, media coverage is associated with the responsiveness of elected officials, while a limited press



diminishes the degree to which officials advocate for their constituents (Snyder and Strömberg 2010). Thus, as newspaper closure has been linked to declines in political coverage (Djourelouva et al. 2021, Peterson 2021), prior work suggests that newspaper closure may lead to lowered scrutiny of the actions government officials take, and malicious actors may become more likely to engage in corrupt practices.

Finally, the loss of a newspaper might exert an indirect effect by leading officials to incorrectly adjust their beliefs about risk. Through their interactions with journalists via the selection and auditing process, corrupt actors may come to believe that newspapers represent front line investigators of illicit behaviors, ready to publicize wrongdoing and alert law enforcement. Such beliefs are pervasive among the public, notably in the popular perception of the fourth estate's work is as "custodians of public conscience" (Ettema et al. 1998), and is typified by the *Washington Post's* investigation of Watergate. Thus, observing the closure of a local newspaper, corrupt officials may believe that the likelihood of discovery has declined, and, on the margin, decide it is worth the risk. However, the reality is that it is much more common for cases to be uncovered by law enforcement's own investigations. In turn, the media typically elevates the salience of such scandals by covering them *ex post*, increasing public awareness of issues through an agenda setting process (Benediktsson 2010).

Taken in sum, this work suggests that corruption may increase following the closure of a newspaper with investigative capacity. And while the above mechanisms are not mutually exclusive, they universally suggest corruption will rise when local newspapers shutter.

## **Materials and Methods**

### ***Measuring Corruption***

Corruption is, by its nature, an activity that parties want to conceal, making it challenging to measure. Following prior work, we proxy corruption using administrative records of Federal

prosecutions (Albanese and Artello 2019, Alt and Lassen 2003, 2008, 2012, Cordis and Milyo 2016). Employing this process affords us three advantages over other approaches, such as surveys.<sup>2</sup> First, as we focus on Federal charging, the legal standards are consistent in all locales. This decreases the likelihood that any differences are driven by heterogeneity in the definition of corruption.<sup>3</sup> Second, the AUSAs tasked with prosecuting corruption are highly trained and have formalized procedures. This should ensure consistent application of law. Third, because corrupt actors should attempt to conceal their behavior, the total charges should undercount corruption. As we predict corruption will rise, this suggests that our estimates will be conservative.<sup>4</sup>

### ***Data***

To explore the association between declining investigative journalism and corrupt behavior we examine the change in per capita federal charges, defendants, and cases filed in District Courts following closure of a newspaper in that district. Note that federal prosecutions represent the overwhelming majority of corruption cases in the United States (Alt and Lassen 2003, 2012).

Data are collected from several sources. Data on charges of corruption are drawn from the Federal Judicial Center. These data are sourced from the US Attorney's Central Charge File and

---

<sup>2</sup> Two other popular methods exist in prior scholarship. Direct survey of the population and survey of the prosecutors by the DOJ. These approaches are common in economics and political science (Bologna 2017, Campante et al. 2013, Glaeser and Saks 2006, Meier and Holbrook 1992, Richey 2010). The chief concern with this approach is that responses are often biased because perceptions of corruption can be conflated with various other social factors that color a respondent's viewpoint (Boylan and Long 2003, Cordis and Milyo 2016, Olken 2009).

<sup>3</sup> It bears note that federal charges of corruption constitute the overwhelming number of charges brought. Docket searching corroborates this. California State court dockets during our sample do not reveal a single case wherein Willful Deceit was charged (Civ. Code, § 1709). Illinois State courts reveal only a single case where Consumer Fraud was charged (815 ILCS 505).

<sup>4</sup> To ensure the validity of this approach, we further conducted a series of semi-structured interviews with current and former Assistant US Attorneys (AUSAs). The interview protocol is in Appendix A. These federal officers consented to our interview requests on the condition of anonymity and did not speak to us in their official capacities as agents of the federal government. The AUSAs noted that, while DOJ priorities do shift as a function of political winds, the prosecution of corruption is always a high priority. Further, due to the sensitivity of these cases, prosecution decisions are vetted to ensure that they are done in an "aggressively apolitical" manner. Each interviewee stated explicitly that the decision to charge a person would only be made if they had "a good faith belief that we will prevail at trial," highlighting the rigorous and consistent standards of these decisions.

Two other takeaways are critical. First, the AUSAs indicated that corruption cases are consistently viewed as a top priority, and thus it would be almost impossible for the US Attorney to "up" the focus on corruption or acquire resources in response to idiosyncratic local factors like newspaper closure. Second, the AUSAs indicated that prosecutors primarily receive case referrals from the FBI or other agencies within main Justice. As they are not generating these cases themselves, shifting prosecutorial attention should not bias our estimates of any association between newspaper closure and corruption (broadly defined).

are organized at the defendant level. They contain the five most significant charges<sup>5</sup> filed against a census of defendants in District Courts in the US (1996-2018).<sup>6</sup> Details include: district, case, defendant count, filing date, and the statute alleged to have been violated. Corruption-related charges are defined based on reports from the FBI's Public Integrity Section.<sup>7</sup> Charges include, bribery, embezzlement, fraud, interference with commerce, and schemes to defraud. A complete list is in Appendix Table B1. In our robustness checks, we use an alternate measure of corruption from prior work (Cordis and Milyo (2016)). Results remain consistent.

Together, these data include 179,367 charges brought under the federal criminal code against 125,094 defendants in 91,888 cases across the 94 U.S. District Courts. Data are aggregated to the district-year level. Data on newspaper closures are drawn from the UNC News Deserts database maintained by Abernathy (2018).<sup>8</sup> As our focus is on the effect of investigative journalism, which smaller newspapers rarely have the resources for, we focus on the closure of 65 major daily newspapers (details are in Appendix Table B2). Additional data used to account for time varying factors that might correlate with both the closure of a newspaper and change in corruption are drawn from a variety of sources, including the Bureau of Labor Statistics, the Census Bureau, and the BEA. Summary statistics and correlations are in Appendix Table B3. Variable definitions and sources are in Appendix Table B4.<sup>9</sup>

---

<sup>5</sup> Among the 125,094 defendants in the data set, 89.65% had four total charges or less, suggesting that potential censoring related to unobserved sixth-or-more charges is likely a non-issue.

<sup>6</sup> Appellate Courts are not included because they are not trial courts. All corruption cases heard in these venues would necessarily have been first brought in District courts prior to appearing in higher courts.

<sup>7</sup> <https://www.justice.gov/criminal/pin>

<sup>8</sup> Our argument hinges on the assumption that these closed newspapers do provide coverage of corruption. To validate this assumption, we identified 50 of the 65 closed newspapers in the NewsBank database and searched for mentions of the word "corruption." In these newspapers, corruption was mentioned in at least one article during the observation period, accounting for ~1.1% of articles total in the closing newspapers. Among articles appearing in all other indexed newspapers in the database, only .4% mentioned corruption. This suggests that the closed newspapers did provide meaningful coverage of corruption.

<sup>9</sup> The statistical appendix can be found here: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4440544](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4440544)

### ***Variable Definitions***

**Dependent Variable:** We focus on three primary dependent variables. Consistent with prior work, we normalize the dependent variables by population (Alt and Lassen 2012, Glaeser and Saks 2006). The first is the per capita number of defendants, *Defendants*, charged in District Court in the district-year. This measure allows us to capture the number of people who have been indicted by a grand jury to a probable cause standard. The second measure is the per capita number of unique cases brought, *Cases*. As cases can have multiple defendants, this allows us to capture the total number of criminal endeavors which have been discovered and charged. Finally, *Charges*, which are the per capita number of charges that have been levied against defendants in the district-year. As a defendant might have multiple charges brought against them, this allows us to capture the scope of charging. We log these variables to interpret the effect as an elasticity.

**Independent Variables:** Consistent with prior work (Gao et al. 2020, Gentzkow et al. 2011), the independent variable of interest is *Closure*, a 0/1 indicator that a major newspaper shut down in District  $j$  at or before time  $t$ . The value is set to one the year after the district experiences a closure. The value is zero prior to that time. Sixteen of the 94 districts are affected by multiple closures. Results are consistent if closures are coded as an ordinal value. It bears note that our treatment is the closure of a major daily newspaper, which does not imply the closure of all newspapers or media outlets in a district, i.e., “total closure.” As districts are large, sometimes encompassing entire states, the totality of a district’s media outlets closing is implausible.

To complete the difference in differences, we include fixed effects for the district and year. Year fixed effects allow us to parse out general changes in the level of corruption which occur year on year across all districts. District fixed effects to capture time invariant heterogeneity regarding the level of corruption in any given location. The unit of analysis is the district court-year. There are 94 districts in the US. Due to a limited number of charges brought, the territories

of Puerto Rico, Guam, the Mariana Islands, and the US Virgin Islands are dropped.

### ***Estimation Procedure***

To estimate the effect, we exploit the closure of newspapers using the following equation:

$$y_{jt} = \beta_1 \text{Closure}_{jt} + \theta_j + \lambda_t + \epsilon$$

*Closure* indicates that a major newspaper closed in District  $j$  before time  $t$ .  $\theta_j$  and  $\lambda_t$  represent the district and time fixed effects. The unit of analysis is the district-year from 1996 - 2018. The relationship is estimated using an OLS and replicated with a PPML (Appendix Table B5). Robust standard errors are clustered on the district. Results are in Columns 1-3 of Table 1.

Before discussing our results, we note three important concerns. First, as our analysis leverages multiple treatments applied over time, there is the potential for an inverse weighting issue. This is because the estimate of the association represents the weighted average between districts that had a newspaper closure and those that did not, changes in districts that had a newspaper close earlier in the panel, and changes in districts that a newspaper close later (Goodman-Bacon 2018). This is concerning because it is possible that the relationship between newspaper closure and corruption changes over time (Callaway and Sant'Anna 2020, Goodman-Bacon 2018), in which case our estimate may be biased. To address this we replicate our estimates using a Goodman-Bacon (2018) decomposition and a Callaway and Sant'Anna (2020) estimation. Results are in Columns 4-9 of Table 1 and Appendix Figure B1.

Second, it is possible that the trends in the dependent variable across treated and untreated districts are different prior to the closure (Angrist and Pischke 2008). As such, if newspapers are closing in areas with increasing levels of corruption, our estimates would be biased. To rule this out, we employ a popular variant of the Autor (2003) leads and lags model. In doing so, we interact an indicator for when a district's closure occurs with a series of dummies capturing the relative distance in years from the treatment to the current time  $t$ . Formally:

$$y_{jt} = \sum_k \tau_k PreClosure_{jt}(k) + \beta Closure_{jt} + \sum_m \omega_m PostClosure_{jt}(m) + \theta_j + \lambda_t + \epsilon$$

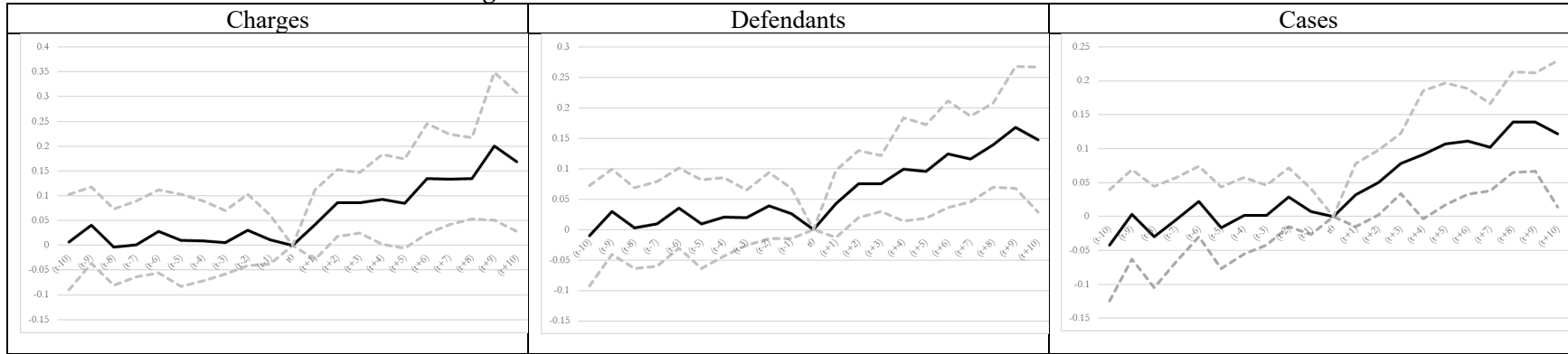
$PreClosure_{jt}(k)$  is an indicator equal to 1 if the chronological distance between newspaper closure in  $jt$  and the focal observation is  $k$  years.  $PostClosure_{jt}(m)$  is the corresponding set of post treatment dummies. To meet the assumptions of the difference in difference, there should be no heterogeneous pre-treatment trends. Indicators ten years or more (before or after treatment) are collapsed into a single indicator for interpretability. Results are in Table 2 and Figure 1.

Finally, it bears note that newspapers do not close at random. While the difference in differences is a robust identification strategy, replication in a second context greatly increases external validity. Therefore, we replicate our approach using data from Brazil, the most populous country in South America and the 12<sup>th</sup> largest by GDP in the world. Data on newspaper closures comes from the Atlas de Notícia (Atlas da Notícia 2022), which gathered data on more than 14,000 media outlets in Brazil, including 2556 daily newspapers. Of these newspapers, 65 closed between 2011-2021, affecting 14 of Brazil's 26 Federative units (states). Data on corruption comes from records the Brazilian Comptroller General; specifically the Registration of Unfaithful and Suspended Companies, which prior work has used to measure corruption (Szerman 2022). This data tracks companies and individuals who have engaged in corrupt acts with officials (e.g., bribery, fraud, obstruction of justice). The law required registration of those found guilty of such actions and prohibited those entities from participating in contracts with the government. Results are in Column 10 of Table 1 (base) and Column 4 of Table 2 (relative time).

## Results

Results in Table 1 indicate a significant and positive correlation between newspaper closure and corruption in local areas; as measured by charges (Column 1), defendants (2), and cases (3). An economic interpretation of the coefficients suggests a 6.80% increase in charges brought, a 6.04% increase in the number of defendants charged, and a 7.32% increase in the cases filed.

**Figure 1: Visualization of OLS Estimates in Relative Time**



Notes: Y-Axis, dependent variable. X-axis time. 95% Confidence Intervals Displayed.

**Table 1: Correlation Between Newspaper Closure and Corruption**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Estimator	OLS	OLS	OLS	Goodman Bacon	Goodman Bacon	Goodman Bacon	Callaway and Sant'Anna	Callaway and Sant'Anna	Callaway and Sant'Anna	OLS (Brazil)
Dependent Variable	Ln Charges	Ln Defendants	Ln Cases	Ln Charges	Ln Defendants	Ln Cases	Ln Charges	Ln Defendants	Ln Cases	Ln Cases
Closure	0.0680*	0.0604*	0.0732**	0.0680*	0.0604*	0.0732**	0.0961**	0.0696**	0.0886***	0.134+
	-0.0272	-0.0252	-0.0254	-0.0272	-0.0252	-0.0254	-0.0314	-0.027	-0.0235	(0.0667)
Observations	2,070	2,070	2,070	2,070	2,070	2,070	2,070	2,070	2,070	297
R-squared	0.953	0.959	0.96							0.794
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Unit of Analysis: District Year. Robust standard errors in parentheses (Clustered on the District). \*\*\* p<0.001, \*\* p<0.01, \* p<0.05. Estimator: OLS: Sample Years: 1996-2018.

This provides evidence that newspaper closure is associated with increases in corruption.

Results of the Goodman-Bacon (2018) decomposition and the Callaway and Sant'Anna (2020) estimations are in Columns 4-9. Recall, the purpose of these estimators is to account for bias emerging from inverse weighting. As can be seen, these estimates are nearly identical to the base estimates. Further, we note that most of the estimated relationship (83.3%) is due to comparisons of treated and untreated groups, and only 16.7% comes from variations in treatment timing. While we caution the reader, because the estimates in the tails are based on small groups, the visual representation of the Callaway model is illustrative (charges are shown in Figure B1). Figures for defendants and cases are nearly identical. Two things are immediately visible. First, we observe no demonstrable pre-treatment trends. Instead, there is a random walk above and below the x-axis. Second, there is a visible uptick after treatment, suggesting a significant change in corruption which grows over time. In sum, the consistency with our baseline analyses suggest that the differences in treatment timing does not materially bias the estimate.

We next consider results of the event study models (Table 2 and Figure 1). As can be seen, no systematic pre-treatment trends exist across the three dependent measures. This is indicated by the  $t$ -x dummies. Of the thirty-three pre-treatment estimates, none is significant, and tests of joint significance are not different from zero (all  $F$ s < .91, all  $p$ s > .54). This suggests parity across the treated and untreated groups pre-treatment. Following closure, the relationship is initially insignificant, but grows over time, becoming stable three years after treatment. This is consistent with the lag that would accompany emboldening a criminal element.<sup>10</sup> This once again suggests

---

<sup>10</sup> We conducted an exploratory analysis to investigate how long the expected lag would be between commencement of illegal activities and charging, on the assumption that corrupt actors would respond to the closure of a newspaper by beginning to commit crimes. We attempted to match dockets in the FJC data to charging documents within the CourtListener RECAP database. We identified 1383 matching cases (around 1% of all cases) and extracted all dates from the charging documents. We



that the closure of major newspapers is associated with more corruption.

**Table 2: Correlation Between Newspaper Closure and Corruption in Relative Time**

Estimator	(1)	(2)	(3)	(4)
Context	US	US	US	Brazil
Dependent Variable	Ln Charges	Ln Defendants	Ln Cases	Ln Charges
Closure (t-10+)	0.00645 (0.0493)	-0.0100 (0.0419)	-0.0426 (0.0417)	
Closure (t-9)	0.0403 (0.0394)	0.0296 (0.0356)	0.00315 (0.0338)	-0.0513 (0.145)
Closure (t-8)	-0.00391 (0.0394)	0.00259 (0.0338)	-0.0302 (0.0380)	-0.0273 (0.133)
Closure (t-7)	0.0130 (0.0391)	0.00963 (0.0356)	-0.00446 (0.0315)	-0.0414 (0.135)
Closure (t-6)	0.0282 (0.0426)	0.0353 (0.0337)	0.0219 (0.0265)	-6.33e-06 (0.109)
Closure (t-5)	0.00953 (0.0474)	0.00938 (0.0371)	-0.0170 (0.0307)	-0.0415 (0.0746)
Closure (t-4)	0.00844 (0.0411)	0.0208 (0.0328)	0.00112 (0.0288)	-0.0755 (0.0794)
Closure (t-3)	0.00593 (0.0329)	0.0199 (0.0231)	0.00171 (0.0225)	-0.0310 (0.0736)
Closure (t-2)	0.0304 (0.0367)	0.0392 (0.0277)	0.0283 (0.0222)	-0.0305 (0.0548)
Closure (t-1)	0.0116 (0.0250)	0.0266 (0.0212)	0.00710 (0.0171)	0.0121 (0.0656)
Closure (t0)	Omitted from the Estimation			
Closure(t+1)	0.0416 (0.0360)	0.0425 (0.0282)	0.0316 (0.0238)	0.103 -0.0882
Closure(t+2)	0.0853* (0.0343)	0.0749** (0.0281)	0.0500* (0.0244)	0.161 -0.0952
Closure(t+3)	0.0856** (0.0311)	0.0757** (0.0236)	0.0783*** (0.0227)	0.280* -0.112
Closure(t+4)	0.0926* (0.0465)	0.0992* (0.0432)	0.0911+ (0.0482)	0.279* -0.127
Closure(t+5)	0.0842+ (0.0462)	0.0958* (0.0393)	0.107* (0.0460)	0.246+ -0.133
Closure(t+6)	0.135* (0.0567)	0.124** (0.0449)	0.111** (0.0397)	0.243* -0.102
Closure(t+7)	0.133** (0.0464)	0.116** (0.0358)	0.102** (0.0327)	
Closure(t+8)	0.135** (0.0419)	0.139*** (0.0353)	0.139*** (0.0377)	
Closure(t+9)	0.200* (0.0761)	0.168** (0.0511)	0.139*** (0.0369)	
Closure(t+10+)	0.168* (0.0712)	0.148* (0.0608)	0.122* (0.0551)	
Observations	2070	2070	2070	297
R-squared	0.953	0.959	0.96	0.807
District Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes

Unit of Analysis: Location-Year. Robust standard errors in parentheses (Clustered on the District). \*\*\* p<0.001, \*\* p<0.01, \* p<0.05. Estimator: OLS: Sample Years: 1996-2018 (US) 2011-2021 (Brazil).

Finally, we turn to our estimates in the Brazilian context. Once again, results remain consistent. In the base estimation (Column 10 of Table 1), we observe a significant and positive correlation between the closure of a daily newspaper and the number of corruption charges brought by Brazilian prosecutors in that location.<sup>11</sup> Similarly, in the relative time estimates

then identified the earliest date and latest dates and subtracted these from the known charging date. The average time period from the beginning of the illegal activity (as defined by the earliest extracted date) to charging (as recorded in the FJC database) was roughly nine years, while the time from the of the last illegal activity to charging was on average 1.75 years. This is consistent with the findings of the relative time model, where there is substantial lag between closure and the measurable increase in corruption. We thank an anonymous reviewer for this suggestion.

<sup>11</sup> Note that the Brazilian data do not permit us to capture either charges brought or the count of defendants charged.

(Column 4 of Table 2), we observe no significant pre-treatment trends, and a significant correlation with the number of cases brought after treatment. This suggests that the association between newspaper closure and increases in corruption is not a US only phenomenon.

### Robustness Checks

While the above provides strong *prima facie* evidence of the correlation between declining investigative journalism spurred by the internet and corruption, alternate explanations can be proposed. In what follows, we subject our results to a battery of falsification tests. A summary of the tests is in Table 3. A full description is in Appendix B. We briefly discuss each.

**Table 3: Summary of Robustness Checks**

Alternative Explanation	Test	Finding
Treatment effect heterogeneity due to variation in timing and dispersion in geography	Event study model to test how effect evolves over time	Significant positive effects observed following closure that are consistent (Table 2, Figure 1).
	Goodman-Bacon decomposition for inverse weighting	Results remain consistent (Table 1).
	Callaway and Sant’Anna estimation	Results remain consistent (Table 1, Figure B1).
Potential endogeneity of the treatment and outcome within U.S. system	Replicate analysis using administrative data from Brazil	Results remain consistent (Tables 1 and 2) in replication.
Time varying social, economic, and governmental factors are correlated with newspaper closure and causing the increase in crime.	Include relevant time varying controls relating to the local news environment, economics, governance, social media use, and prosecutorial resources	Results (Table B6) remain consistent.
Effects may be due to the set of crimes classified as corruption	Replicate estimations using the set of consolidated crimes from Cordis and Milyo (2016)	Results (Table B7) remain consistent.
US Attorney’s Office is increasing its aggressiveness in a manner which is spuriously correlated with newspaper closure	Replicate the estimations with placebo crimes (drug related crimes) which should not be influenced by newspaper closure	No significant relationship between newspaper closure and drug offenses is observed (Table B8).
Corruption is causing newspapers to close, i.e. reverse causality	Examine pre-treatment trends to determine if the effect manifests before closure	No significant pre-treatment differences detected (Table 2)
	Regress closure on corruption measures using a hazard model	No consistent effects of correlation between corruption measures and the closure of newspapers (Table B9)
	Replicate analysis using administrative data from Brazil	Obtain consistent results (Tables 1 and 2) in replication.
Serial correlation in the standard errors	Random treatment test	Pseudo treatments are clustered around zero and actual treatment is well outside the 95% confidence interval (Figures B2(a) – B2(f)).
	Include lags in the estimation as proposed by Bertrand et al (2004)	Results (Table B10) remain consistent.
Prosecutors alter behavior to prosecute different crimes after newspaper closure.	Investigate changes in penalties as defined by average prison time, probationary period, and fine	No significant change in penalties accrued by defendants (Table B11).

First, to the extent that time varying factors correlated with closure and corruption would result in an omitted variable bias we include a series of time varying controls. These include controls regarding news generation, economic issues, governance, social media use, and the US

Attorney's office. Results are in Table B6 and remain consistent. Second, while the charges included in our measure of corruption follows from the FBI, it is worth considering alternate approaches to demonstrate that the estimate is not dependent on the charges used. We thus replicate our estimations using the definition contained in Cordis and Milyo (2016). Results are in Table B7 and remain consistent. A third check explores placebos. While our interviews suggest corruption is consistently a top priority, it is conceivable that newspaper closure correlates with a generally more aggressive US Attorney's office (Boylan and Long 2003). We thus replicate our estimations using drug crimes, the most common crime in federal courts, which should be uncorrelated with corruption levels (Campante et al. 2013). Results are in Table B8 and indicate no material change in the number of drug charges brought, defendants charged, or cases indicted. This suggests prosecutors are not altering their behavior.

A fourth concern relates to reverse causality. It is possible, for example, that spikes in corruption are driving newspaper closure rather than vice versa. To investigate this, we estimate a logit hazard model with newspaper closure as the DV. Results are in Table B9 and indicate corruption is not positively correlated with closure. A fifth concern relates to structural issues in a two-way fixed effect estimation. Scholars have noted that such estimates can deflate standard errors (Bertrand et al. 2004). To probe this possibility, we employ two approaches. The creation of pseudo treatments and the inclusion of lags in the estimates (Figure B2 and Table B10). Both approaches indicate that serially correlated standard errors are not a material concern.

Our final concern relates to prosecutorial discretion and the possibility that prosecutors are changing the severity of corruption pursued, i.e., charging less severe cases. To investigate this possibility, we examine outcomes in the form of average prison sentences, fines, and so forth. Results are in Table B11 and indicate no significant change in penalties. This suggests that

prosecutors are not changing their targets among cases they pursue.

To further explore the mechanism between newspaper closures and corruption, we conducted a series of additional analyses. However, as noted in Appendix C of the online supplement, we find null effects, suggesting that the selection and auditing mechanisms do not explain the relationship. Due to data limitations, we were not able to identify strong evidence for a risk adjustment by corrupt actors following closure. We return to this as an area for future research in the general discussion.

### **Empirical Extensions – Digital Newsvendors**

The above suggests that the closure of newspapers is strongly correlated with increased levels of corruption. This prompts the question of what solutions might exist. Prior work suggests several plausible alternatives. First, many journalists have left shuttered newspapers and moved to nonprofit investigative reporting centers (Lanosga and Houston 2017). These organizations rely on donations or grants to fund investigations (Bonica 2013). To investigate this possibility, we gather data from the Institute for Nonprofit News and match a center's opening to the federal district-year based on location. The second possibility is online-only news sites. While some digital news sites are of high quality, many of these outlets merely appear like a traditional newspaper, instead providing partisan content (i.e. "pink slime;" (Bengani 2019)). These sites usually operate using content produced elsewhere, presented alongside opinion pieces and repackaged press releases (Mahone and Napoli 2020). We gather data on high quality digital news organizations from Project News Oasis and low quality ("pink slime") sites Mahone and Napoli (2020). We also include locally-focused news competitors and aggregators, viz. Craigslist and Patch.com. Five new treatments are then created (*Non-Profit News*, *Project News Oasis*, *Online Only News*, *Craigslist*, and *Patch*), corresponding to the opening of each of these types of sites in the district-year.

Results are in Table 4. As can be seen in Columns 1-3, the association between closure and local corruption persists when these covariates are added. Further, we observe no systemic relationship between the opening of any of these online-focused competitors and corruption. This is not surprising, given the amateurism which characterizes much of online reporting (Anderson et al. 2015, Miller 2018), as well as the hyper-partisan nature of online content (Bengani 2019). Still, it is concerning because it undermines the case put forward within the information systems community, i.e., that a democratized press can resolve the issues which emanate from the closure of newspapers. Taken in sum, these findings suggest that neither non-profit news centers nor online news vendors have a significant statistical relationship with corruption.

**Table 4: Correlation Between Digital News Sources and Corruption**

	(1) Ln Cases	(2) Ln Defendants	(3) Ln Cases
Closure	0.0727* (0.0277)	0.0632* (0.0259)	0.0762** (0.0259)
Online only "Local" news	0.000674 (0.0508)	-0.0221 (0.0441)	-0.0369 (0.0453)
Project News Oasis	-0.0245 (0.0258)	-0.0115 (0.0233)	-0.0172 (0.0215)
Craigslist	0.0340 (0.0270)	0.0224 (0.0237)	0.0118 (0.0207)
Nonprofit News	-0.0558 (0.0440)	-0.0576 (0.0414)	-0.0398 (0.0399)
Patch	0.0474+ (0.0276)	0.0291 (0.0240)	0.0162 (0.0218)
Observations	2,070	2,070	2,070
R-squared	0.953	0.959	0.960
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes

Unit of Analysis: District Year. Robust standard errors in parentheses (Clustered on the District). \*\*\* p<0.001, \*\* p<0.01, \* p<0.05. Estimator: OLS: Sample Years: 1996-2018.

## Discussion

In this work, we examined the downstream implications of one of the great casualties of the rise of the internet: the demise of the newspaper industry. While the implications of digitization has been a focus of IS scholarship for years, ranging from the changing nature of work (Gopal and Koka 2009) to issues of public health and safety (Chan and Ghose 2014, Liu and Bharadwaj 2020, Park et al. 2021), limited attention has been devoted to the changing nature of news

generation, with few notable exceptions (Gao et al. 2020, Jiang and Kong 2021).

Results suggest two key findings. First, the closure of a major newspaper is associated with a significant rise in corruption in areas where that paper operated. Second, we observe no evidence that any of the contemporary approaches to news distribution through democratization have been able to temper or reverse the change in corruption. This raises the question of why. Exploratory analysis (Appendix C) provides some suggestive evidence of the media's agenda setting role, but further scholarship is needed to understand the mechanism.

### ***Contributions to IS Scholarship***

We make two contributions to IS scholarship. First, we contribute to the corpus of work on the societal effects of digitization. While scholars have extensively examined the after effects of information systems adoption, including online posting boards (Chan and Ghose 2014, Chan et al. 2019), transportation network firms (Burtch et al. 2018, Greenwood and Wattal 2017, Liu et al. 2018, Park et al. 2021), crowdfunding (Agrawal et al. 2013, Burtch and Chan 2014, Kim and Hann 2019, Rhue and Clark 2016), and peer-to-peer marketplaces (Ozer et al. 2019, Wang and Overby 2017); little attention has been given to the downstream implications of hollowing of institutional media. And what research has focused on the effects of media has largely focused on the decline of newspapers overall (George and Waldfogel 2006, Greenwood and Gopal 2015, Seamans and Zhu 2013), rather than the societal implications of that decline. This is striking given the importance of a robust free press to the function of a stable democracy and the degree to which citizens engage with news media each day (Kim and Dennis 2019). In doing so, we respond to calls to better understand how digitization is influencing consumer welfare (Brynjolfsson et al. 2018) and the changing dynamics of media, politics, and policy (Aral et al. 2013, Lucas et al. 2013, Miranda et al. 2016, Wattal et al. 2010).

We further contribute to recent scholarship on news media. Once again, findings are rich and

varied, including investigations into how social media has influenced the sharing of traditional media content (Aral and Zhao 2019), the varied impacts of *de novo* classified ad providers (Djourelouva et al. 2021, Liu and Bharadwaj 2020, Seamans and Zhu 2013), and the burgeoning body of research on fake news (Kim and Dennis 2019, Kim et al. 2019, Wang et al. 2018). We push this body of work forward exploring the relationship between the fall of the institutional press, as precipitated by the internet, and a deleterious societal outcome: corruption.

### ***Implications for IS Scholarship***

Our findings highlight three paths forward for IS scholarship. First, there is an evident need to devote future scholarship to uncovering the mechanisms behind the observed relationships. And while the inability to detect the precise mechanism, or mechanisms, curtails the scope of the practical implications of this work, it also offers rich opportunities for future IS media scholars.

Second, it is evident that the faltering economic incentives to engage in regional media are problematic. To the extent that the increased reach of major newspapers creates local information blindness for consumers, and is subsequently correlated with increases in corruption, there is a need for scrutiny in markets with a failing institutional press. At least three potential approaches exist: shared models of content creation across news organizations, increasing the efficacy of digital journalism by upskilling digital reporters, or abdication. As the shared content model already exists through the various newswires (e.g., AP, Reuters), there is proof of concept that collaborative content generation works; notably under groups like the Independent Consortium for Investigative Journalism, who uncovered immense schemes to defraud the public (e.g., The Panama Papers, The Pandora Papers). Yet, this model has apparently had limited success at the local level. Such *de novo* investigative bodies could be wholly owned by papers in the form of satellite offices or take the form of independent contractors who are supported based on output. These ownership issues aside, there is an evident need for a deeper understanding of how to

resolve the paucity of local coverage by effectively pooling resources or increasing the quality of content provided through digital outlets (again, either by upskill digital journalists or incentivizing national newsvendors like *USA Today* to seriously investigate local issues).

The second path for IS scholars to consider is the effective democratization of labor. Considerations of democratization, to date, have included both skilled knowledge work (e.g., coding, online lending) and unskilled labors (e.g., Mechanical Turk, crowdsourcing) (Burtch et al. 2014, Kim and Hann 2019, Lin et al. 2022, Lu et al. 2021); with a clear bias towards contexts which exhibit a significant effect, i.e. the file drawer problem. Yet, the absence of a relationship in our context suggests boundary conditions in the efficacy of democratized labor. This underscores the need for work on three paths. First, theoretical work on the conditions under which democratizing will succeed and fail in skilled and unskilled labor markets. Second, conditions when it makes sense for decision makers (managers or policy makers) to invest in upskilling democratized labor. Third, conditions under which the skills gap across democratized and professional labor has no material effect on the quality of output. It is evident, democratized journalism can shape public discourse. The release of videos showing the murders of George Floyd and Ahmaud Arbery illustrate how potent this can be. Yet, merely having this information available is rarely sufficient, and additional labor is required to provide context and help audiences understand the implications of information. It is critical for IS scholars to better understand the boundary conditions under which such effects are likely to manifest.

### ***Practical Implications***

Important implications for newsvendors, policy makers, and the public at large, extend from this work even absent a definitive mechanism. For policy makers, to the degree that newsrooms have been scaled back, and with them coverage of local corruption (Djourelouva et al. 2021), it is clear that there is an issue in providing local news to the public (Hindman 2008). At the same time,



there has been a shift in attention to national issues (Hindman 2011, Trussler 2020), further exacerbating the risks associated with local news being usurped by national media providers whose reach has been facilitated by the internet. As a result, there is an evident need for public policy to incentivize local journalism, with guidance from IS researchers on how the internet may facilitate the gathering and dissemination of this information. This could come in numerous forms. To the extent that newspapers have historically run multiple versions based on location (e.g., the domestic and international editions of the *Times*), and to the degree global content is produced through standardized news wires (e.g., the AP, Reuters, or UPI), the proof of concept is largely in place, though further refinement of these models is evidently needed in the digital age.

For newsvendors, as discussed, there is a need for more effective models of content creation in media markets which are now underserved. Managers at media vendors have several options: to collaborate across organizations to service news deserts at lower costs, develop lower cost means of monitoring and reporting, or to wait for government intervention. With the extent of recent consolidation in news media, it is surprising that collaboration between organizations remains a challenge. Still, tools may facilitate collaboration despite greater organizational distance, e.g., digital marketplaces for news. To reduce costs of monitoring and reporting, IT may provide tools to do so, yet it has not led to a meaningful change in the ability to cover underserved areas. This suggests that technology alone is insufficient to address the underlying issues, and that significant human capital is required in the journalistic process. Thus, managers of news production need to either upskill workers or devise new ways to farm data from them.

Intervention from the state is also a path with potential. Intuitively, this is already ongoing because criminals are being apprehended by the Department of Justice, rather than being deterred by the free press. But given the expense of federal investigations, the current status quo is likely

an inefficient allocation of public resources. Insofar as the press has continuously been subsidized since its inception, one possible remedy is for direct subsidy from Congress to bridge the cost of covering those areas. However, this form of collaboration is risky, as it requires the free press to become state subsidized, which carries with it other risks.

### ***Limitations***

This work is not without limitations and represents only a sliver of the potential downstream implications of the shuttering of the newspaper industry (thereby making it wholly inappropriate to make any broad conclusion about welfare from this research alone). First, we cannot observe the mechanism underpinning the associations we uncover in this work. This offers a clear path forward for future scholars. We also cannot observe the true rate of corruption – we can only proxy it based on charges that are filed. This limitation would be more concerning if the number of charges being filed decreased after a newspaper closed, because we would be unable to differentiate between a falling level of crime and a dependence upon reporters to uncover crime. However, given that the number of charges is increasing it suggests that our results are, if anything, conservative. Second, although we focus on newspapers as a proxy for coordinated investigatory human capital, we cannot see the amount of human capital which persists after closure. While results are consistent when controlling for the number of journalists and journalist wages, the question of if those journalists continue their work with other information vendors, such as television, is outstanding. To the extent that newspapers have a reputation for more serious and impactful reporting than televised news (Brians and Wattenberg 1996), this should not be an issue. Third, we are unable to observe the resources devoted to uncovering each crime, and whether that is changing. Intuitively, the cost of discovery will be the sum of the costs accrued by federal and local law enforcement. To calculate costs, we would need budgetary information from these sources. We have been unable to find any reliable sources of data, which

is unsurprising given their sensitivity.

Fourth, we do not consider the effect of television news. This is a function of three general facts. The first is that local television news is largely stable (an affiliate for CBS, NBC, ABC, and Fox being available in almost all media markets), meaning that consumers in these markets experience little disruption. Second, the degree of investigative journalism conducted across newspapers and television is different (as evidenced by Pulitzer Prizes, Peabody Awards, etc.). While serious journalism does exist in shows like 60 Minutes, or by broader national syndicates, television news coverage is constrained in the space available for content relative to print media, thus limiting its ability to provide information (Robinson and Davis 1990). Third, much of local news coverage is mixed with commercial content, and cross-promotions with other station shows of limited news value (Wood et al. 2004). Taken together, these factors suggest that the effects of the journalism provided by print media would be different from television news. This, once again, offers rich opportunities for scholars in the digital age.

## **Conclusion**

The proliferation of communication platforms has fundamentally altered how individuals share information, but its second-order effects remain understudied. We find evidence of one such impact, a rise of corruption after the shuttering of local newspapers. Yet, the solutions proposed to these issues, such as democratizing the press, have not delivered on their promise. This highlights the importance of the fourth estate in checking corruption, and the need for innovation in the design of information systems to support these institutions.

## **References**

- Abernathy, P.M. 2018. *The Expanding News Desert*. Center for Innovation and Sustainability in Local Media, School of Media and Journalism, UNC Chapel Hill.
- Agrawal, A.K., Catalini, C., Goldfarb, A. 2013. *Some Simple Economics of Crowdfunding*. National Bureau of Economic Research.
- Albanese, J.S., Artello, K. 2019. The Behavior of Corruption: An Empirical Typology of Public Corruption by Objective & Method. *Criminology, Crim. Just. L & Soc'y*. 20 1.
- Alt, J.E., Lassen, D.D. 2003. The Political Economy of Institutions and Corruption in American

- States. *Journal of Theoretical Politics*. 15(3) 341-365.
- Alt, J.E., Lassen, D.D. 2008. Political and Judicial Checks on Corruption: Evidence from American State Governments. *Economics & Politics*. 20(1) 33-61.
- Alt, J.E., Lassen, D.D. 2012. Enforcement and Public Corruption: Evidence from the American States. *The Journal of Law, Economics, and Organization*. 30(2) 306-338.
- Anderson, C.W., Bell, E., Shirky, C. 2015. Post-Industrial Journalism: Adapting to the Present. *Geopolitics, history & international relations*. 7(2).
- Angelucci, C., Cagé, J. 2019. Newspapers in Times of Low Advertising Revenues. *American Economic Journal: Microeconomics*. 11(3) 319-364.
- Angrist, J.D., Pischke, J.-S. 2008. *Mostly Harmless Econometrics: An Empiricist's Companion*.
- Aral, S., Dellarocas, C., Godes, D. 2013. Introduction to the Special Issue-Social Media and Business Transformation: A Framework for Research. *Information Systems Research* 24(1) 13.
- Aral, S., Zhao, M. 2019. Social Media Sharing and Online News Consumption. Available at SSRN 3328864.
- Autor, D.H. 2003. Outsourcing at Will: The Contribution of Unjust Dismissal Doctrine to the Growth of Employment Outsourcing. *Journal of labor economics*. 21(1) 1-42.
- Benediktsson, M.O. 2010. The Deviant Organization and the Bad Apple Ceo: Ideology and Accountability in Media Coverage of Corporate Scandals. *Social Forces*. 88(5) 2189-2216.
- Bengani, P. 2019. Hundreds of “Pink Slime” Local News Outlets Are Distributing Algorithmic Stories and Conservative Talking Points. *Columbia Journalism Review*.
- Bertrand, M., Duflo, E., Mullainathan, S. 2004. How Much Should We Trust Differences-in-Differences Estimates? *The Quarterly Journal of Economics* 249-275.
- Bologna, J. 2017. Corruption, Product Market Competition, and Institutional Quality: Empirical Evidence from the Us States. *Economic Inquiry*. 55(1) 137-159.
- Bonica, A. 2013. Ideology and Interests in the Political Marketplace. *American Journal of Political Science*. 57(2) 294-311.
- Boylan, R.T., Long, C.X. 2003. Measuring Public Corruption in the American States: A Survey of State House Reporters. *State Politics & Policy Quarterly*. 3(4) 420-438.
- Brians, C.L., Wattenberg, M.P. 1996. Campaign Issue Knowledge and Salience: Comparing Reception from Tv Commercials, Tv News and Newspapers. *American Journal of Political Science* 172-193.
- Brynjolfsson, E., Diewert, W.E., Eggers, F., Fox, K.J., Gannamaneni, A. 2018. *The Digital Economy, Gdp and Consumer Welfare: Theory and Evidence*.
- Burtch, G., Carnahan, S., Greenwood, B.N. 2018. Can You Gig It? An Empirical Examination of the Gig-Economy and Entrepreneurial Activity. *Management Science*. 64(12) 5497-5520.
- Burtch, G., Chan, J. 2014. Reducing Medical Bankruptcy through Crowdfunding: Evidence from Giveforward.
- Burtch, G., Ghose, A., Wattal, S. 2014. Cultural Differences and Geography as Determinants of Online Pro-Social Lending. *MIS Quarterly*. 38(3) 773-794.
- Callaway, B., Sant’Anna, P.H. 2020. Difference-in-Differences with Multiple Time Periods. *Journal of Econometrics*.
- Campante, F.R., Do, Q.-A., Guimaraes, B.V. 2013. *Isolated Capital Cities and Misgovernance: Theory and Evidence*. National Bureau of Economic Research.
- Carpenter, S. 2010. A Study of Content Diversity in Online Citizen Journalism and Online Newspaper Articles. *New Media & Society*. 12(7) 1064-1084.
- Chan, J., Ghose, A. 2014. Internet’s Dirty Secret: Assessing the Impact of Online Intermediaries

- on Hiv Transmission. *MIS Quarterly*. 38(4) 955-976.
- Chan, J., Mojumder, P., Ghose, A. 2019. The Digital Sin City: An Empirical Study of Craigslist's Impact on Prostitution Trends. *Information Systems Research*. 30(1) 219-238.
- Cho, D., Smith, M.D., Zentner, A. 2016. Internet Adoption and the Survival of Print Newspapers: A Country-Level Examination. *Information Economics and Policy*. 37 13-19.
- Claussen, J., Ferreira, P., Grad, T., Sen, A. 2021. (How) Does Ugc Impact Professionals? Evidence from Local News. *Evidence from Local News (April 26, 2021)*.
- Clemons, E.K., Gu, B., Lang, K.R. 2002. Newly Vulnerable Markets in an Age of Pure Information Products: An Analysis of Online Music and Online News. *Journal of Management Information Systems*. 19(3) 17-41.
- Cordis, A.S., Milyo, J. 2016. Measuring Public Corruption in the United States: Evidence from Administrative Records of Federal Prosecutions. *Public Integrity*. 18(2) 127-148.
- Cordis, A.S., Warren, P.L. 2014. Sunshine as Disinfectant: The Effect of State Freedom of Information Act Laws on Public Corruption. *Journal of Public Economics*. 115 18-36.
- Coronel, S. 2010. Corruption and the Watchdog Role of the News Media. *Public sentinel: News media and governance reform* 111-136.
- Cui, R., Li, J., Zhang, D.J. 2016. Discrimination with Incomplete Information in the Sharing Economy: Field Evidence from Airbnb.
- Dearing, J.W., Rogers, E.M., Rogers, E. 1996. *Agenda-Setting*. Sage.
- Dellarocas, C., Katona, Z., Rand, W. 2013. Media, Aggregators, and the Link Economy: Strategic Hyperlink Formation in Content Networks. *Management Science*. 59(10) 2360-2379.
- Dewan, S., Ramaprasad, J. 2012. Research Note-Music Blogging, Online Sampling, and the Long Tail. *INFORMATION SYSTEMS RESEARCH*. 23(3) 1056-1067.
- Djourelouva, M., Durante, R., Martin, G. 2021. The Impact of Online Competition on Local Newspapers: Evidence from the Introduction of Craigslist.
- Ettema, J.S., Glasser, T.L., Glasser, T. 1998. *Custodians of Conscience: Investigative Journalism and Public Virtue*. Columbia University Press.
- Gao, P., Lee, C., Murphy, D. 2020. Financing Dies in Darkness? The Impact of Newspaper Closures on Public Finance. *Journal of Financial Economics*. 135(2) 445-467.
- Gentzkow, M. 2014. Trading Dollars for Dollars: The Price of Attention Online and Offline. *American Economic Review*. 104(5) 481-488.
- Gentzkow, M., Shapiro, J.M., Sinkinson, M. 2011. The Effect of Newspaper Entry and Exit on Electoral Politics. *American Economic Review*. 101(7) 2980-3018.
- George, L.M., Waldfogel, J. 2006. The New York Times and the Market for Local Newspapers. *American Economic Review*. 96(1) 435-447.
- Glaeser, E.L., Saks, R.E. 2006. Corruption in America. *Journal of Public Economics*. 90(6-7) 1053-1072.
- Goodman-Bacon, A. 2018. *Difference-in-Differences with Variation in Treatment Timing*. National Bureau of Economic Research.
- Gopal, A., Koka, B.R. 2009. Determinants of Service Quality in Offshore Software Development Outsourcing. *Information Systems Outsourcing* 497-523.
- Greenwood, B.N., Gopal, A. 2015. Tigerblood: Newspapers, Blogs, and the Founding of Information Technology Firms. *INFORMATION SYSTEMS RESEARCH*. 26(4) 812 - 828.
- Greenwood, B.N., Wattal, S. 2017. Show Me the Way to Go Home: An Empirical Investigation of Ridesharing and Motor Vehicle Fatalities. *MIS Quarterly*. 41(1) 163-187.
- Hamilton, J.F. 2016. Hybrid News Practices. *The SAGE handbook of digital journalism*. 164-178.

- Hayes, D., Lawless, J.L. 2021. *News Hole: The Demise of Local Journalism and Political Engagement*. Cambridge University Press.
- Hindman, E.B. 2008. Black Eye: The Ethics of Cbs News and the National Guard Documents. *Journal of Mass Media Ethics*. 23(2) 90-109.
- Hindman, M. 2011. Less of the Same. *Washington, DC: FCC*.
- Hirano, S., Snyder, J.M. 2014. Primary Elections and the Quality of Elected Officials. *Quarterly Journal of Political Science*. 9(4) 473-500.
- Horton, J.J. 2015. The Tragedy of Your Upstairs Neighbors: Is the Airbnb Negative Externality Internalized?
- Jiang, J.X., Kong, J. 2021. Green Dies in Darkness? Environmental Externalities of Newspaper Closures. *Environmental Externalities of Newspaper Closures (February 4, 2021)*.
- Kahn, K.F. 1993. Incumbency and the News Media in Us Senate Elections: An Experimental Investigation. *Political Research Quarterly*. 46(4) 715-740.
- Kim, A., Dennis, A.R. 2019. Says Who? The Effects of Presentation Format and Source Rating on Fake News in Social Media. *MIS Quarterly*. 43(3).
- Kim, A., Moravec, P.L., Dennis, A.R. 2019. Combating Fake News on Social Media with Source Ratings: The Effects of User and Expert Reputation Ratings. *Journal of Management Information Systems*. 36(3) 931-968.
- Kim, K., Hann, I.-H. 2019. Crowdfunding and the Democratization of Access to Capital—an Illusion? Evidence from Housing Prices. *Information Systems Research*. 30(1) 276-290.
- Kitchens, B., Johnson, S.L., Gray, P. 2020. Understanding Echo Chambers and Filter Bubbles: The Impact of Social Media on Diversification and Partisan Shifts in News Consumption. *MIS Quarterly*. 44(4).
- Lanosga, G., Houston, B. 2017. Spotlight: Journalists Assess Investigative Reporting and Its Status in Society. *Journalism Practice*. 11(9) 1101-1120.
- Larreguy, H., Marshall, J., Snyder Jr, J.M. 2020. Publicising Malfeasance: When the Local Media Structure Facilitates Electoral Accountability in Mexico. *The Economic Journal*. 130(631) 2291-2327.
- Lin, M., Sias, R.W., Wei, Z. 2022. Experts Vs. Non-Experts in Online Crowdfunding Markets. *Georgia Tech Scheller College of Business Research Paper(18-22)*.
- Liu, J., Bharadwaj, A. 2020. Drug Abuse and the Internet: Evidence from Craigslist. *Management Science*. 66(5) 2040-2049.
- Liu, M., Brynjolfsson, E., Dowlatabadi, J. 2018. *Do Digital Platforms Reduce Moral Hazard? The Case of Uber and Taxis*. National Bureau of Economic Research.
- Lu, K., Wei, Z., Chan, T.Y. 2021. Information Asymmetry among Investors and Strategic Bidding in Peer-to-Peer Lending. *INFORMATION SYSTEMS RESEARCH*.
- Lucas, H., Agarwal, R., Clemons, E.K., El Sawy, O.A., Weber, B. 2013. Impactful Research on Transformational Information Technology: An Opportunity to Inform New Audiences. *MIS Quarterly* 371-382.
- Mahone, Napoli. 2020. Hundreds of Hyperpartisan Sites Are Masquerading as Local News. This Map Shows If There's One near You. *The Nieman Lab*(July 13, 2020).
- Mauro, P. 1995. Corruption and Growth. *The Quarterly Journal of Economics*. 110(3) 681-712.
- Meier, K.J., Holbrook, T.M. 1992. " I Seen My Opportunities and I Took'em:" Political Corruption in the American States. *The Journal of Politics*. 54(1) 135-155.
- Miller, J. 2018. News Deserts: No News Is Bad News. *Urban policy* 59-76.
- Miranda, S.M., Young, A., Yetgin, E. 2016. Are Social Media Emancipatory or Hegemonic?

- Societal Effects of Mass Media Digitization in the Case of the Sopa Discourse. *MIS Quarterly*. 40(2) 303-329.
- Olken, B.A. 2009. Corruption Perceptions Vs. Corruption Reality. *Journal of Public Economics*. 93(7-8) 950-964.
- Ozer, G.T., Greenwood, B., Gopal, A. 2019. *Digital Platforms and Women's Health: An Analysis of Peer-to-Peer Lending and Abortion Rates*. Academy of Management 10510.
- Park, J., Pang, M.-S., Kim, J., Lee, B. 2021. The Deterrent Effect of Ride-Sharing on Sexual Assault and Investigation of Situational Contingencies. *INFORMATION SYSTEMS RESEARCH*.
- Park, K., Seamans, R., Zhu, F. 2018. Multi-Homing and Platform Strategies: Historical Evidence from the Us Newspaper Industry. *Harvard Business School Technology & Operations Mgt. Unit Working Paper*(18-032).
- Peterson, E. 2021. Paper Cuts: How Reporting Resources Affect Political News Coverage. *American Journal of Political Science*. 65(2) 443-459.
- Rhue, L., Clark, J. 2016. Who Gets Started on Kickstarter? Racial Disparities in Crowdfunding Success.
- Richey, S. 2010. The Impact of Corruption on Social Trust. *American Politics Research*. 38(4) 676-690.
- Seamans, R., Zhu, F. 2013. Responses to Entry in Multi-Sided Markets: The Impact of Craigslist on Local Newspapers. *Management Science*. 60(2) 476-493.
- Snyder, J.M., Strömberg, D. 2010. Press Coverage and Political Accountability. *Journal of Political Economy*. 118(2) 355-408.
- Szerman, C. 2022. The Employee Costs of Corporate Debarment in Public Procurement. *American Economic Journal: Applied Economics*.
- Trussler, M. 2020. The Effects of High - Information Environments on Legislative Behavior in the Us House of Representatives. *Legislative Studies Quarterly*.
- Turkel, E., Saha, A., Owen, R.C., Martin, G.J., Vasserman, S. 2021. A Method for Measuring Investigative Journalism in Local Newspapers. *Proceedings of the National Academy of Sciences*. 118(30).
- Wang, H., Overby, E.M. 2017. How Does Online Lending Influence Bankruptcy Filings? Evidence from a Natural Experiment.
- Wang, S.A., Pang, M.-S., Pavlou, P.A. 2018. 'Cure or Poison?'Identity Verification and the Spread of Fake News on Social Media. *Fox School of Business Research Paper*(18-040).
- Wattal, S., Schuff, D., Mandviwalla, M., Williams, C.B. 2010. Web 2.0 and Politics: The 2008 Us Presidential Election and an E-Politics Research Agenda. *MIS Quarterly*. 34(4) 669-688.
- Wood, M.L., Nelson, M.R., Cho, J., Yaros, R.A. 2004. Tonight's Top Story: Commercial Content in Television News. *Journalism & Mass Communication Quarterly*. 81(4) 807-822.
- Zervas, G., Proserpio, D., Byers, J.W. 2017. The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry. *Journal of Marketing Research*. Forthcoming.